Biological Resources Assessment Report

Haystack Development Project, Petaluma, CA

SONOMA COUNTY, CALIFORNIA

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1.0 INTRODUCTION

On February 23, March 17, and April 11, 2017 WRA, Inc. performed an assessment of biological resources at 215 Weller Street (Haystack Project Area) in Petaluma, Sonoma County, California (Figure 1). The purpose of this biological resources assessment is to provide an analysis of biological communities and special-status species issues pertaining to the Haystack Project activities. The Haystack Project Area contains a warehouse and areas of open undeveloped field, gravel, and pavement areas (Figure 2). Drainage for the project will connect to an existing storm drain that runs from Weller Street to an outfall into the Petaluma River (Figure 3), however, the river outfall is not part of the project.

Based on current information from database searches, this report describes the results of the site visit, which assessed the Project Areas for: (1) potential to support special-status species; and (2) presence of other sensitive biological resources protected by local, state, and federal laws and regulations.

The biological resources assessment provides general information on the potential presence of sensitive species and habitats. The biological assessment is not an official protocol-level survey for listed species that may be required for project approval by local, state, or federal agencies. This assessment is based on information available at the time of the study and on site conditions that were observed on the dates of the site visits.

1.1 General Project Area Description

The Haystack Project Area is located west of Highway 101 and east of the Petaluma River along Weller Road, in downtown Petaluma, Sonoma County, California (Figure 1). The Project Area ranges in elevation from approximately 10 feet above mean sea level and consists of an open lot areas, ruderal field, and some development. It is bounded by high density business development to the north, west, and east with open area to the south. The proposed Haystack Project consists of approximately 4.14 acres that will be a mixed use development of commercial and retail space on the ground floor and residential home apartment units on three upper floors; a portion of the residential units will be reserved for low-income residents. The project property has been developed and redeveloped for over 100-years, mainly for use as various rail transportation, storage, and related light industrial purposes. In its existing condition, most of the site has been cleared and, except for a warehouse building[1], the property is vacant and consists of open field with paved, gravel, and ruderal vegetated areas (Figure 2). These areas on the site are used for parking with granted permission and awareness from ownership. The project proposes to drain storm water through a culvert pipe in an existing storm drain corridor that runs west of Weller Street. The new culvert pipe will partially replace the existing drainage pipe in that corridor, but will connect to the existing storm drain pipe approximately 30 feet before reaching the outfall into the Petaluma River (Figure 3). Therefore, the existing outfall at the Petaluma River will not be affected and will result in no habitat impacts to the Petaluma River shoreline, including its tidal wetlands.

[1] A second existing warehouse is present on the site, however this property is under separate ownership and is not part of the project subject to this biological assessment and report (see Figure 3).

2.0 REGULATORY BACKGROUND

The following sections explain the regulatory context of the biological assessment, including applicable laws and regulations that were applied to the field investigations and analysis of potential project impacts.

2.1 Sensitive Biological Communities

Sensitive biological communities include habitats that fulfill special functions or have special values, such as wetlands, streams, or riparian habitat. These habitats are protected under federal regulations such as the Clean Water Act; state regulations such as the Porter-Cologne Act, the California Department of Fish and Wildlife (CDFW) Streambed Alteration Program, and the California Environmental Quality Act (CEQA); or local ordinances or policies such as city or county tree ordinances, Special Habitat Management Areas, and General Plan Elements.

Waters of the United States

The U.S. Army Corps of Engineers (Corps) regulates "Waters of the United States" under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. Section 404 waters of the U.S. are defined in the Code of Federal Regulations (CFR) as waters susceptible to use in commerce, including interstate waters and wetlands, all other waters (intrastate waterbodies, including wetlands), and their tributaries (33 CFR 328.3). Potential wetland areas, according to the three criteria used to delineate wetlands as defined in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987), are identified by the presence of (1) hydrophytic vegetation, (2) hydric soils, and (3) wetland hydrology. Areas that are inundated at a sufficient depth and for a sufficient duration to exclude growth of hydrophytic vegetation are subject to Section 404 jurisdiction as "other waters" and are often characterized by an ordinary high water mark (OHWM). Other waters, for example, generally include lakes, rivers, and streams. The placement of fill material into Waters of the U.S generally requires an individual or nationwide permit from the Corps under Section 404 of the Clean Water Act.

Waters of the State

The term "Waters of the State" is defined by the Porter-Cologne Act as "any surface water or groundwater, including saline waters, within the boundaries of the state." The Regional Water Quality Control Board (RWQCB) protects all waters in its regulatory scope and has special responsibility for wetlands, riparian areas, and headwaters. These waterbodies have high resource value, are vulnerable to filling, and are not systematically protected by other programs. RWQCB jurisdiction includes "isolated" wetlands and waters that may not be regulated by the Corps under Section 404. Waters of the State are regulated by the RWQCB under the State Water Quality Certification Program which regulates discharges of fill and dredged material under Section 401 of the Clean Water Act and the Porter-Cologne Water Quality Control Act. Projects that require a Corps permit, or fall under other federal jurisdiction, and have the potential to impact Waters of the State, are required to comply with the terms of the Water Quality Certification determination. If a proposed project does not require a federal permit, but does involve dredge or fill activities that may result in a discharge to Waters of the State, the RWQCB has the option to regulate the dredge and fill activities under its state authority in the form of Waste Discharge Requirements.

Streams, Lakes, and Riparian Habitat

Streams and lakes, as habitat for fish and wildlife species, are subject to jurisdiction by CDFW under Sections 1600-1616 of California Fish and Game Code. Alterations to or work within or adjacent to streambeds or lakes generally require a 1602 Lake and Streambed Alteration Agreement. The term “stream”, which includes creeks and rivers, is defined in the California Code of Regulations (CCR) as “a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life [including] watercourses having a surface or subsurface flow that supports or has supported riparian vegetation” (14 CCR 1.72). In addition, the term “stream” can include ephemeral streams, dry washes, watercourses with subsurface flows, canals, aqueducts, irrigation ditches, and other means of water conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife (CDFG 1994). “Riparian” is defined as “on, or pertaining to, the banks of a stream.” Riparian vegetation is defined as “vegetation which occurs in and/or adjacent to a stream and is dependent on, and occurs because of, the stream itself” (CDFG 1994). Removal of riparian vegetation also requires a Section 1602 Lake and Streambed Alteration Agreement from CDFW.

Other Sensitive Biological Communities

Other sensitive biological communities not discussed above include habitats that fulfill special functions or have special values. Natural communities considered sensitive are those identified in local or regional plans, policies, regulations, or by the CDFW. CDFW ranks sensitive communities as "threatened" or "very threatened" and keeps records of their occurrences in its California Natural Diversity Database (CNDDB; CDFW 2017). Sensitive plant communities are also identified by CDFW (CNPS 2017a). CNDDB vegetation alliances are ranked 1 through 5 based on NatureServe's (2010) methodology, with those alliances ranked globally (G) or statewide (S) as 1 through 3 considered sensitive. Impacts to sensitive natural communities identified in local or regional plans, policies, or regulations or those identified by the CDFW or U.S. Fish and Wildlife Service (USFWS) must be considered and evaluated under CEQA (CCR Title 14, Div. 6, Chap. 3, Appendix G). Specific habitats may also be identified as sensitive in city or county general plans or ordinances.

Relevant Local Policies, Ordinances, Regulations

Petaluma Tree Preservation Code

The Petaluma Municipal Code Chapter 17 addresses Tree Preservation, including definitions of Protected and Heritage Trees. Trees, certain native species and other notable trees having diameters from 4” to 18” at breast height (DBH), are considered Protected or Heritage trees and are required to be preserved in all development proposals (17.040-17.050).

2.2 Sensitive Special-Status Species

Special-status species include those plants and wildlife species that have been formally listed, are proposed as endangered or threatened, or are candidates for such listing under the federal Endangered Species Act (ESA) or California Endangered Species Act (CESA). These acts afford protection to both listed species and those that are formal candidates for listing. The federal Bald and Golden Eagle Protection Act also provides broad protections to both eagle species that are roughly analogous to those of listed species. Additionally, CDFW Species of Special Concern, CDFW California Fully Protected species, USFWS Birds of Conservation Concern, and CDFW Special-status Invertebrates are all considered special-status species. Although these

aforementioned species generally have no special legal status, they are given special consideration under CEQA. Bat species are also evaluated for conservation status by the Western Bat Working Group (WBWG), a non-governmental entity; bats named as a "High Priority" or "Medium Priority" species for conservation by the WBWG are typically considered under CEQA and thus considered special-status.. In addition to regulations for special-status species, most native birds in the United States (including non-status species) are protected by the federal Migratory Bird Treaty Act of 1918 (MBTA) and the California Fish and Game Code (CFGC), i.e., sections 3503, 3503.5 and 3513. Under these laws, deliberately destroying active bird nests, eggs, and/or young is illegal.

Plant species on the California Native Plant Society (CNPS) Rare and Endangered Plant Inventory (Inventory) with California Rare Plant Ranks (Rank) of 1 and 2 are also considered special-status plant species and must be considered under CEQA. Rank 3 and Rank 4 species are afforded little or no protection under CEQA, but are included in this analysis for completeness. A description of the CNPS Ranks is provided below in Table 1.

Table 1. Description of CNPS Ranks and Threat Codes

California Rare Plant Ranks (formerly known as CNPS Lists)	
Rank 1A	Presumed extirpated in California and either rare or extinct elsewhere
Rank 1B	Rare, threatened, or endangered in California and elsewhere
Rank 2A	Presumed extirpated in California, but more common elsewhere
Rank 2B	Rare, threatened, or endangered in California, but more common elsewhere
Rank 3	Plants about which more information is needed - A review list
Rank 4	Plants of limited distribution - A watch list
Threat Ranks	
0.1	Seriously threatened in California
0.2	Moderately threatened in California
0.3	Not very threatened in California

3.0 METHODS

On February 23, March 17, and April 11, 2017 site visits, the Project Area was inspected to determine (1) plant communities present within the Project Area, (2) if existing conditions provided suitable habitat for any special-status plant or wildlife species, and (3) if sensitive habitats are present. All plant and wildlife species encountered were recorded, and are summarized in Appendix A. Plant nomenclature follows Baldwin et al. (2012) and subsequent revisions by the Jepson Flora Project (2017), except where noted. Because of recent changes in classification for many of the taxa treated by Baldwin et al. and the Jepson Flora Project, relevant synonyms are provided in brackets. For cases in which regulatory agencies, CNPS, or other entities base rarity on older taxonomic treatments, precedence was given to the treatment used by those entities.

3.1 Biological Communities

Prior to the site visit, the Soil Survey of Sonoma County, California [U.S. Department of Agriculture (USDA) 1972] and the National Wetlands Inventory (USFWS 2017a) was examined to determine if any unique soil types that could support sensitive plant communities and/or aquatic features were present in the Project Area. Biological communities present in the Project Area were classified based on existing plant community descriptions described in the *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986) or *A Manual of California Vegetation, Online Edition* (CNPS 2017a). However, in some cases it is necessary to identify variants of community types or to describe non-vegetated areas that are not described in the literature. Biological communities were classified as sensitive or non-sensitive as defined by CEQA and other applicable laws and regulations.

3.1.1 Non-sensitive Biological Communities

Non-sensitive biological communities are those communities that are not afforded special protection under CEQA, and other state, federal, and local laws, regulations and ordinances. These communities may, however, provide suitable habitat for some special-status plant or wildlife species and are identified or described in Section 4.1.1 below.

3.1.2 Sensitive Biological Communities

Sensitive biological communities are defined as those communities that are given special protection under CEQA and other applicable federal, state, and local laws, regulations and ordinances. Applicable laws and ordinances are discussed above in Section 2.0. Special methods used to identify sensitive biological communities are discussed below.

Wetlands and Waters

The Project Areas were surveyed to determine if any wetlands and waters potentially subject to jurisdiction by the Corps, RWQCB, or CDFW were present. The assessment was based primarily on the presence of wetland plant indicators, but may also include any observed indicators of wetland hydrology and wetland soils. Any potential wetland areas were identified as areas dominated by plant species with a wetland indicator status[1] of OBL, FACW, or FAC as given on the U.S. Army Corps of Engineers National Wetlands Plant List (Lichvar et al. 2016). Evidence of wetland hydrology can include direct evidence (primary indicators), such as visible inundation or saturation, algal mats, and oxidized root channels, or indirect (secondary) indicators, such as a water table within two feet of the soil surface during the dry season. Some indicators of wetland soils include dark colored soils, soils with a sulfidic odor, and soils that contain redoximorphic features as defined by the Corps Manual (Environmental Laboratory 1987) and Field Indicators of Hydric Soils in the United States (NRCS 2010).

[1] OBL = Obligate, always found in wetlands (> 99% frequency of occurrence); FACW = Facultative wetland, usually found in wetlands (67-99% frequency of occurrence); FAC = Facultative, equal occurrence in wetland or non-wetlands (34-66% frequency of occurrence).

Other Sensitive Biological Communities

The Project Areas were evaluated for the presence of other sensitive biological communities, including riparian areas, sensitive plant communities recognized by CDFW or local ordinances. Prior to the site visit, aerial photographs, local soil maps, and *A Manual of California Vegetation, Online Edition* (CNPS 2017a) were reviewed to assess the potential for sensitive biological communities to occur in the Project Area. All alliances within the Project Area with a ranking of 1 through 3 were considered sensitive biological communities and mapped. These communities are described in Section 4.1.2 below.

3.2 Special-Status Species

3.2.1 Literature Review

Potential occurrence of special-status species in the Project Areas were evaluated by first determining which special-status species occur in the vicinity of the Project Area through a literature and database search. Database searches for known occurrences of special-status species focused on Novato, Cotati, Glen Ellen, Petaluma River, and Petaluma 7.5 minute USGS quadrangles. The following sources were reviewed to determine which special-status plant and wildlife species have been documented to occur in the vicinity of the Project Area:

- California Native Plant Society Electronic Inventory (CNPS 2017)
- Consortium of California Herbaria (CCH 2017)
- California Natural Diversity Database (CNDDB) records (CDFW 2017)
- IPaC (Information for Planning and Conservation Species Lists) (USFWS 2017)
- WBWG online species accounts (WBWG 2017)
- CDFG publication *California Bird Species of Special Concern* (Shuford and Gardali 2008)
- CDFW publication *California Amphibians and Reptile Species of Special Concern* (Thomson et al. 2016)
- *A Field Guide to Western Reptiles and Amphibians* (Stebbins 2003)
- *Sonoma County Breeding Bird Atlas* (Burridge 1995)

3.2.2 Site Assessment

A site visit was made to the Project Areas to search for suitable habitats for special-status species. Habitat conditions observed were used to evaluate the potential for presence of special-status species based on these searches and the professional expertise of the investigating biologists. The potential for each special-status species to occur in the Project Area was then evaluated according to the following criteria:

- No Potential. Habitat on and adjacent to the site is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).
- Unlikely. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.

- Moderate Potential. Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.
- High Potential. All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.
- Present. Species is observed on the site or has been recorded (i.e. CNDDB, other reports) on the site recently.

The site assessment is intended to identify the presence or absence of suitable habitat for each special-status species known to occur in the vicinity in order to determine its potential to occur in the Project Area. The site visit does not constitute a protocol-level survey and is not intended to determine the actual presence or absence of a species; however, if a special-status species is observed during the site visit, its presence will be recorded and discussed.

In cases where little information is known about species occurrences and habitat requirements, the species evaluation was based on best professional judgment of WRA biologists with experience working with the species and habitats. If necessary, recognized experts in individual species biology were contacted to obtain the most up to date information regarding species biology and ecology.

If a special-status species was observed during the site visit, its presence is recorded and discussed below in Section 4.2. For some species, a site assessment visit at the level conducted for this report may not be sufficient to determine presence or absence of a species to the specifications of regulatory agencies. In these cases, a species may be assumed to be present or further protocol-level special-status species surveys may be necessary. Special-status species for which further protocol-level surveys may be necessary are described below in Section 5.0.

4.0 RESULTS

The approximately 4.14 acre Haystack Project Area is located east of Weller Street, between E. Washington and D Street in central Petaluma. The proposed development is a mixed use development of commercial/retail on ground floors and residential apartments on three upper floors. For drainage, the Project Area storm drain system will connect to an existing storm drain pipe west of Weller Street. The Haystack Project will replace a portion of the existing drain culvert, but the new culvert pipe and existing culvert pipe will connect before the outfall into the Petaluma River. No habitat along the Petaluma River shoreline will be impacted.

The following sections present the results and discussion of the biological assessment within the Project Area.

4.1 Biological Communities

Table 2 summarizes the area of biological community types observed in the Project Area (Figure 2). Non-sensitive biological communities in the Project Areas include developed land, paved and graveled areas, and ruderal field in the project development area. The storm drain corridor to the Petaluma River is a narrow landscape strip between two paved parking areas that contains a few planted landscape trees. One sensitive biological community, seasonal wetland, is present in the

Haystack Project Area. Descriptions for each biological community are contained in the following sections.

Table 2. Summary of Biological Community area in the Haystack Development Project Area

Community Type	**Area (approx. acres)**
Developed or hardscape land and drainage corridor/landscape	2.50
Ruderal fields	1.60
Seasonal wetland	0.04
Total Project Area Size	**4.14**

4.1.1 Non-Sensitive Biological Communities

Ruderal Vegetation

Ruderal vegetation is not described in the literature but this community type is located throughout the Project Area. Ruderal vegetation tends to be dominated by weedy non-native plant species such as Italian ryegrass (*Festuca perenne*), wild radish (*Raphanus sativus*), prickly lettuce (*Lactuca serriola*), sow thistle (*Sonchus* spp.), and canary grass (*Phalaris* spp.). Plant species observed in ruderal vegetated areas within the both Project Areas included Italian ryegrass, vetch (*Vicia* sp.), wild barley (*Hordeum leporinum*), bristly ox-tongue (*Helminthotheca echioides*), wild radish, , slender wild oat (*Avena barbata*), and fennel (*Foeniculum vulgare*). Ruderal field covers approximately 1.60 acres.

Developed

Developed areas are not described in the literature, but comprise landscaped or planted vegetation as well as buildings and/or attendant infrastructure. The Haystack Project Area developed areas consist of existing warehouses and now vacant land. The area contained a tree with a trunk diameter six inches or greater that was a Raywood ash (*Fraxinus oxycarpa*) (30 inches DBH) in the northern portion of the development area. This tree is not a native species or registered heritage or landmark tree according to Implementing Zoning Ordinance Chapter 17 and Register of Heritage and Landmark Trees (City of Petaluma 2006). The Haystack Project Area contains approximately 2.50 acres of developed area.

4.1.2 Sensitive Biological Communities

Seasonal Wetland

Seasonal wetland plant communities occur in depressions that are inundated during the rainy season for sufficient duration to support vegetation adapted to wetland conditions. Seasonal wetlands in California are highly variable in plant composition and dependent on the duration of ponding or inundation occurring in the depression. They also generally lack the plant community assemblage typical of defined marshes and vernal pools. Species that typically occur in seasonal wetlands in California are Italian ryegrass, Mediterranean barley (*Hordeum marinum*), bristly ox-tongue, flatsedge (*Cyperus* spp.), rush (*Juncus* spp.), rabbitsfoot grass (*Polypogon monspeliensis*), and many other wetland species with wetland classifications of FAC, FACW, or

OBL. Two other parameters that an area must have to be considered a seasonal wetland are presence of seasonal water and presence of functioning hydric soil.

There were two depressions in the Project Area that showed indicators of meeting wetlands parameters, including a prevalence of wetland classified plants (hydrophytic vegetation) and saturated or inundated soil. Plant species observed in seasonal wetland plant communities present in the Haystack Project Area include Italian ryegrass (FAC), meadow barley (*Hordeum brachanthyrum*, FACW), curly dock (*Rumex crispus*), hyssop loosestrife (*Lythrum hyssopifolia,* FACW), and brass buttons (*Cotula coronopifolia,* OBL). It is likely that these depressions are the result of past earth movement and soil remediation activities and, therefore, are man-made without the intent of them becoming wetlands. These activities can be observed on historic aerial photographs as occurring a decade ago (circa 2007). In the time since these depressions were created, they have developed seasonal wetlands characteristics and likely would be considered to be jurisdictional wetlands by one or more regulatory agencies. These potentially jurisdictional seasonal wetlands comprised approximately 0.04 acre of area.

4.2 Special-Status Species

4.2.1 Plants

Based upon a review of the resources and databases given in Section 3.2.1, 116 special-status plant species have been documented in the vicinity of the Project Area. No special-status plant species have a moderate or high potential to occur in the Project Area. The Project Area does not or is unlikely to support any of the special-status plant species documented in the vicinity primarily due to a lack of suitable habitat. No special-status plant species were observed in the Project Area during the assessment site visits. Appendix B summarizes the potential for occurrence for each special-status plant species occurring within the Project Area. Figure 4 displays occurrences of special-status plant species documented within 5 miles of the Project Area.

The site assessment occurred during the blooming period of 33 of the 116 special-status plant species with a potential to occur in the Project Area. None of the potentially occurring plants that were within their normal blooming species were observed during the site visits.

Based on the habitats present within the Project Area and use of the area, no plant species have a moderate or high potential for occurrence. All sensitive species were considered not present or unlikely to be present in the Project Areas because of:

- Absence of suitable habitat (i.e., coastal marsh, chaparral, woodlands, forests, vernal pools)
- Absence of unique soil types (i.e., serpentine, volcanics, adobe clay)
- Project Areas were outside known elevation range of species;
- Project Areas are highly disturbed and do not represent typical habitat necessary to support special-species and likely preclude them from colonizing
- Species not observed during known blooming period

Appendix B summarizes the potential for occurrence of these plant species in the Project Areas. Twenty-one plant species were identified within the Project Areas (Appendix A), all of which are common plant species typical of the locale.

4.2.2 Wildlife

Eighty special-status wildlife species have been recorded in the vicinity of the Project Area. Appendix B summarizes the potential for each of these species to occur in the Project Area and Figure 5 shows occurrences of special-status wildlife species within five miles of the Project Area. No special-status wildlife species were observed in the Project Area during the site assessment, no special-status wildlife species has a high potential to occur in the Project Area, and two special-status wildlife species have a moderate potential to occur in the Project Area; these species are discussed below.

Because of frequent human disturbance and presence, the site offers limited value for most special-status wildlife species that may occur in the vicinity. With development and roads surrounding the Project Area, the site is relatively inaccessible to many species, and eliminates the possibility of the site functioning as a movement corridor. The ruderal field that comprises the majority of each of the Project Area offers little to no cover and meets few habitat requirements for most special-status species.

One (non-status) wildlife species, black-tailed jackrabbit (*Lepus californicus*), was observed within the Project Area during the site assessment (Appendix A), this is a commonly found species adapted to occupying disturbed or urban areas. No special-status wildlife species were observed.

Species with Potential to Occur

Pallid Bat (*Antrozous pallidus*), CDFG Species of Special Concern, WBWG High Priority. Moderate Potential. Pallid bats occur in a number of habitats ranging from rocky arid deserts to grasslands and higher elevation coniferous forests. They are most abundant in the arid Sonoran life zones below 6,000 feet. Pallid bats often roost in colonies of between 20 and several hundred individuals. Roosts are typically in rock crevices, tree hollows, mines, caves, and a variety of man-made structures, including vacant and occupied buildings. Tree roosting has been documented in large conifer snags (e.g., ponderosa pine), inside basal hollows of redwoods and giant sequoias, and within bole cavities in oak trees. Pallid bats are primarily insectivorous, feeding on large prey that is taken on the ground, or sometimes in flight. Prey items include arthropods such as scorpions, ground crickets, and cicadas (WBWG 2017)

Buildings within and immediately adjacent to the Haystack Project Area provide suitable roosting habitat for pallid bats as an occurrence has been recorded. Additionally, the Petaluma River and open areas within the Project Area provide suitable foraging habitat for this species, therefore it is determined that this species has a moderate potential to occur within the Project Area.

White-tailed kite (*Elanus leucurus*), CDFW Fully Protected Species. Moderate Potential. The white-tailed kite is resident in open to semi-open habitats throughout the lower elevations of California, including grasslands, savannahs, woodlands, agricultural areas and wetlands. Vegetative structure and prey availability seem to be more important habitat elements than associations with specific plants or vegetative communities (Dunk 1995). Nests are constructed mostly of twigs and placed in trees, often at habitat edges. Nest trees are highly variable in size, structure, and immediate surroundings, ranging from shrubs to trees greater than 150 feet tall (Dunk 1995). Trees in and adjacent to the Project Area may provide marginal nesting habitat; however, high levels of human disturbance may deter individuals from nesting in the vicinity. The Project Area provides foraging habitat, therefore there is a moderate potential for this species to occur.

5.0 POTENTIAL IMPACTS AND MITIGATION

The proposed project involves the construction of the Haystack Development Project Area with 178 units consisting of commercial/retail on the ground floor and residential apartment housing on three upper floors, with a portion made available to low-income residents. The Haystack Project requires full buildout of the entire parcel bounded by Weller Street on the west, East Washington Street on the north, and D Street on the south (Figure 3). Storm water drainage for the Haystack Project will connect to an existing drainage system, a 15-inch culvert pipe from Weller Street that outfall into the Petaluma River.

The Haystack Development Project Area is comprised of developed areas, consisting of paved or graveled areas, existing buildings, and ruderal field. These land types and uses are not considered sensitive habitats and have low biological resource value due to their highly disturbed condition and surrounding urban development including streets, warehouses, and office buildings. Within ruderal field there are two man-made depressions that showed indicators of seasonal wetlands due to the presence of hydrophytic vegetation and saturated/inundated soil observed during site visits. Wetlands are considered to be sensitive habitats, and certain impacts, such as filling them, will be considered significant under CEQA unless suitable mitigation is provided that will make the impacts less than significant or the impacts can be avoided. Finally, two wildlife species with moderate potential (no species had high potential) to be present in or near the Project Area have the potential to be significantly impacted by the project unless the species are determined to be not present or mitigation measures or avoidance measures can be implemented to reduce impacts to less than significant.

Based on the February, March, and April 2017 site visits of the Project Area to determine habitat types present and their condition and associated database searches, no special-status plant species have a high or moderate potential to occur within the Project Area. Two special-status wildlife species were determined to have moderate potential to occur in the Haystack Project Area due to presence of suitable open space for foraging. Special-status wildlife species that have the potential to be within the Project Area may fall under the jurisdiction of CDFW.

5.1 Potentially Significant Impacts

Sensitive Biological Communities

"Waters of the U.S." and "Waters of the State"

Potential Impact 1, loss of wetlands habitat. The conversion of approximately 0.04 acres of seasonal wetlands in non-tidal area at the Haystack Project into developed land is a potentially significant impact under CEQA. The seasonal wetlands habitat within the Haystack Project is potentially within Corps of Engineers jurisdiction under Section 404 of the Clean Water Act and RWQCB jurisdiction under Section 401 of the Clean Water Act and Porter-Cologne Act. Permits for fill impacts to the wetlands are likely to be required from both regulatory agencies. Potential mitigation measures for impacts to Corps and RWQCB jurisdictional wetlands are discussed and summarized below in Section 5.2.

Potential Impact 2, discharge of sediment or other pollutants into aquatic habitat. Construction activities and related activities have the potential to result in discharge of sediment, fuel, lubricants, uncured concrete, and other pollutants into wetlands or the Petaluma River. Such discharges can adversely impact water quality.

Special-Status Plant Species

No special-status plant species have a high or moderate potential to occur in the Project Area; therefore, no significant impacts are expected to special-status plants and no further action is necessary.

Special-Status Wildlife Species

Work at the Haystack Project has the potential to adversely impact special-status wildlife species. A summary of these impacts is provided below.

Bats

Potential Impact 3, disturbance to bats. The existing warehouse structure at the Haystack Project Area provides potential maternity roosting habitat for bats, including pallid bat. Although the warehouse was in-use at the time of the site-visit, small gaps exist that could allow pallid bats to roost. Renovation or demolition activities to the warehouse have the potential to impact bat maternity and hibernation periods. Foraging may also take place over the aquatic and open habitats found within the Project Area. Additionally, the operation of loud machinery in the immediate vicinity of a maternity roost site could impact the species by causing the parent to abandon the roost or induce elevated levels of stress for the occupying individuals.

Birds

Potential Impact 4, disturbance to protected migratory birds. The Haystack Project will involve construction in or adjacent to ruderal vegetation, wetlands, trees, and structures in the Project Area that may adversely affect nesting birds. The presence and operation of construction machinery and human activity and removal of vegetation or structures during the breeding season could cause disturbance to breeding birds and adversely impact nesting activity.

5.2 Mitigation Measures

Sensitive Biological Communities

Mitigation Measure 1, compensatory mitigation for loss of potential jurisdictional wetlands. Potential jurisdictional seasonal wetlands and tidal wetlands/waters that will be removed shall be replaced at a 1:1 ratio on a functions and values basis. Mitigation may be by purchase of created wetlands credits from an approved mitigation bank or proponent created wetlands at an offsite location. The appropriate permits shall be obtained from regulatory agencies which shall include approval of the mitigation plan.

Mitigation Measure 2, protect water quality during and after construction. Water quality shall be protected from sediment or other pollutants being carried in storm water by developing storm water pollution prevention plans to be implemented during construction and post-construction. Appropriate best management practices (BMPs) shall be developed and implemented during construction. Equipment fuels and lubricants shall be prevented from

reaching the river by locating fueling/maintenance areas an appropriate distance away from the river or drainage ways to the river and construction contractors shall have a spill prevention kit and plan on location. Uncured concrete shall not be exposed to water flowing to the Petaluma River or wetlands and all excess uncured concrete shall be properly disposed of at an offsite location.

Special-Status Plant Species

No impacts to special-status plant species are expected from the proposed project because no plants with a moderate or high probability for being present were identified. No further action for special-status plants is necessary.

Special-Status Wildlife Species

Bats

Mitigation Measure 3, protection of bats. If construction activity occurs within 200 feet of trees or structures during bat hibernation and maternity, which is November through August, potential bat roosts shall be inspected by a qualified biologist for the presence of bats. Potential bat roosts include buildings, tree cavities, and snags. If a maternity roost is detected, a 200 foot buffer shall be placed around the maternity site until the bats are no longer utilizing the site. Non-maternity roost sites shall be removed under the direction of the biologist.

Birds

Mitigation Measure 4, protection of migratory birds. No surveys or other avoidance measures for breeding bird species shall be necessary for Project activities conducted during the period of September 1 through January 31, which is outside the avian breeding season. For any ground-disturbing activities, vegetation or tree removal, or structure removal during the avian breeding season (February 1 through August 15), breeding bird surveys by a qualified biologist shall be conducted. Specifically, pre-construction breeding bird surveys shall be conducted within 14 days of ground disturbance to avoid disturbance to active nests, eggs, and/or young of ground-nesting birds. Surveys shall be conducted by a qualified biologist to detect the nests of birds, both special-status as well as non-special-status birds, which are protected under the Migratory Bird Treaty Act. A work exclusion zone shall be established around any active nests of any avian species found in the Project Area until the qualified biologist has determined that all young have fledged or the nest is no longer active. Suggested buffer zone distances differ depending on species, location, and placement of nest and will be established under the direction of the qualified biologist.

SECTION 6.0 CONCLUSION

Based on the results of the site assessment and updated database searches, it is anticipated that potential impacts identified for the Project will be reduced to less than significant for sensitive biological communities, migratory birds, or special-status wildlife species if the mitigation measures described are implemented. The filling of 0.04 acre of potential wetlands is expected and mitigation measures, such as off-site purchase of wetland credits at an approved mitigation bank, off-site created mitigation wetlands, or other approved mitigation will replace lost wetland habitat and reduce impacts to wetlands to an insignificant level. No special-status plants were

observed during the site visits, and none are expected to occur within the Project Area; accordingly, no avoidance or mitigation measures are required. No special-status wildlife species were observed during the site visit, however two special-status wildlife species were determined to have a moderate potential to be present and could adversely be affected by the Project. However, recommended mitigation measures, if implemented, will reduce potential impacts to less than significant.

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Figure 1. Study Area Location Map

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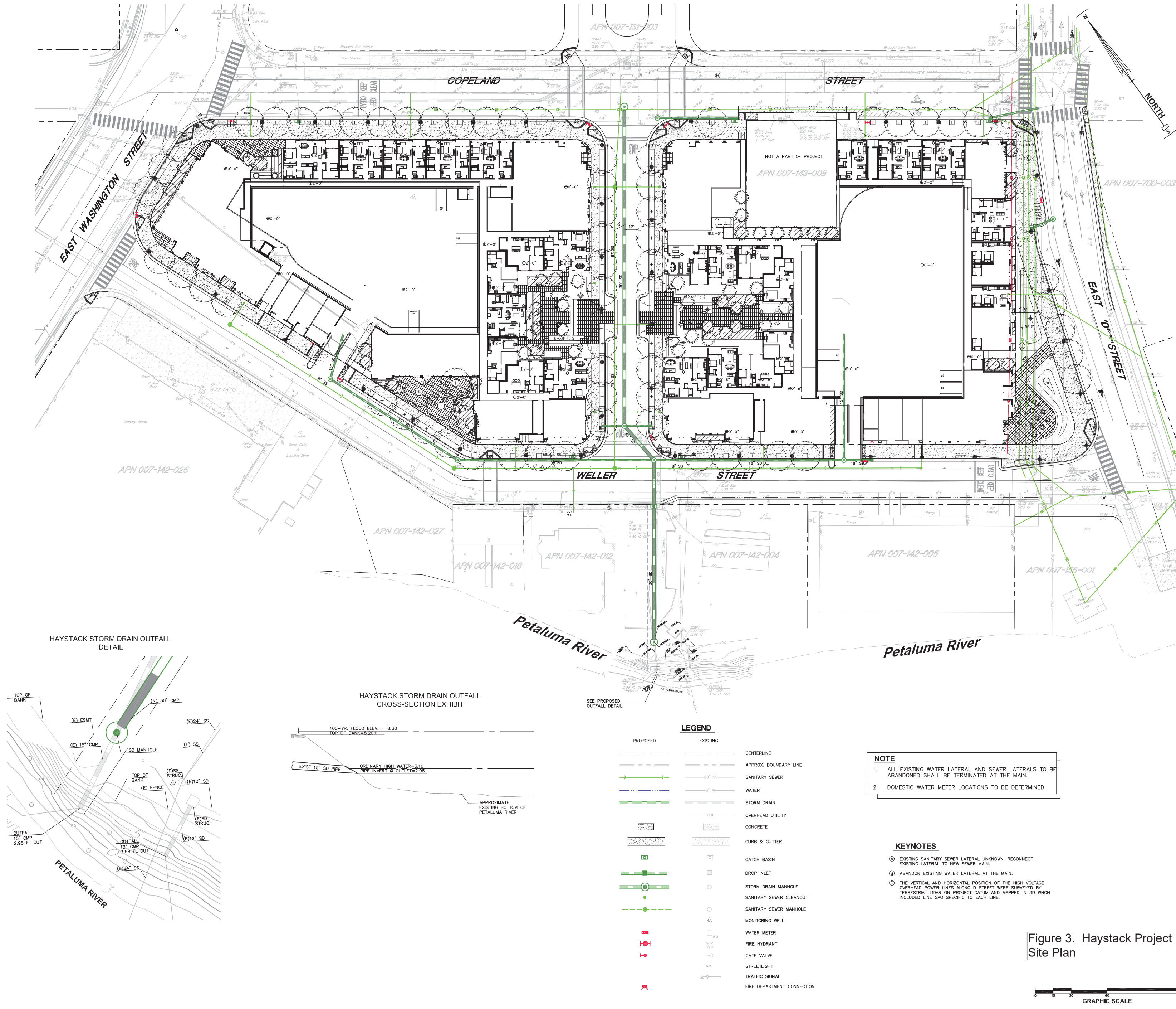
ENVIRONMENTAL CONSULTANTS

Haystack Petaluma
Sonoma County, California

Map Prepared Date: 4/10/2017
Map Prepared By: pkobylarz
Base Source: Esri Streaming - National Geographic
Data Source(s): WRA

Path: L:\Acad 2000 Files\27000\27065\GIS\ArcMap\Figure 1 Location.mxd

Figure 2. Approximate location and extent of existing biological communities and development of Haystack Project, Petaluma, CA.


COPELAND
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EAST "D" STREET
WELLER
STREET
NORTH
NOT A PART OF PROJECT
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APN 007-131-003
APN 007-700-003
APN 007-142-026
APN 007-142-027
APN 007-142-018
APN 007-142-012
APN 007-142-004
APN 007-142-005
APN 007-156-001
Petaluma River
Petaluma River
SEE PROPOSED OUTFALL DETAIL
HAYSTACK STORM DRAIN OUTFALL DETAIL
TOP OF BANK
(E) ESMT
(N) 30" CMP
(E)24" SS
(E) 15" CMP
(E) SS
SD MANHOLE
TOP OF BANK
(E)SS STRUC.
(E)12" SD
(E) FENCE
(E)SD STRUC.
(E)12" SD
OUTFALL 15" CMP 2.98 FL OUT
OUTFALL 12" CMP 3.58 FL OUT
(E)24" SS
PETALUMA RIVER
HAYSTACK STORM DRAIN OUTFALL CROSS-SECTION EXHIBIT
100-YR. FLOOD ELEV. = 8.30
TOP OF BANK=8.20±
EXIST 15" SD PIPE
ORDINARY HIGH WATER=3.10
PIPE INVERT @ OUTLET=2.98
APPROXIMATE EXISTING BOTTOM OF PETALUMA RIVER
LEGEND
PROPOSED
EXISTING
CENTERLINE
APPROX. BOUNDARY LINE
SANITARY SEWER
WATER
STORM DRAIN
OVERHEAD UTILITY
CONCRETE
CURB & GUTTER
CATCH BASIN
DROP INLET
STORM DRAIN MANHOLE
SANITARY SEWER CLEANOUT
SANITARY SEWER MANHOLE
MONITORING WELL
WATER METER
FIRE HYDRANT
GATE VALVE
STREETLIGHT
TRAFFIC SIGNAL
FIRE DEPARTMENT CONNECTION
NOTE
1. ALL EXISTING WATER LATERAL AND SEWER LATERALS TO BE ABANDONED SHALL BE TERMINATED AT THE MAIN.
2. DOMESTIC WATER METER LOCATIONS TO BE DETERMINED
KEYNOTES
Ⓐ EXISTING SANITARY SEWER LATERAL UNKNOWN. RECONNECT EXISTING LATERAL TO NEW SEWER MAIN.
Ⓑ ABANDON EXISTING WATER LATERAL AT THE MAIN.
Ⓒ THE VERTICAL AND HORIZONTAL POSITION OF THE HIGH VOLTAGE OVERHEAD POWER LINES ALONG D STREET WERE SURVEYED BY TERRESTRIAL LIDAR ON PROJECT DATUM AND MAPPED IN 3D WHICH INCLUDED LINE SAG SPECIFIC TO EACH LINE.
GRAPHIC SCALE
0 15 30 60 120

Figure 3. Haystack Project Site Plan

BDE ARCHITECTURE
950 Howard Street
San Francisco
CA 94103
P. (415)677-0966

PACIFICA COMPANIES

STEVEN J. LAFRANCHI & ASSOCIATES, INC.
CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS
LANDSCAPE ARCHITECTS
PETALUMA THEATRE SQUARE
140 SECOND STREET, SUITE 312
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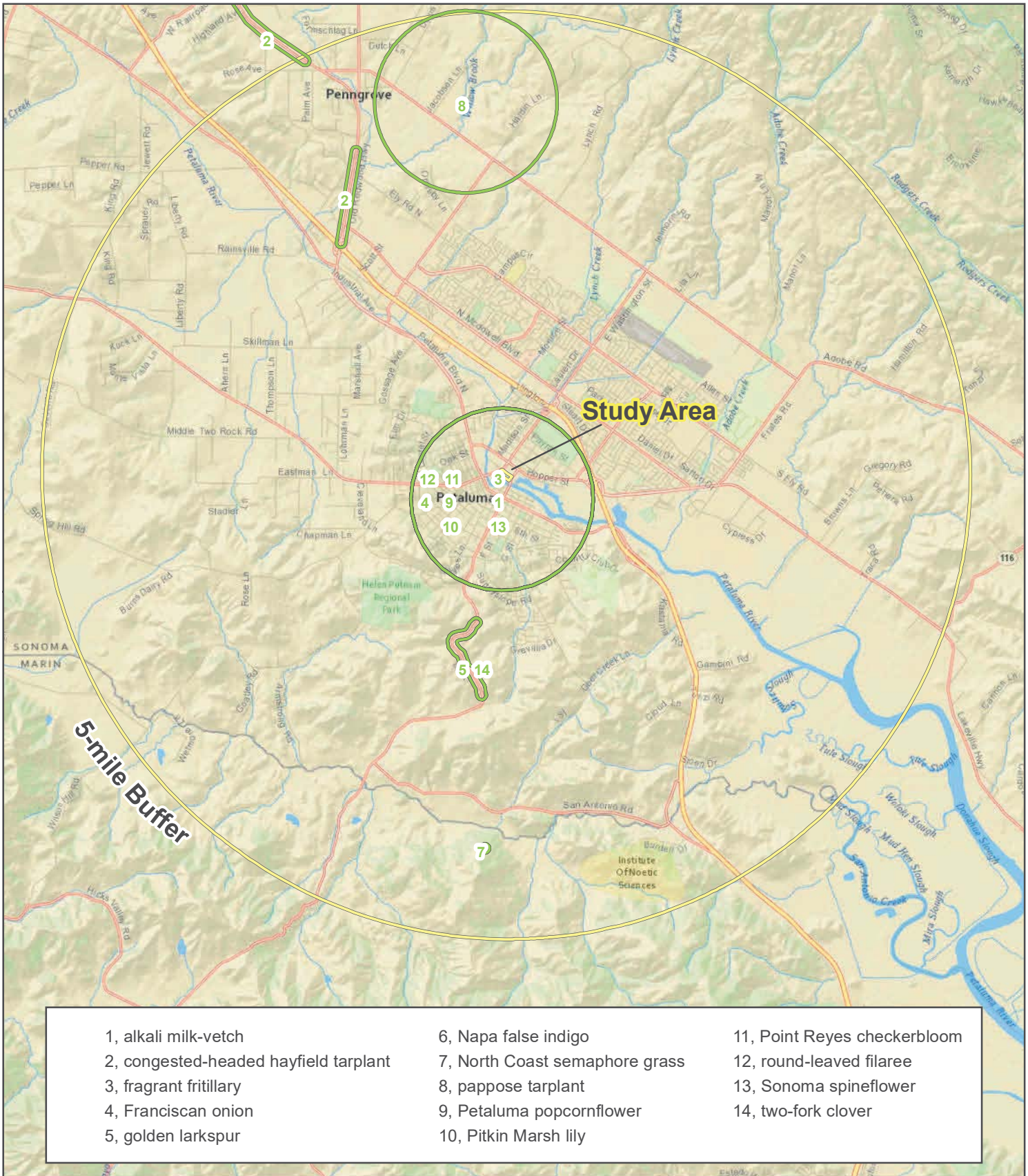
(707) 762-0122 FAX (707) 762-0239

PRELIMINARY UTILITY PLAN
HAYSTACK
WASHINGTON & COPELAND STREETS
PETALUMA, CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
STEVEN J. LAFRANCHI
No. 49302
CIVIL
STATE OF CALIFORNIA

C-13



1, alkali milk-vetch
2, congested-headed hayfield tarplant
3, fragrant fritillary
4, Franciscan onion
5, golden larkspur
6, Napa false indigo
7, North Coast semaphore grass
8, pappose tarplant
9, Petaluma popcornflower
10, Pitkin Marsh lily
11, Point Reyes checkerbloom
12, round-leaved filaree
13, Sonoma spineflower
14, two-fork clover

Figure 4. Occurrences of Special-status Plant Species within a 5 mile radius of Project Area.

Haystack Petaluma
Sonoma County, California

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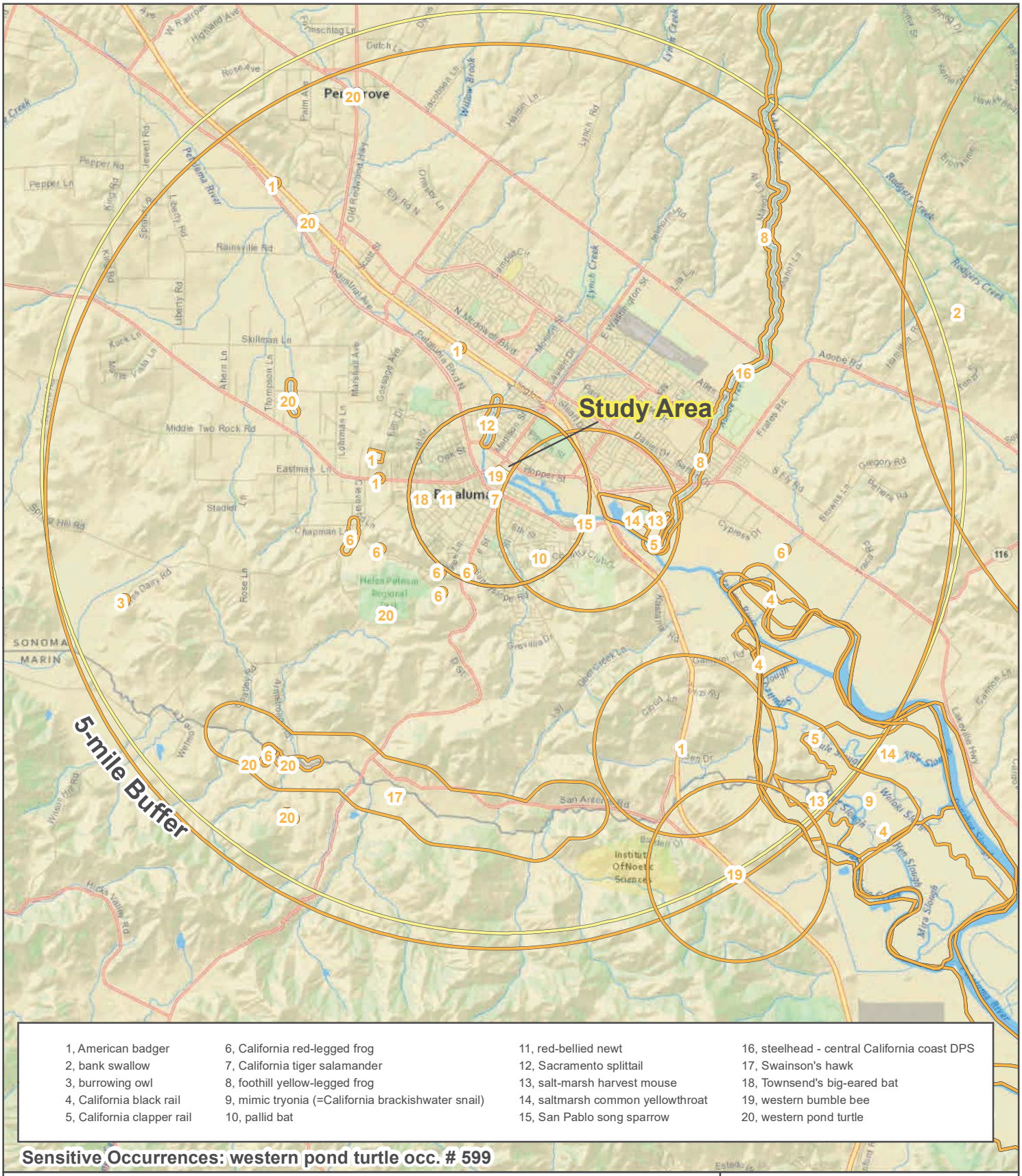
ENVIRONMENTAL CONSULTANTS

Map Prepared Date: 4/10/2017
Map Prepared By: pkobylarz
Base Source: National Geographic
Data Source(s): CNDDB April 2017

Path: L:\Acad 2000 Files\27000\27065\GIS\ArcMap\Figure 2 CNDDB Plants.mxd



Sensitive Occurrences: western pond turtle occ. # 599

Figure 5. Special-status Wildlife Species within a 5 mile radius of Project Area.

Haystack Petaluma
Sonoma County, California

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Miles

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ENVIRONMENTAL CONSULTANTS

Map Prepared Date: 4/10/2017
Map Prepared By: pkobylarz
Base Source: National Geographic
Data Source(s): CNDDB April 2017

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APPENDIX A

LIST OF OBSERVED PLANT AND WILDLIFE SPECIES

Appendix A. Plant and Wildlife Species observed within the Project Area on February 23, and March 17, 2017.

Scientific Name	Common Name	Status
Wildlife		
Mammals		
Lepus californicus	black-tailed jackrabbit	-
Scientific Name	**Common Name**	**Rarity Status[1]**
Plants		
Avena barbata	Slim oat	-
Bromus diandrus	Ripgut grass	-
Bromus hordeaceus	Soft chess	-
Cotula coronpifolia	Brass buttons	-
Cynosurus echinatus	Dogtail grass	-
Cyperus eragrostis	Tall cyperus	-
Elymus glaucus	Blue wildrye	-
Epilobium sp.	Willow herb	-
Festuca perenne	Italian ryegrass	-
Foeniculum vulgare	Fennel	-
Fraxinum oxycarpa	Raywood ash	-
Geranium molle	Crane's bill geranium	-
Helminthotheca echioides	Bristly ox-tongue	-
Hordeum brachyantherum	Meadow barley	-
Hordeum leporinum	Wild barley	-
Koelreuteria paniculata	Goldenrain	-
Lactuca serriola	Wild lettuce	-
Lythrum hyssopifolia	Loosestrife	-
Phalaris sp.)	Hardingrass	-
Pyrus sp.	Pear (street cultivar)	-
Rumex crispis	Curly dock	-
Schoenoplectus acutus	Hardstem bulrush	-
Sonchus sp.	Sow thistle	-
Vicia sp.	Vetch	

All plant species identified using the *Jepson Manual, 2nd Edition* (Baldwin et al. 2012) or Jespon eFlora (Jespon Herbarium, 2017)

Key to status codes:

[1]Rare Status: The CNPS Inventory of Rare and Endangered Plants (CNPS 2017)

FE:	Federal Endangered
FT:	Federal Threatened
SE:	State Endangered
ST:	State Threatened
SR:	State Rare
Rank 1A:	Plants presumed extirpated in California and either rare or extinct elsewhere
Rank 1B:	Plants rare, threatened, or endangered in California and elsewhere
Rank 2A:	Plants presumed extirpated in California, but more common elsewhere

APPENDIX B

POTENTIAL FOR SPECIAL-STATUS SPECIES TO OCCUR IN THE PROJECT AREA

Appendix B. Potential for special status plant and wildlife species that may occur in the vicinity of the Project Area. List compiled from a search of the California Department of Fish and Wildlife Natural Diversity Database (CNDDB 2017), and the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants (CNPS 2017) for the Cotati, Glen Ellen, Petaluma, and Petaluma River USGS 7.5-minute quadrangles. Results include database searches of California Native Plant Society (CNPS) Rare and Endangered Plant Inventory, California Natural Diversity Database (CNDDB, CDFW) as well as U.S. Fish and Wildlife Service Threatened and Endangered Species Lists.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Plants				
Abronia umbellata var. *breviflora* pink sand-verbena	FSC; Rank 1B	Coastal dunes, coastal strand; located on foredunes and interdunes with sparse cover. Elevation range: 0 – 35 feet. Blooms: June – October.	**No Potential.** The Study Area does not contain coastal habitats (e.g., strand, bluffs, cliffs, dunes, prairies, scrubs, maritime chaparral) necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Agrostis blasdalei Blasdale's bentgrass	FSC; Rank 1B	Coastal dunes, coastal bluff scrub, coastal prairie; on sandy or gravelly soil near exposed rock; often in nutrient-poor soil. Elevation range: 15 – 490 feet. Blooms: May – July.	**No Potential.** The Study Area does not contain coastal habitats (e.g., strand, bluffs, cliffs, dunes, prairies, scrubs, maritime chaparral) necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Allium peninsulare var. *franciscanum* Franciscan onion	Rank 1B	Cismontane woodland, valley and foothill grassland; on clay substrate, often derived from serpentine. Elevation range 170 – 985 feet. Blooms: May – June.	**No Potential.** The Study Area does not contain have serpentine and is below the elevation range.	**Not Present.** No further actions are recommended for this species.
Alopecurus aequalis var. *sonomensis* Sonoma alopecurus	FE; Rank 1B	Freshwater marshes and swamps, riparian scrub; closely associated with other wetland species. Elevation range: 15 – 1200 feet. Blooms: May – July.	**Unlikely.** Study Area does not have perennial freshwater wetland habitat.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Amorpha californica var. *napensis* Napa false indigo	Rank 1B	Openings in broadleaf upland forest, chaparral, cismontane woodland. Elevation range: 395 – 6560 feet. Blooms: April – July.	**Unlikely.** Study Area is disturbed site with no broadleaf forest and woodlands and is below the elevation range.	**Not Present.** No further actions are recommended for this species.
Arabis blepharophylla coast rock cress	Rank 4	Broadleaf upland forest, coastal bluff scrub, coastal prairie, coastal scrub; located on rocky sites, often on coastal bluffs. Elevation range: 10 – 3575 feet. Blooms: February – May.	**No Potential.** The Study Area does not contain coastal habitats (e.g., strand, bluffs, cliffs, dunes, prairies, scrubs, maritime chaparral) necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Arctostaphylos bakeri ssp. *bakeri* Baker's manzanita	FSC; SR; Rank 1B	Broadleaf upland forest, chaparral, closed-cone coniferous forest; located on serpentine substrate. Elevation range: 240 – 975 feet. Blooms: February – April.	**No Potential.** The Study Area does not contain serpentine habitat (e.g., grasslands, chaparrals, woodlands, barrens, outcrops) necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Arctostaphylos bakeri ssp. *sublaevis* The Cedars manzanita	Rank 1B	Closed-cone coniferous forest, chaparral; typically in canyons and on slopes in serpentine chaparral and Sargent cypress forest. Elevation range: 300 – 760 feet. Blooms: February – May.	**No Potential.** The Study Area does not contain serpentine habitat (e.g., grasslands, chaparrals, woodlands, barrens, outcrops) necessary to support this species.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Arctostaphylos densiflora Vine Hill manzanita	FSC; SE; Rank 1B	Chaparral; on acidic marine sands, typically the Goldridge sandy loam series and Sebastopol sandy loam series derived from sandstone. Elevation range: 50 – 100 feet. Blooms: February – April.	**No Potential.** This species is strictly confined to acidic sand substrate chaparral not present in the Study Area.	**Not Present.** No further actions are recommended for this species.
Arctostaphylos hispidula Howell's manzanita	Rank 4	Chaparral; typically located on serpentine or sandstone substrate. Elevation range: 390 – 4065 feet. Blooms: March – April.	**No Potential.** The Study Area does not contain serpentine habitat (e.g., grasslands, chaparrals, woodlands, barrens, outcrops) necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Arctostaphylos stanfordiana ssp. decumbens Rincon manzanita	Rank 1B	Chaparral, cismontane woodland; highly restricted to red rhylolitic soils. Elevation range: 245 – 1215 feet. Blooms: February – April.	**No Potential.** The Study Area does not contain volcanic chaparral or woodlands necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Asclepias solanoana serpentine milkweed	Rank 4	Chaparral, cismontane woodland, lower montane coniferous forest; located on serpentine substrate. Elevation range: 745 – 6045 feet. Blooms: May – August.	**No Potential.** The Study Area does not contain serpentine habitat (e.g., grasslands, chaparrals, woodlands, barrens, outcrops) necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Astragalus tener var. tener	Rank 1B	Valley grassland, alkali sink, freshwater wetlands, wetland-riparian. Elevation range: 3 – 180 feet. Blooms March – June.	**Unlikely.** Study Area is highly disturbed/ developed and is not alkaline..\	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Blennosperma bakeri Sonoma sunshine	FE, SE, Rank 1B	Vernal pools, vernal swales, and mesic areas in valley grassland; highly restricted to the Santa Rosa Plain and Valley of the Moon. Elevation range: 35 – 360 feet. Blooms: March – April.	**No Potential.** The Study Area does not contain vernal pool or seasonal wetlands similar to vernal pools necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Brodiaea leptandra narrow-anthered California brodiaea	Rank 1B	Broadleaf upland forest, chaparral, lower montane coniferous forest. Elevation range: 360 – 3000 feet. Blooms: May – July.	**No Potential.** The Study Area does not contain volcanic chaparral or woodlands necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Calamagrostis bolanderi Bolander's reed grass	Rank 4	Bogs and fens, broadleaf upland forest, closed-cone coniferous forest, coastal scrub, meadows and seeps, marshes and swamps, North Coast coniferous forest; located on mesic, freshwater wetland sites. Elevation range: 0 – 1480 feet. Blooms: May – August.	**No Potential.** The Study Area does not have the habitat type and has been disturbed and developed historically..	**Not Present.** No further actions are recommended for this species.
Calamagrostis crassiglumis Thurber's reed grass	Rank 2B	Mesic areas within coastal scrub, freshwater marshes and swamps; typically in marshy swales surrounded by scrub or grassland. Elevation range: 10 – 45 feet. Blooms: May – July.	**No Potential.** The Study Area does not contain coastal habitats (e.g., strand, bluffs, cliffs, dunes, prairies, scrubs, maritime chaparral) necessary to support this species.	**Not Present.** No further actions are recommended for this species.
California macrophylla Round-leaved filaree	Rank 1B	Cismontane woodland and valley and foothill grassland on clay soils. Blooms March - May. 45-3600 feet.	**Unlikely.** Study Area has highly disturbed past and known occurrence is from 1880. Possibly extirpated.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Calochortus raichei The Cedars fairy-lantern	FSC; Rank 1B	Closed-cone coniferous forest, chaparral; on shades slopes, barrens, and talus underlain by serpentine soils. Elevation range: 200 – 490 feet. Blooms: May – August. Counties: SON.	**No Potential.** The Study Area does not contain serpentine habitat (e.g., grasslands, chaparrals, woodlands, barrens, outcrops) necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Calochortus uniflorus large-flowered mariposa lily	Rank 4	Coastal prairie, coastal scrub, meadows and seeps, North Coast coniferous forest. Elevation range: 30 – 3480 feet. Blooms: April – June.	**Unlikely.** Study Area does not have seep meadow or other habitat types where this plant is found..	**Not Present.** No further actions are recommended for this species.
Calystegia purpurata ssp. *saxicola* coastal bluff morning-glory	Rank 1B	Coastal dunes, coastal scrub. Elevation range: 10 – 105 feet. Blooms: May – September.	**No Potential.** The Study Area does not contain coastal habitats (e.g., strand, bluffs, cliffs, dunes, prairies, scrubs, maritime chaparral) necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Campanula californica swamp harebell	FSC; Rank 1B	Bogs and fens, closed-cone coniferous forest, coastal prairie, meadows and seeps, freshwater marshes and swamps, North Coast coniferous forest; in mesic sites in forested and grassland habitat. Elevation range: 1 – 405 feet. Blooms: June – October.	**Unlikely.** Study Area does not have seep meadow or other habitat types where this plant is found.	**Not Present.** No further actions are recommended for this species.
Carex comosa bristly sedge	Rank 2B	Typically on lake and pond margins in coastal prairie, marshes and swamps, valley and foothill grassland. Elevation range: 0 – 425 feet. Blooms: May – September.	**Unlikely.** The Study Area does not contain lake or pond habitat that may support this species.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Castilleja ambigua ssp. *ambigua* johnny-nip	Rank 4	Coastal bluff scrub, coastal prairie, coastal scrub, marshes and swamps, valley and foothill grassland, vernal pool margins. Elevation range: 0 – 1415 feet. Blooms: March – August.	**No Potential.** The Study Area does not contain coastal habitats (e.g., strand, bluffs, cliffs, dunes, prairies, scrubs, maritime chaparral) necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Castilleja uliginosa Pitkin Marsh Indian paintbrush	SE; Rank 1A	Freshwater marshes and swamps; presumed extinct with last wild plant observed in 1987; highly restricted to Pitkin Marsh near Sebastopol. Elevation range: 60 feet. Blooms: June – July. Counties: SON.	**Unlikely.** Study Area does not contain freshwater wetlands and this plant is thought to occur only in Pitkin Marsh.	**Not Present.** No further actions are recommended for this species.
Ceanothus confusus Rincon Ridge ceanothus	FSC; Rank 1B	Closed-cone coniferous forest, chaparral, cismontane woodland; known from volcanic and serpentine substrate; typically on dry shrubby slopes. Elevation range: 245 – 3495 feet. Blooms: February – April.	**No Potential.** The Study Area does not contain volcanic chaparral or woodlands necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Ceanothus foliosus var. vineatus Vine Hill ceanothus	Rank 1B	Chaparral; in acidic sandy soils. Elevation range: 45 – 305 feet. Blooms: March – May.	**No Potential.** This species is strictly confined to acidic sand substrate chaparral not present in the Study Area.	**Not Present.** No further actions are recommended for this species.
Ceanothus gloriosus var. *exaltatus* glory bush	Rank 4	Chaparral; typically located within maritime influence. Elevation range: 95 – 1985 feet. Blooms: March – June, sometimes August.	**No Potential.** The Study Area does not contain coastal habitats (e.g., strand, bluffs, cliffs, dunes, prairies, scrubs, maritime chaparral) necessary to support this species.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Ceanothus gloriosus var. *gloriosus* Point Reyes ceanothus	Rank 4	Coastal bluff scrub, closed-cone coniferous forest, coastal dunes, coastal scrub; located on sandy substrate. Elevation range: 15 – 1690 feet. Blooms: March – May.	**No Potential.** The Study Area does not contain coastal habitats (e.g., strand, bluffs, cliffs, dunes, prairies, scrubs, maritime chaparral) necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Ceanothus purpureus holly-leaved ceanothus	Rank 1B	Chaparral, cismontane woodland; located on rocky, volcanic slopes. Elevation range: 395 – 3000 feet. Blooms: February – June.	**No Potential.** The Study Area does not contain volcanic chaparral or woodlands necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Centromadia parryi ssp. *parryi* pappose tarplant	Rank 1B	Coastal prairie, meadows and seeps, coastal salt marsh, valley and foothill grassland; in vernally mesic sites, often with alkali substrate. Elevation range: 5 – 1380 feet. Blooms: May – November.	**Unlikely.** The Study Area does not contain alkali substrate necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Chlorogalum pomeridianum var. *minus* dwarf soaproot	Rank 1B	Serpentine grassland and chaparral. Elevation range: 305 – 1000 feet. Blooms: May – August.	**No Potential.** The Study Area does not contain serpentine habitat (e.g., grasslands, chaparrals, woodlands, barrens, outcrops) necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Chloropyron maritimum ssp. *palustre* Point Reyes bird's-beak	FSC; Rank 1B	Coastal salt marshes; located in low-growing saltgrass and pickleweed mats. Elevation range: 0 – 35 feet. Blooms: June – October.	**Unlikely.** The Study Area has a fringe of coastal brackish marsh, but does not have broad coastal salt marsh plain necessary to support this species.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Chorizanthe cuspidata var. *cuspidata* San Francisco Bay spineflower	FSC; Rank 1B	Coastal bluff scrub, coastal dunes, coastal prairie, coastal scrub; located on sandy substrates of terraces and slopes. Elevation range: 10 – 700 feet. Blooms: April – August.	**No Potential.** The Study Area does not contain coastal habitats (e.g., strand, bluffs, cliffs, dunes, prairies, scrubs, maritime chaparral) necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Chorizanthe cuspidata var. *villosa* woolly-headed spineflower	Rank 1B	Coastal scrub, coastal dunes, coastal prairie; located on sandy substrates near the beach. Elevation range: 10 – 195 feet. Blooms: May – August.	**No Potential.** The Study Area does not contain coastal habitats (e.g., strand, bluffs, cliffs, dunes, prairies, scrubs, maritime chaparral) necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Chorizanthe valida Sonoma spineflower	FE; SE; Rank 1B	Coastal prairie; in sandy soils. Elevation range: 35 – 1000 feet. Blooms: June – August.	**No Potential.** The Study Area does not contain coastal habitats (e.g., strand, bluffs, cliffs, dunes, prairies, scrubs, maritime chaparral) necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Cirsium andrewsii Franciscan thistle	Rank 1B	Coastal bluff scrub, broadleaf upland forest, coastal scrub; sometimes located along serpentine seeps. Elevation range: 0 – 490 feet. Blooms: March – July.	**No Potential.** The Study Area does not contain coastal habitats (e.g., strand, bluffs, cliffs, dunes, prairies, scrubs, maritime chaparral) necessary to support this species.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Clarkia imbricata Vine Hill clarkia	FE; SE; Rank 1B	Chaparral, valley and foothill grassland; located on acidic sandy substrate. Elevation range: 160 – 245 feet. Blooms: June – August.	**No Potential.** This species is strictly confined to acidic sand substrate chaparral not present in the Study Area.	**Not Present.** No further actions are recommended for this species.
Cordylanthus tenuis ssp. *brunneus* serpentine bird's-beak	Rank 4	Closed-cone coniferous forest, chaparral, cismontane woodland; typically located serpentine substrate. Elevation range: 1540 – 2975 feet. Blooms: July – August.	**No Potential.** The Study Area does not contain serpentine habitat (e.g., grasslands, chaparrals, woodlands, barrens, outcrops) necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Cordylanthus tenuis ssp. *capillaris* Pennell's bird's-beak	FE; SR; Rank 1B	Closed-cone coniferous forest, chaparral; located in openings in manzanita scrub and Sargent cypress forest underlain by serpentine substrate. Elevation range: 145 – 995 feet. Blooms: June – September. Counties: SON.	**No Potential.** The Study Area does not contain serpentine habitat (e.g., grasslands, chaparrals, woodlands, barrens, outcrops) necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Cuscuta obtusiflora var. *glandulosa* Peruvian dodder	Rank 2B	Marshes and swamps; freshwater. Elevation range: 45 – 910 feet. Blooms: July – October.	**Unlikely.** This species is known from valley floor perennial wetlands.	**Not Present.** No further actions are recommended for this species.
Cuscuta pacifica var. *papillata* Mendocino dodder	Rank 1B	Coastal dunes; located in interdune depressions; likely hosts on lupines, catchflies, and cudweeds. Elevation range: 0 – 165 feet. Blooms: July – October.	**No Potential.** The Study Area does not contain coastal habitats (e.g., strand, bluffs, cliffs, dunes, prairies, scrubs, maritime chaparral) necessary to support this species.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Cypripedium californicum California lady's-slipper	Rank 4	Bogs and fens, lower montane coniferous forest; located along seeps and streambanks, typically underlain by serpentine. Elevation range: 95 – 8940 feet. Blooms: April – August.	**Unlikely.** The Study Area does not contain serpentine habitat (e.g., grasslands, chaparrals, woodlands, barrens, outcrops) necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Cypripedium montanum mountain lady's-slipper	Rank 4	Broadleaf upland forest, cismontane woodland, lower montane coniferous forest, North Coast coniferous forest. Elevation range: 600 – 7235 feet. Blooms: March – August.	**No Potential.** The Study Area does not contain the habitat types for this species and is below the elevation range.	**Presence Unknown.** A plant survey in late spring to early summer needed to determine if this species is present or absent from portions of the Study Area.
Delphinium bakeri Baker's larkspur	FE; SE; Rank 1B	Coastal scrub, valley and foothill grassland; located on rocky north-facing slopes derived of decomposed shale. Elevation range: 260 – 995 feet. Blooms: March – May. Counties: MRN, SON.	**No Potential.** The Study Area does not contain coastal habitats (e.g., strand, bluffs, cliffs, dunes, prairies, scrubs, maritime chaparral) or north-facing slopes of shale necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Delphinium luteum yellow larkspur	FE; SR; Rank 1B	Chaparral, coastal prairie, coastal scrub; located on rocky north-facing slopes. Elevation range: 0 – 325 feet. Blooms: March – May. Counties: MRN, SON.	**No Potential.** The Study Area does not contain coastal habitats (e.g., strand, bluffs, cliffs, dunes, prairies, scrubs, maritime chaparral) necessary to support this species.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Dirca occidentalis western leatherwood	Rank 1B	Broadleaf upland forest, chaparral, closed-cone coniferous forest, cismontane woodland, North Coast coniferous forest, riparian forest, riparian woodland; located on brushy, mesic slopes in woodland and forest. Elevation range: 165 – 1285 feet. Blooms: January – April.	**No Potential.** The Study Area does not have habitats types and is below the elevation range of this plant.	**Not Present.** No further actions are recommended for this species.
Downingia pusilla dwarf downingia	Rank 2B	Valley and foothill grassland, vernal pools; located in mesic grassy sites, pool and lake margins. Elevation range: 3 – 1450 feet. Blooms: March – May.	**No Potential.** The Study Area does not contain vernal pool or seasonal wetlands similar to vernal pools necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Eleocharis parvula small spikerush	Rank 4	Marshes and swamps. Elevation range: 5 – 9815 feet. Blooms: sometimes April, June – August, sometimes September.	**No Potential.** This species is associated with large marsh wetlands with little or no overhanging tree canopy which is not present.	**Not Present.** No further actions are recommended for this species.
Elymus californicus California bottle-brush grass	Rank 4	Broadleaf upland forest, cismontane woodland, North Coast coniferous forest, riparian woodland; located in mesic areas. Elevation range: 50 – 1530 feet. Blooms: May – August, sometimes November.	**Unlikely.** The Study Area has highly disturbed and development past.	**Not Present.** No further actions are recommended for this species.
Erigeron biolettii Streamside daisy	Rank 3	Broadleaf upland forest, cismontane woodland, North Coast coniferous forest; on rocky, mesic. Elevation range: 95 – 3610 feet. Blooms: June – October.	**Unlikely.** The Study Area does not contain rocky areas in North Coast coniferous forest (coast redwood forest) that may support this species.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Erigeron greenei Greene's narrow-leaved daisy	Rank 1B	Chaparral; located on volcanic or serpentine substrate. Elevation range: 260 – 3270 feet. Blooms: May – September.	**No Potential.** The Study Area does not contain serpentine habitat (e.g., grasslands, chaparrals, woodlands, barrens, outcrops) necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Erigeron serpentinus serpentine daisy	Rank 1B	Chaparral; serpentine shrubland. Elevation range: 60 – 670 feet. Blooms: May – August.	**No Potential.** The Study Area does not contain serpentine habitat (e.g., grasslands, chaparrals, woodlands, barrens, outcrops) necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Eriogonum cedrorum The Cedar's buckwheat	Rank 1B	Closed-cone coniferous forest; on serpentine substrate. Elevation range: 1195 – 1805 feet. Blooms: June – September.	**No Potential.** The Study Area does not contain serpentine habitat (e.g., grasslands, chaparrals, woodlands, barrens, outcrops) necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Eriogonum ternatum ternate buckwheat	Rank 4	Lower montane coniferous forest; located on serpentine substrates. Elevation range: 990 – 7235 feet. Blooms: June – August.	**No Potential.** The Study Area does not contain serpentine habitat (e.g., grasslands, chaparrals, woodlands, barrens, outcrops) necessary to support this species.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Eriophorum gracile slender cottongrass	Rank 4	Bogs and fens, meadows and seeps, upper montane coniferous forest; located in perennial acidic wetland habitat. Elevation range: 4160 – 9425 feet. Blooms: May – September.	**No Potential.** Study Area does not contain highly acidic wetland habitat and is below the documented elevation range for this species.	**Not Present.** No further actions are recommended for this species.
Erysimum concinnum bluff wall flower	Rank 1B	Coastal bluff scrub, coastal dune, coastal prairie; located on sandy substrates. Elevation range: 0 – 605 feet. Blooms: February – May.	**No Potential.** The Study Area does not contain coastal habitats (e.g., strand, bluffs, cliffs, dunes, prairies, scrubs, maritime chaparral) necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Erysimum franciscanum San Francisco wallflower	FSC; Rank 4	Maritime chaparral, coastal dunes, coastal scrub, valley and foothill grassland; typically located on serpentine or volcanic substrate, often on roadsides. Elevation range: 0 – 1790 feet. Blooms: March – June.	**No Potential.** The Study Area does not contain coastal habitats (e.g., strand, bluffs, cliffs, dunes, prairies, scrubs, maritime chaparral) necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Erythronium revolutum coastal fawn lily	Rank 2B	Bogs and fens, broadleaf upland forest, North Coast coniferous forest; in mesic sites, often on streambanks. Elevation range: 0 – 1350 feet. Blooms: March – July, sometimes August.	**No Potential.** Study Area has no habitat for this species and is precluded by extreme past disturbance and development.	**Not Present.** No further actions are recommended for this species.
Fritillaria liliacea fragrant fritillary	Rank 1B	Coastal scrub, valley and foothill grassland, coastal prairie, cismontane woodland; located in grassy sites underlain by clay, typically derived from volcanics or serpentine. Elevation range: 10 – 1335 feet. Blooms: February – April.	**Unlikely.** While the Study Area contains grassland habitats, they are not underlain by clay soils derived from volcanics or serpentine.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Gilia capitata ssp. *chamissonis* blue coast gilia	Rank 1B	Coastal dunes, coastal scrub. Elevation range: 5 – 600 feet. Blooms: April – July.	**No Potential.** The Study Area does not contain coastal habitats (e.g., strand, bluffs, cliffs, dunes, prairies, scrubs, maritime chaparral) necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Gilia capitata ssp. *pacifica* Pacific gilia	Rank 1B	Coastal bluff scrub, coastal prairie, valley and foothill grassland. Elevation range: 15 – 3090 feet. Blooms: April – August.	**Unlikely.** The Study Area does not contain coastal habitats (e.g., strand, bluffs, cliffs, dunes, prairies, scrubs, maritime chaparral) necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Gilia capitata ssp. *tomentosa* woolly-headed gilia	Rank 1B	Coastal bluff scrub; rocky outcrops on the coast. Elevation range: 15 – 155 feet. Blooms: May – July.	**No Potential.** The Study Area does not contain coastal habitats (e.g., strand, bluffs, cliffs, dunes, prairies, scrubs, maritime chaparral) necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Gilia millefoliata dark-eyed gilia	Rank 1B	Coastal dune. Elevation range: 5 – 100 feet. Blooms: April – July.	**No Potential.** The Study Area does not contain coastal habitats (e.g., strand, bluffs, cliffs, dunes, prairies, scrubs, maritime chaparral) necessary to support this species.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Hemizonia congesta ssp. congesta Hayfield tarplant	Rank 1B	Coastal scrub, valley and foothill grassland. Elevation range: 65 – 1840 feet. Blooms: April – October.	**Unlikely.** The Study Area is highly disturbed and is lower than the elevation range.	**Not Present.** No further actions are recommended for this species.
Hesperevax caulescens hogwallow starfish	Rank 4	Valley and foothill grassland, vernal pools; typically located in shallow wetlands underlain by mesic, alkaline clays. Elevation range: 0 to 1645 feet. Blooms: March – June.	**No Potential.** Study Area does not contain alkaline clay vernal pool or seasonal wetlands similar to vernal pools necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Hesperevax sparsiflora var. *brevifolia* short-leaved evax	Rank 1B	Coastal bluff scrub, coastal dunes; on sandy bluffs and flats in direct maritime influence. Elevation range: 0 – 215 feet. Blooms: March – June.	**No Potential.** The Study Area does not contain coastal habitats (e.g., strand, bluffs, cliffs, dunes, prairies, scrubs, maritime chaparral) necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Horkelia marinensis Point Reyes horkelia	Rank 1B	Coastal dunes, coastal prairie, coastal scrub; located on sandy flats and dunes near the coast; in open grassy sites within scrub. Elevation range: 15 – 1140 feet. Blooms: May – September.	**No Potential.** The Study Area does not contain coastal habitats (e.g., strand, bluffs, cliffs, dunes, prairies, scrubs, maritime chaparral) necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Horkelia tenuiloba thin-lobed horkelia	Rank 1B	Broadleaf upland forest, coastal scrub, valley and foothill grassland, chaparral; in mesic openings, on sandy substrate. Elevation range: 165 – 1640 feet. Blooms: May – July.	**Unlikely.** The Study Area does not contain scrub or grassland habitat underlain by sandy substrate and is lower than the elevation range.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Hosackia gracilis harlequin lotus	Rank 4	Broadleaf upland forest, coastal bluff scrub, closed-cone coniferous forest, cismontane woodland, coastal prairie, coastal scrub, meadows and seeps, marshes and swamps, North Coast coniferous forest, valley and foothill grassland; located in wetlands and roadside ditches. Elevation range: 0 – 2275 feet. Blooms: March – July.	**Unlikely.** The Study Area does not contain mesic areas in North Coast coniferous forest (coast redwood forest and has been highly disturbed and developed.	**Not Present.** No further actions are recommended for this species.
Iris longipetala coast iris	Rank 4	Coastal prairie, lower montane coniferous forest, meadows and seeps; located on mesic sites. Elevation range: 0 – 1950 feet. Blooms: March – May.	**No Potential.** The Study Area does not coastal prairie, lower montane coniferous forest or meadows and seeps.	**Not Present.** No further actions are recommended for this species.
Lasthenia burkei Burke's goldfields	FE; SE; Rank 1B	Vernal pools, meadows and seeps; typically located in pools and swales. Highly restricted to the Santa Rosa Plain. Elevation range: 45 – 1950 feet. Blooms: April – June.	**No Potential.** The Study Area does not contain vernal pool or seasonal wetlands similar to vernal pools necessary to support this species, known to occur on the Santa Rosa Plain.	**Not Present.** No further actions are recommended for this species.
Lasthenia californica ssp. bakeri Baker's goldfields	Rank 1B	Openings in closed-cone coniferous forest, coastal scrub, meadows and seeps, marshes and swamps. Elevation range: 60 – 520 feet. Blooms: April – October.	**No Potential.** The Study Area does not contain coastal habitats (e.g., strand, bluffs, cliffs, dunes, prairies, scrubs, maritime chaparral) necessary to support this species.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Lasthenia californica ssp. macrantha perennial goldfields	Rank 1B	Coastal bluff scrub, coastal dunes, coastal scrub. Elevation range: 5 – 520 feet. Blooms: January – November.	**No Potential.** Study Area does not contain coastal habitats (e.g., strand, bluffs, cliffs, dunes, prairies, scrubs, maritime chaparral) necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Lasthenia conjugens Contra Costa goldfields	FE; Rank 1B	Valley and foothill grassland, vernal pools, cismontane woodland; located in pools, swales, and depressions in mesic grassy sites underlain by alkaline substrate. Elevation range: 0 – 1530 feet. Blooms: March – June.	**No Potential.** Study Area does not contain vernal pool or seasonal wetlands similar to vernal pools necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Legenere limosa legenere	FSC; Rank 1B	Vernal pools; typically located in the deepest portions of pools. Elevation range: 3 – 2860 feet. Blooms: April – June.	**Unlikely.** Study Area does not contain habitat similar to vernal pools necessary to support this species and is precluded by past disturbance.	**Not Present.** No further actions are recommended for this species.
Leptosiphon jepsonii Jepson's leptosiphon	Rank 1B	Chaparral, cismontane woodland; on open to partially shaded grassy slopes on volcanic or the periphery of serpentine substrate. Elevation range: 330 – 1640 feet. Blooms: April – May.	**No Potential.** Study Area does not contain chaparral or woodland habitats underlain by serpentine and/or volcanic substrates.	**Not Present.** No further actions are recommended for this species.
Leptosiphon rosaceus rose Leptosiphon	Rank 1B	Coastal bluff scrub. Elevation range: 0 – 325 feet. Blooms: April – July.	**No Potential.** Study Area does not contain coastal habitats (e.g., strand, bluffs, cliffs, dunes, prairies, scrubs, maritime chaparral) necessary to support this species.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Lessingia arachnoidea Crystal Springs lessingia	FSC; Rank 1B	Coastal sage scrub, valley and foothill grassland, cismontane woodland; typically on grassy serpentine slopes. Elevation range: 60 – 200 feet. Blooms: July – October.	**No Potential.** The Study Area does not contain serpentine habitat (e.g., grasslands, chaparrals, woodlands, barrens, outcrops) necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Lessingia hololeuca woolly-headed lessingia	Rank 3	Broadleaf upland forest, coastal scrub, lower montane coniferous forest, valley and foothill grassland; typically on clay, serpentine substrate. Elevation range: 3 – 2885 feet. Blooms: April – June.	**No Potential.** The Study Area does not contain serpentine habitat (e.g., grasslands, chaparrals, woodlands, barrens, outcrops) necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Lilium pardalinum ssp. *pitkinense* Pitkin Marsh lily	FE; SE; Rank 1B	Cismontane woodland, meadows and seeps, freshwater marsh, riparian scrub; located on acidic saturated sandy substrate. Elevation range: 110 – 215 feet. Blooms: June – July.	**Unlikely.** The Study Area does not contain perennial wetland habitat or acidic sandy substrate riparian wetlands.	**Not Present.** No further actions are recommended for this species.
Lilium rubescens redwood lily	Rank 4	Broadleaf upland forest, chaparral, lower montane coniferous forest, upper montane coniferous forest, North Coast coniferous forest; often located on serpentine substrates, and along roadcuts. Elevation range: 95 – 6210 feet. Blooms: April – September.	**No Potential.** The Study Area does not contain suitable habitat that supports and no serpentine substrate.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Limnanthes vinculans Sebastopol meadowfoam	FE; SE; Rank 1B	Mesic meadows, valley and foothill grassland, vernal pools; located in swales, wet meadows, depressions, and pools in the oak savanna of the Santa Rosa Plain on heavy adobe clay substrate. Elevation range: 3 – 2885 feet. Blooms: April – June.	**No Potential.** The Study Area does not contain habitat similar to vernal pools necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Lupinus arboreus var. *eximius* San Mateo tree lupine	Rank 3	Chaparral, coastal scrub. Elevation range: 290 – 1790 feet. Blooms: April – July.	**No Potential.** The Study Area does not contain coastal habitats (e.g., strand, bluffs, cliffs, dunes, prairies, scrubs, maritime chaparral) necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Lupinus tidestromii Tidestrom's lupine	FE; SE; Rank 1B	Coastal dunes; on partially stabilized dunes immediately near the ocean. Elevation range: 0 – 100 feet. Blooms: April – June.	**No Potential.** The Study Area does not contain coastal habitats (e.g., strand, bluffs, cliffs, dunes, prairies, scrubs, maritime chaparral) necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Microseris paludosa marsh microseris	Rank 1B	Closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland. Elevation range: 5 – 300 feet. Blooms: April – June.	**Unlikely.** The Study Area does not contain pine forest, woodland, scrub, or grassland habitat necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Monardella viridis green Monardella	Rank 4	Broadleaf upland forest, chaparral, cismontane woodland. Elevation range: 325 – 3285 feet. Blooms: June – September.	**No Potential.** Study Area does not contain habitat necessary to support this species and is below the elevation range.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Navarretia leucocephala ssp. *bakeri* Baker's navarretia	Rank 1B	Wet, mesic sites underlain by adobe and/or alkaline substrate in cismontane woodland, meadows, seeps, vernal pools, valley and foothill grassland, lower montane coniferous forest. Elevation range: 15 – 5710 feet. Blooms: April – July.	**No Potential.** The Study Area does not contain habitat similar to vernal pools and alkaline soil necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Navarretia leucocephala ssp. *plieantha* many-flowered navarretia	FE, SE, Rank 1B	Vernal pools underlain by substrate derived from volcanic ash flows. Elevation range: 95 – 3120 feet. Blooms: May – June.	**No Potential.** The Study Area does not contain habitat similar to vernal pools in volcanic ash substrates necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Perideridia gairdneri ssp. *gairdneri* Gairdner's yampah	FSC; Rank 4	Broadleaf upland forest, chaparral, coastal prairie, valley and foothill grassland, vernal pools; located in vernally mesic sites. Elevation range: 0 – 1985 feet. Blooms: June – October.	**Unlikely.** The Study Area does not contain open, mesic areas in chaparral, or woodland habitat necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Piperia candida white-flowered rein orchid	Rank 1B	North Coast coniferous forest, lower montane coniferous forest, broadleaf upland forest; known from Coast Ranges from Santa Cruz County north on serpentine substrate; in forest duff, mossy banks, rock outcrops, and muskeg. Elevation range: 95 – 4300 feet. Blooms: May – September.	**No Potential.** The Study Area does not contain the habitat type necessary and is below the elevation range. There is only one historic documented occurrence from Sonoma County from 1930.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Plagiobothrys mollis var. *vestitus* Petaluma popcorn-flower	Rank 1A	Valley grassland, coastal salt marsh, wetland riparian. Blooms June – July.	**Unlikely.** Study Area has past extreme disturbance and only known occurrence is from 1880. Presumed extirpated.	**Not Present.** No further actions are recommended for this species.
Pleuropogon hooverianus North coast semaphore grass	FSC; ST; Rank 1B	Broadleaf upland forests, meadows and seeps, freshwater marshes and swamps, North Coast coniferous forest, shaded, wet, and grassy areas in forested habitat. Elevation range: 10 – 635 feet. Blooms May – August.	**Unlikely.** The Study Area does not contain mesic areas in North Coast coniferous forest (coast redwood forest) habitat that may support this species.	**Not Present.** No further actions are recommended for this species.
Polemonium carneum Oregon polemonium	Rank 2B	Coastal prairie, coastal scrub, lower montane coniferous forest. Elevation range: 0 – 5950 feet. Blooms: April – September.	**No Potential.** The Study Area does not contain coastal habitats (e.g., strand, bluffs, cliffs, dunes, prairies, scrubs, maritime chaparral) necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Polygonum marinense Marin knotweed	FSC; Rank 3	Salt and brackish coastal marshes. Elevation range: 0 – 35 feet. Blooms: sometimes April, May – August, sometimes October.	**Unlikely.** Vegetated fringe on steep shoreline of Petaluma River and known occurrences only in Marin County.	**Not Present.** No further actions are recommended for this species.
Potentilla uliginosa Cunningham Marsh cinquefoil	Rank 1A	Freshwater marshes and swamps; located in oligotrophic wetland habitat; presumed extinct. Elevation range: 95 – 130 feet. Blooms: May – August.	**No Potential.** Study Area contains no perennial wetland habitat and is below elevation range.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Ranunculus lobbii Lobb's buttercup	Rank 4	Cismontane woodland, North Coast coniferous forest, valley and foothill grassland, vernal pools; located in mesic, vernally wet areas. Elevation range: 45 – 1530 feet. Blooms: February – May.	**Unlikely.** The Study Area has had a long history of disturbance and none were observed on a site survey during bloom period.	**Not Present.** No further actions are recommended for this species.
Rhynchospora alba white beaked-rush	Rank 2B	Bogs and fens, meadows and seeps, freshwater marshes and swamps. Elevation range: 195 – 6695 feet. Blooms: July – August.	**No Potential.** The Study Area has no suitable wetlands habitat with past disturbance and is below the elevation range.	**Not Present.** No further actions are recommended for this species.
Rhynchospora californica California beaked-rush	FSC; Rank 1B	Bogs and fens, lower montane coniferous forest, meadows and seeps, freshwater marshes and swamps. Elevation range: 145 – 3315 feet. Blooms: May – July.	**No Potential.** The Study Area has no suitable wetlands habitat with past disturbance and is below the elevation range.	**Not Present.** No further actions are recommended for this species.
Rhynchospora capitellata brownish beaked-rush	Rank 2B	Lower montane coniferous forest, meadows and seeps, marshes and swamps, upper montane coniferous forest/ mesic. Elevation range: 1490 – 6560 feet. Blooms: July – August.	**Unlikely.** This species is associated with large, montane marsh wetlands and Study Area is below elevation range.	**Not Present.** No further actions are recommended for this species.
Rhynchospora globularis round-headed beaked-rush	Rank 2B	Freshwater marshes and swamps. Elevation range: 145 – 200 feet. Blooms: July – August.	**No Potential.** The Study Area has no suitable wetlands habitat with past disturbance and is below the elevation range.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Sidalcea calycosa ssp. *rhizomata* Point Reyes checkerbloom	Rank 1B	Marshes and swamps; located in freshwater marsh habitat near the coast. Elevation range: 10 – 245 feet. Blooms: April – September.	**No Potential.** The Study Area does not contain freshwater marsh habitat on the coast necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Sidalcea hickmanii ssp. *viridis* Marin checkerbloom	FSC; Rank 1B	Chaparral; located on serpentine or volcanic substrate, often located in burns. Elevation range: 160 – 1400 feet. Blooms: May – June.	**No Potential.** The Study Area does not contain serpentine or volcanic habitat (e.g., grasslands, chaparrals, woodlands, barrens, outcrops) necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Sidalcea malviflora ssp. *purpurea* purple-stemmed checkerbloom	Rank 1B	Broadleaf upland forest, coastal prairie on or near the coast. Elevation range: 15 – 65 feet. Blooms: May.	**No Potential.** The Study Area does not contain coastal habitats (e.g., strand, bluffs, cliffs, dunes, prairies, scrubs, maritime chaparral) necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Streptanthus glandulosus var. *hoffmanii* secund jewel-flower	FSC; Rank 1B	Chaparral, cismontane woodland, valley and foothill grassland; often on serpentine, rocky sites. Elevation range: 120 – 475 feet. Blooms: March – July.	**No Potential.** The Study Area does not contain serpentine habitat (e.g., grasslands, chaparrals, woodlands, barrens, outcrops) necessary to support this species.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Streptanthus morrisonii ssp. *elatus* Three Peaks jewel-flower	FSC; Rank 1B	Serpentine chaparral. Elevation range: 90 – 815 feet. Blooms: June – September.	**No Potential.** The Study Area does not contain serpentine habitat (e.g., grasslands, chaparrals, woodlands, barrens, outcrops) necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Streptanthus morrisonii ssp. *hirtiflorus* Dorr's Cabin jewel-flower	FSC; Rank 1B	Serpentine chaparral, serpentine closed-cone coniferous forest. Elevation range: 185 – 820 feet. Blooms: June.	**No Potential.** The Study Area does not contain serpentine habitat (e.g., grasslands, chaparrals, woodlands, barrens, outcrops) necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Streptanthus morrisonii ssp. *morrisonii* Morrison's jewel-flower	FSC; Rank 1B	Serpentine chaparral on rocky talus. Elevation range: 120 – 585 feet. Blooms: May – September.	**No Potential.** The Study Area does not contain serpentine habitat (e.g., grasslands, chaparrals, woodlands, barrens, outcrops) necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Thamnolia vermicularis whiteworm lichen	Rank 2B	Chaparral, valley and foothill grassland; located on exposed sandstone rock outcrops.	**No Potential.** The Study Area does not contain exposed sandstone rock outcrops habitat necessary to support this species.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Trifolium amoenum showy rancheria clover	FE; Rank 1B	Valley and foothill grassland, coastal bluff scrub, swales, open sunny sites, affinity to serpentine. Elevation range: 15 – 1365 feet. Blooms: April – June.	**No Potential.** The Study Area does not contain coastal habitats (e.g., strand, bluffs, cliffs, dunes, prairies, scrubs, maritime chaparral) or serpentine necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Trifolium buckwestiorum Santa Cruz clover	Rank 1B	Broadleaf upland forest, cismontane woodland, coastal prairie endangered margins. Elevation range: 105 – 610 feet. Blooms: April – October.	**No Potential.** The Study Area does not contain coastal habitats (e.g., strand, bluffs, cliffs, dunes, prairies, scrubs, maritime chaparral) necessary to support this species, also below the elevation range.	**Not Present.** No further actions are recommended for this species.
Trifolium hydrophilum saline clover	Rank 1B	Marshes and swamps, mesic portions of alkali vernal pools, mesic, alkali valley and foothill grassland. Elevation range: 0 – 985 feet. Blooms: April – June.	**No Potential.** The Study Area does not contain alkali wetlands habitat necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Triquetrella californica coastal triquetrella	Rank 1B	Coastal bluff scrub, coastal scrub, valley and foothill grassland; grows within 100 feet of the coastline in scrub and grasslands on open gravel substrates of roads, hillsides, bluffs, and slopes. Elevation range: 30 – 325 feet.	**No Potential.** The Study Area does not contain coastal habitats (e.g., strand, bluffs, cliffs, dunes, prairies, scrubs, maritime chaparral) necessary to support this species.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Usnea longissima long-beard lichen	Rank 4	North Coast coniferous forest, broadleaf upland forest; located in redwood zone on a variety of trees including big leaf maple (*Acer macrophyllum*), oaks (*Quercus* spp.), ash (*Fraxinus latifolia*), Douglas fir (*Pseudotsuga menziesii*), coast redwood (*Sequoia sempervirens*), and bay (*Umbellularia californica*). Elevation range: 0 – 2000 feet.	**No Potential.** The Study Area does not contain suitable habitat or trees that would support this species.	**Not Present.** No further actions are recommended for this species.
Viburnum ellipticum oval-leaved viburnum	Rank 2B	Chaparral, cismontane woodland, lower montane coniferous forest. Elevation range: 705 – 4595 feet. Blooms: May – June.	**No Potential.** This species is closely associated with xeric forest, woodland, and/or chaparral habitats at higher elevations not present in the Study Area.	**Not Present.** No further actions are recommended for this species.
Mammals				
American badger *Taxidea taxus*	SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Requires friable soils and open, uncultivated ground. Preys on burrowing rodents.	**No Potential.** The Project Areas do not contain suitable habitat necessary to support this species. Additionally, large fossorial and burrowing mammals are absent.	No further actions are recommended for this species.
fisher, west coast DPS *Martes pennanti (formerly Martes pennant pacifica)*	SC (T), SSC	Intermediate to large-tree stages of coniferous forests and deciduous-riparian areas with high percent canopy closure. Use cavities, snags, logs and rocky areas for cover and denning. Need large areas of mature, dense forest.	**No Potential.** The Project Area does not provide habitat that this species needs for cover or foraging. Additionally the Project Area is separated from	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
			suitable habitat by urban development	
ringtail *Bassariscus astutus*	CFP	The Ringtail is widely distributed throughout most of California, absent from some portions of the Central Valley and northeastern California. Found in a variety of habitats throughout the western US including riparian areas, semi-arid country, deserts, chaparral, oak woodlands, pinyon pine woodlands, juniper woodlands and montane conifer forests usually under 1400m in elevation. Typically uses cliffs or large trees for shelter.	**No Potential.** The Project Area does not provide suitable refugia for this species. Preferred riparian habitat is 4 miles to the south of the Project Area.	No further actions are recommended for this species.
Sonoma tree vole *Arborimus pomo*	SSC	North coast fog belt from Oregon border to Sonoma County. Occurs in Douglas fir, redwood and montane hardwood-conifer forests. Feeds almost exclusively on Douglas fir needles. Will occasionally take needles of grand fir, hemlock or spruce.	**No Potential.** The Project Area does not contain Douglas fir or forested habitat this species needs for foraging and nesting. There are no documented occurrences within 5 miles of the Project Area (CDFW 2017).	No further actions are recommended for this species.
San Pablo vole *Microtus californicus sanpabloensis*	SSC	Saltmarshes of San Pablo Creek, on the south shore of San Pablo Bay. Constructs burrow in soft soil. Feeds on grasses, sedges and herbs. Forms a network of runways leading from the burrow.	**Unlikely.** The Study Area is outside of the known range for this species.	No further action recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
salt-marsh harvest mouse *Reithrodontomys raviventris*	FE, SE, CFP	Endemic to emergent salt and brackish wetlands of the San Francisco Bay Estuary. Pickleweed marshes are primary habitat; also occurs in various other wetland communities with dense vegetation. Does not burrow, builds loosely organized nests. Requires higher areas for flood escape.	**No Potential.** The Project Area does not contain pickleweed that this species needs for foraging and nesting. There nearest documented occurrence is 1.5 miles south of the Project Area in marsh habitat along to Petaluma River (CDFW 2017).	No further actions are recommended for this species.
pallid bat *Antrozous pallidus*	SSC, WBWG	Found in deserts, grasslands, shrublands, woodlands, and forests. Roost sites include old ranch buildings, rocky outcrops and caves within sandstone outcroppings. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	**Moderate Potential.** The Project Area does contain a suitable building to provide roosting of this species. Additionally this species was documented in a building less than a mile from the Project Area (CDFW 2017).	Avoidance of suitable roost habitat, work windows, and/or pre-construction surveys.
silver-haired bat *Lasionycteris noctivagans*	WBWG	Primarily a forest dweller, feeding over streams, ponds, and open brushy areas. Summer habitats include a variety of forest and woodland types, both coastal and montane. Roosts in hollow trees, snags, buildings, rock crevices, caves, and under bark.	**No Potential.** The Project Area does not contain trees to support roosting of this species.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Townsend's big-eared bat *Corynorhinus townsendii*	SSC, WBWG	Associated with a wide variety of habitats from deserts to mid-elevation mixed coniferous-deciduous forest. Females form maternity colonies in buildings, caves and mines and males roost singly or in small groups. Foraging occurs in open forest habitats moths gleaned from vegetation.	**Unlikely.** The Project Area does not contain suitable structures to provide diurnal roosting for this species.	No further actions are recommended for this species.
western red bat *Lasiurus blossevillii*	SSC, WBWG	Highly migratory and typically solitary, roosting primarily in the foliage of trees or shrubs. Roosts are usually in broad-leaved trees including cottonwoods, sycamores, alders, and maples. Day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas.	**Unlikely.** Project Area does not contain broad leafed trees suitable for roosting. The Project Area does have open areas, therefore this species may be observed foraging within the Project Area.	No further actions are recommended for this species.
hoary bat *Lasiurus cinereus*	WBWG	Prefers open forested habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths. Requires water.	**Unlikely.** The Project Area and immediately adjacent areas do not provide contiguous forest habitat to support roosting or foraging of this species.	No further actions are recommended for this species.
long-eared myotis *Myotis evotis*	WBWG	Occurs in semiarid shrublands, sage, chaparral, and agricultural areas, but is usually associated with coniferous forests from seal level to 9000 feet. Individuals roost under exfoliating tree bark, and in hollow trees, caves, mines, cliff crevices, and rocky outcrops on the ground. They also sometimes roost in buildings and under bridges.	**No Potential.** The Project Area does not contain coniferous forest habitat or trees to support roosting of this species.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
fringed myotis *Myotis thysanodes*	WBWG	Associated with a wide variety of habitats including dry woodlands, desert scrub, mesic coniferous forest, grassland, and sage-grass steppes. Buildings, mines and large trees and snags are important day and night roosts.	**No Potential.** The Project Area does not contain grassland habitat or trees to support foraging or roosting of this species.	No further actions are recommended for this species.
long-legged myotis *Myotis volans*	WBWG	Primarily found in coniferous forests, but also occurs seasonally in riparian and desert habitats. Large hollow trees, rock crevices and buildings are important day roosts. Other roosts include caves, mines and buildings.	**No Potential.** The Project Area does not contains coniferous forest habitat to support roosting of this species.	No further actions are recommended for this species.
western mastiff bat *Eumops perotis*	SSC, WBWG	Found in a wide variety of open, arid and semi-arid habitats. Distribution appears to be tied to large rock structures which provide suitable roosting sites, including cliff crevices and cracks in boulders.	**No Potential.** The Project Area does not contain arid or semi-arid habitat or large rock structures to supporting roosting for this species.	No further actions are recommended for this species.
Birds				
golden eagle *Aquila chrysaetos*	CFP, BCC	Occurs year-round in rolling foothills, mountain areas, sage-juniper flats, and deserts. Cliff-walled canyons provide nesting habitat in most parts of range; also nests in large trees, usually within otherwise open areas.	**Unlikely.** The Project Area does not contain deep canyons with large trees suitable for nesting.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
bald eagle *Haliaeetus leucocephalus*	SE, CFP, BCC	Occurs year-round in California, but primarily a winter visitor. Nests in large trees in the vicinity of larger lakes, reservoirs and rivers. Wintering habitat somewhat more variable but usually features large concentrations of waterfowl or fish.	**Unlikely.** The Project Area does not contain large trees adjacent to large water bodies of water to support nesting of this species. Additionally, due to the developed nature of the Petaluma River, foraging within the Project Area along the river is reduced.	No further actions are recommended for this species.
American peregrine falcon *Falco peregrinus anatum*	SD, CFP, BCC	Year-round resident and winter visitor. Occurs in a wide variety of habitats, though often associated with coasts, bays, marshes and other bodies of water. Nests on protected cliffs and also on man-made structures including buildings and bridges. Preys on birds, especially waterbirds. Forages widely.	**Unlikely.** No cliff, ledge or anthropogenic substrates suitable for nesting are present within the Project Area.	No further actions are recommended for this species.
ferruginous hawk *Buteo regalis*	BCC	Winter visitor to open habitats, including grasslands, sagebrush flats, scrub, and low foothills surrounding valleys. Preys on mammals. Does not breed in California.	**No Potential.** The Project Area does not provide suitable foraging habitat. Additionally this species does not nest in California.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Swainson's hawk *Buteo swainsoni*	ST, BCC	Summer resident in California's Central Valley and limited portions of the southern California interior. Nests in tree groves and isolated trees in riparian and agricultural areas, including near buildings. Forages in grasslands and scrub habitats as well as agricultural fields, especially alfalfa. Preys on arthropods year-round as well as smaller vertebrates during the breeding season.	**No Potential.** The Project Area is not within the known breeding range of this species. This species is presumed extirpated from the Petaluma Area (CDFW 2017).	No further actions are recommended for this species.
northern harrier *Circus cyaneus*	SSC	Year-round resident and winter visitor. Found in open habitats including grasslands, prairies, marshes and agricultural areas. Nests on the ground in dense vegetation, typically near water or otherwise moist areas. Preys on small vertebrates.	**Unlikely.** The Project Area contains open grassland habitat, however the urban development immediately adjacent to the Project Area makes this species less likely to occur.	No further actions are recommended for this species.
white-tailed kite *Elanus leucurus*	CFP	Year-round resident in coastal and valley lowlands with scattered trees and large shrubs, including grasslands, marshes and agricultural areas. Nests in trees, of which the type and setting are highly variable. Preys on small mammals and other vertebrates.	**Moderate Potential.** The Project Area does not contain any trees or shrubs to support nesting of this species. This species may be seen foraging within the Project Area.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
burrowing owl *Athene cunicularia*	BCC, SSC	Year-round resident and winter visitor. Occurs in open, dry grasslands and scrub habitats with low-growing vegetation, perches and abundant mammal burrows. Preys upon insects and small vertebrates. Nests and roosts in old mammal burrows, most commonly those of ground squirrels.	**Unlikely.** The Project Area does not contain suitable ground squirrel burrows. The nearest documented occurrence is 4.5 miles west of the Project Area (CDFW 2017).	No further actions are recommended for this species.
northern spotted owl *Strix occidentalis caurina*	FT, ST, SSC	Year-round resident in dense, structurally complex forests, primarily those with old-growth conifers. Nests on platform-like substrates in the forest canopy, including in tree cavities. Preys on mammals.	**No Potential.** Project Area and immediately adjacent areas do not contain old-growth coniferous forest habitat this species needs for nesting.	No further actions are recommended for this species.
short-eared owl *Asio flammeus*	SSC	Occurs year-round, primarily as a winter visitor; breeding very restricted in most of California. Found in open, treeless areas (e.g., marshes, grasslands) with elevated sites for foraging perches and dense herbaceous vegetation for roosting and nesting. Preys mostly on small mammals, particularly voles.	**Unlikely.** The Project Area does not contain herbaceous vegetation or trees to support nesting of this species.	No further actions are recommended for this species.
California least tern *Sternula antillarum browni*	FE, SE, CFP	Summer resident along the coast from San Francisco Bay south to northern Baja California; inland breeding also very rarely occurs. Nests colonially on barren or sparsely vegetated areas with sandy or gravelly substrates near water, including beaches, islands, and gravel bars. In San Francisco Bay, has also nested on salt pond margins.	**Unlikely.** Project Area does not contain suitable nesting habitat. Additionally there is no known nesting colony documented within Sonoma County.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
caspian tern *Hydroprogne caspia*	BCC	Summer resident. Nests colonially on sparsely-vegetated islands (including man-made islands), sandbars and beaches near expanses of open water. Forages on fishes.	**No Potential.** Project Area and immediate vicinity do not contain vegetated islands or sand bars to support a nesting colony and is outside of the known breeding range of this species.	No further actions are recommended for this species.
double-crested cormorant *Phalacrocorax auritus* not SSC or BCC	DFG:WL	(Rookery site) colonial nester on coastal cliffs, offshore islands, and along lake margins in the interior of the state. Nests along coast on sequestered islets, usually on ground with sloping surface, or in tall trees along lake margins.	**Unlikely.** The Project Area and surrounding areas do not contain coastal cliffs of trees to support a nesting colony.	No further actions are recommended for this species.
black oystercatcher *Haematopus bachmani*	BCC	Year-round resident of rocky coast habitats along the Pacific coast. Also occurs on coastal and lower estuarine mud-flats. Forages primarily on intertidal invertebrates.	**No Potential.** The Project Area does not contain coastal habitat to support nesting or foraging of this species.	No further actions are recommended for this species.
California black rail *Laterallus jamaicensis coturniculus*	ST, CFP	Year-round resident in marshes (saline to freshwater) with dense vegetation within four inches of the ground. Prefers larger, undisturbed marshes that have an extensive upper zone and are close to a major water source. Extremely secretive and cryptic.	**Unlikely.** The Project Area does not contain marshes or estuarine habitat**.** The nearest documented occurrence is 3 miles south of the Project Area (CDFW 2017).	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
California Ridgway's (clapper) rail *Rallus obsoletus obsoletus*	FE, SE, CFP	Year-round resident in tidal marshes of the San Francisco Bay estuary. Requires tidal sloughs and intertidal mud flats for foraging, and dense marsh vegetation for nesting and cover. Typical habitat features abundant growth of cordgrass and pickleweed. Feeds primarily on molluscs and crustaceans.	**Unlikely.** The Project Area does not contain suitable marsh habitat to support foraging or nesting of this species. The nearest documented occurrence is 1.5 miles south of Project Area (CDFW 2017).	No further actions are recommended for this species.
great blue heron *Ardea herodias*	none (breeding sites protected by CDFW)	Year-round resident. Nests colonially or semi-colonially in tall trees and cliffs, also sequestered terrestrial substrates. Breeding sites usually in close proximity to foraging areas: marshes, lake margins, tidal flats, and rivers. Forages primarily on fishes and other aquatic prey, also smaller terrestrial vertebrates.	**Unlikely**. The Project Area does not contain trees to support a nesting colony. This species may forage within the Project Area.	No further actions are recommended for this species.
long-billed curlew *Numenius americanus*	BCC	(Nesting) breeds in upland shortgrass prairies and wet meadows in northeastern California. Habitats on gravelly soils and gently rolling terrain are favored over others	**Unlikely.** The Project Area is not within the known breeding range of this species (Zeiner et. al. 1990). Additionally, the Project Area does not contain wetland habitat to support foraging of this species.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
western snowy plover *Charadrius nivosus (alexandrines) nivosus*	FT, SSC, BCC	Federal listing applies only to the Pacific coastal population. Year-round resident and winter visitor. Occurs on sandy beaches, salt pond levees, and the shores of large alkali lakes. Nests on the ground, requiring sandy, gravelly or friable soils.	**No Potential.** The Project Area does not contain sandy beaches, or salt pond levees, or shores of lakes The nearest documented colony is over 5 miles north of Project Area (CDFW 2017).	No further actions are recommended for this species.
Samuels (San Pablo) song sparrow *Melospiza melodia samuelis*	BCC, SSC	Year-round resident of tidal marshes along the north side of San Francisco and San Pablo Bays. Typical habitat is dominated by pickleweed, with gumplant and other shrubs present in the upper zone for nesting. May forage in areas adjacent to marshes.	**Unlikely.** The Project Area does not contain pickleweed or marsh vegetation. Additionally there are no shrubs or trees to support nesting of this species.	No further actions are recommended for this species.
bank swallow *Riparia riparia*	ST	Summer resident in riparian and other lowland habitats near rivers, lakes and the ocean in northern California. Nests colonially in excavated burrows on vertical cliffs and bank cuts (natural and manmade) with fine-textured soils. Historical nesting range in southern and central areas of California has been eliminated by habitat loss. Currently known to breed in Siskiyou, Shasta, and Lassen Cos., portions of the north coast, and along Sacramento River from Shasta Co. south to Yolo Co.	**Unlikely.** The Project Area and adjacent areas do not contain sandy cliffs or riparian habitats suitable to support nesting of this species. The nearest documented occurrence in over 5 miles east of the Project Area (CDFW 2017).	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
purple martin *Progne subis*	SSC	Inhabits woodlands and low elevation coniferous forests. Nests in old woodpecker cavities and human-made structures. Nest is often located in tall, isolated tree or snag.	**No Potential.** The Project Area and immediately adjacent areas do not contain trees suitable for cavity nesting birds.	No further actions are recommended for this species.
black swift *Cypseloides niger*	BCC, SSC	Summer resident with a fragmented breeding distribution; most occupied areas in California either montane or coastal. Breeds in small colonies on cliffs behind or adjacent to waterfalls, in deep canyons, and sea-bluffs above surf. Forages aerially over wide areas.	**Unlikely.** There is no suitable trees or rock features to support nesting of this species within the Project Area.	No further actions are recommended for this species.
Vaux's swift *Chaetura vauxi*	SSC	Summer resident, breeding primarily in forested areas. Nests in tree cavities, favoring those with a large vertical extent; also uses chimneys and other man-made substrates. Forages aerially for insects.	**Unlikely.** The Project Area does not contain suitable forest habitat to support nesting of this species.	No further actions are recommended for this species.
rufous hummingbird *Selasphorus rufus*	BCC	Summer resident, with breeding in California restricted to the northwest corner of the state. Favors habitats rich in nectar-producing flowers. Nests in berry tangles, shrubs, deciduous forests and conifers. Occurs widely during migration.	**Unlikely.** Sonoma County is not within this species breeding range. Additionally the Project Area does not contain vegetation to support foraging of this species.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Allen's hummingbird *Selasphorus sasin*	BCC	Summer resident along the California coast, breeding in a variety of woodland and forest habitats, including parks and gardens with abundant nectar sources. Nest in shrubs and trees with dense vegetation.	**Unlikely.** Project Area does not contain forest habitat this species requires for nesting and foraging. This species may be seen foraging in immediately adjacent vegetation.	No further actions are recommended for this species.
Lewis's woodpecker *Melanerpes lewis*	BCC	Uncommon resident in California occurring on open oak savannahs, broken deciduous and coniferous habitats. Breeds primarily in ponderosa pine forests, riparian woodlands and disturbed pine forests but is also known to nest in orchards and oak woodlands. Rare nester in the San Francisco Bay Area.	**No Potential.** The Project Area does not contain trees to support nesting or foraging of this species.	No further actions are recommended for this species.
Nuttall's woodpecker *Picoides nuttallii*	BCC	Year-round resident in lowland woodlands throughout much of California west of the Sierra Nevada. Typical habitat is dominated by oaks; also occurs in riparian woodland. Nests in tree cavities.	**No Potential.** The Project Area does not contain trees to support nesting or foraging of this species.	No further actions are recommended for this species.
Saltmarsh common yellowthroat *Geothlypis trichas sinuosa*	BCC, SSC	Resident of the San Francisco Bay region, in fresh and salt water marshes. Requires thick, continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting.	**Unlikely.** Project Area does not contain marsh habitat to support nesting or foraging of this subspecies. The nearest documented occurrence in 1 miles south of the Project Area (CDFW 2017).	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
olive-sided flycatcher *Contopus cooperi*	BCC, SSC	Summer resident. Typical breeding habitat is montane coniferous forests. At lower elevations, also occurs in wooded canyons and mixed forests and woodlands. Often associated with forest edges. Arboreal nest sites located well off the ground.	**Unlikely.** The Project Area does not contain forest habitat to support nesting of this species. Additionally the Project Area is surrounded by urban development.	No further actions are recommended for this species.
oak titmouse *Baeolophus inornatus*	BCC	Occurs year-round in woodland and savannah habitats where oaks are present, as well as riparian areas. Nests in tree cavities.	**Unlikely.** The Project Area and adjacent areas do not contain mature oak trees or riparian habitat to support this species.	No further actions are recommended for this species.
tricolored blackbird *Agelaius tricolor*	SC, BCC, SSC	Nearly endemic to California, where it is most numerous in the Central Valley and vicinity. Highly colonial, nesting in dense aggregations over or near freshwater in emergent growth or riparian thickets. Also uses flooded agricultural fields. Abundant insect prey near breeding areas essential.	**Unlikely.** The Project Area does not support the dense marsh vegetation necessary for nesting. The nearest documented occurrence is over 5 miles south of the Project Area (CDFW 2017).	No further actions are recommended for this species.
yellow-headed blackbird *Xanthocephalus xanthocephalus*	SSC	Summer resident. Breeds colonially in freshwater emergent wetlands with dense vegetation and deep water, often along borders of lakes or ponds. Requires abundant large insects such as dragonflies; nesting is timed for maximum emergence of insect prey.	**Unlikely.** The Project Area does not contain freshwater emergent vegetation within the portion of the Project Area within the Petaluma River.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Bell's sage sparrow *Amphispiza belli belli*	BCC	Year-round resident, though shows seasonal movements. Prefers dense chaparral and scrub habitats for breeding; strongly associated with chamise. Also occurs in more open habitats during winter.	**Unlikely.** The Project Area does not contain suitable scrub or chaparral habitat. Additionally the Project Area is surrounded by urban development.	No further actions are recommended for this species.
grasshopper sparrow *Ammodramus savannarum*	SSC	Summer resident. Breeds in open grasslands in lowlands and foothills, generally with low- to moderate-height grasses and scattered shrubs. Well-hidden nests are placed on the ground.	**Unlikely.** Although the Project Area does contain low to moderately high grass, it is surrounded by urban development. The nearest documented occurrence is 7 miles east of the Project Area.	No further actions are recommended for this species.
western yellow-billed cuckoo *Coccyzus americanus occidentalis*	FT, SE, BCC	Summer resident, breeding in dense riparian forests and jungles, typically with early successional vegetation present. Utilizes densely-foliaged deciduous trees and shrubs. Eats mostly caterpillars. Current breeding distribution within California very restricted.	**No Potential.** The Project Area does not contain dense or old-growth riparian habitat. The nearest documented occurrence is 7 miles northeast of the Project Area.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
(Brester's) yellow warbler *Setophaga (= Dendroica) petechia brewsteri*	SSC, BCC	Summer resident throughout much of California. Breeds in riparian vegetation close to water, including streams and wet meadows. Microhabitat used for nesting variable, but dense willow growth is typical. Occurs widely on migration.	**Unlikely.** The Project Area does not contain dense or old-growth riparian habitat, or urban trees to support nesting of this species. Additionally the Project Area does not provide suitable foraging habitat.	No further actions are recommended for this species.
Reptiles and Amphibians				
California red-legged frog *Rana draytonii*	FT, RP, SSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11 to 20 weeks of permanent water for larval development. Associated with quiet perennial to intermittent ponds, stream pools and wetlands. Prefers shorelines with extensive vegetation. Disperses through upland habitats after rains.	**No Potential.** The Project Area lacks suitable freshwater aquatic habitat with emergent vegetation. Additionally burrows are not present to support upland movement.	No further actions are recommended for this species.
California giant salamander *Dicamptodon ensatus*	SSC	Occurs in the north-central Coast Ranges. Moist coniferous and mixed forests are typical habitat; also uses woodland and chaparral. Adults are terrestrial and fossorial, breeding in cold, permanent or semi-permanent streams. Larvae usually remain aquatic for over a year.	**No Potential.** The Project Area does not contain water features or forested habitat. The nearest documented occurrence is over 5 miles from the Project Area (CDFW 2017).	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
California tiger salamander *Ambystoma californiense*	FT, ST, RP	Populations in Santa Barbara and Sonoma counties currently listed as endangered; threatened in remainder of range. Inhabits grassland, oak woodland, ruderal and seasonal pool habitats. Adults are fossorial and utilize mammal burrows and other subterranean refugia. Breeding occurs primarily in vernal pools and other seasonal water features.	**No Potential.** The Project Area is outside the known range of this species within the Santa Rosa Plain (USFWS 2016) and does not contain seasonal pool habitat. This species is presumed extirpated from Petaluma (CDFW 2017).	No further actions are recommended for this species.
red-bellied newt *Taricha rivularis*	SSC	Inhabits coastal forests from southern Sonoma County northward, with an isolated population in Santa Clara County. Redwood forest provides typical habitat; though other forest types are used. Adults are terrestrial and fossorial. Breeding occurs in streams, usually with relatively strong flow.	**Unlikely.** The Project Area does contain forest habitat to support this species. Additionally, suitable seasonal pool habitat to support breeding is not present within the Project Area.	No further actions are recommended for this species.
foothill yellow-legged frog *Rana boylii*	SSC	Found in or near rocky streams in a variety of habitats. Prefers partly-shaded, shallow streams and riffles with a rocky substrate; requires at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis. Feeds on both aquatic and terrestrial invertebrates.	**No Potential.** The Project Area lacks suitable rocky stream habitat for this species. The nearest documented occurrence is 2 miles south of the Project Area (CDFW 2017).	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Pacific (western) pond turtle *Actinemys (Emys) marmorata*	SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches with aquatic vegetation. Require basking sites such as partially submerged logs, vegetation mats, or open mud banks, and suitable upland habitat (sandy banks or grassy open fields) for egg-laying.	**No Potential.** Although this species is found on the Petaluma River, the urban location and small size of the Project Area do not provide suitable upland habitat or preferred basking sites. The nearest documented occurrence is 2 miles from the Project Area (CDFW 2017).	No further actions are recommended for this species.
Fishes				
delta smelt *Hypomesus transpacificus*	FT, SE, RP	Lives in the Sacramento-San Joaquin estuary in areas where salt and freshwater systems meet. Occurs seasonally in Suisun Bay, Carquinez Strait and San Pablo Bay. Seldom found at salinities > 10 ppt; most often at salinities < 2 ppt.	**No Potential.** This species typically occurs in freshwater and low salinity portions of the Sacramento-San Joaquin Delta Estuary and individuals may occur in San Pablo Bay. The Project will not affect the Petaluma River.	No further actions are recommended for this species
tidewater goby *Eucyclogobius newberryi*	FE, SSC	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County to the mouth of the Smith River. Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water and high oxygen levels.	**No Potential.** This species is extirpated from San Francisco Bay.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
green sturgeon *Acipenser medirostris*	FT, SSC	Spawn in the Sacramento River and the Klamath River. Spawn at temperatures between 8-14 degrees C. Preferred spawning substrate is large cobble, but can range from clean sand to bedrock.	**No Potential.** The Petaluma River is listed Critical Habitat for this species, however it is not known to occur upstream of the Highway 101 bridge over the Petaluma River. The Project will not affect the Petaluma River.	No further actions are recommended for this species.
white sturgeon *Acipenser transmontanus*	SSC	Found in most estuaries along the Pacific coast. Adults in the San Francisco Bay Estuary system spawn in the Sacramento River and are not known to enter freshwater or non-tidal reaches of Estuary streams. Spawn May through June.	**No Potential.** This species has been documented to occur within the Petaluma River (Leidy 2007) which will not be affected by the Project	No further actions are recommended for this species.
Coho salmon - central CA coast ESU *Oncorhynchus kisutch*	FE, SE, NMFS	Federal listing includes populations between Punta Gorda and San Lorenzo River. State listing includes populations south of San Francisco Bay only. Occurs inland and in coastal marine waters. Requires beds of loose, silt-free, coarse gravel for spawning. Also needs cover, cool water and sufficient dissolved oxygen.	**No Potential.** Coho salmon are considered extirpated from San Francisco Bay and tributaries.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
steelhead - central CA coast DPS *Oncorhynchus mykiss*	FT, NMFS	Occurs from the Russian River south to Soquel Creek and Pajaro River. Also in San Francisco and San Pablo Bay Basins. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles remain in fresh water for one or more years before migrating downstream to the ocean.	**No Potential.** The Project Area is outside this species known range and the Project will not affect the Petaluma River.	No further actions are recommended for this species.
steelhead - northern California DPS *Oncorhynchus mykiss irideus*	FT, SSC	The federal designation refers populations occurring below impassable barriers in coastal basins from Redwood Creek to, and including, the Gualala River. The state designation refers only to the summer-run. The majority of adult steelhead enter the river in the fall or winter and spawn in early winter or spring, although summer-run steelhead enter rivers in late spring to early summer. Spawn in cool, clear streams with high dissolved oxygen and gravel riffle substrate. Deeper pools with sufficient riparian cover for rearing are necessary for successful breeding.	**No Potential.** The Project Area is outside this species known range and the Project will not affect the Petaluma River. **No Potential.** The Project Area is outside this species known range and the Project will not affect the Petaluma River.	No further actions are recommended for this species.
steelhead - central valley DPS *Oncorhynchus mykiss irideus*	FT, NMFS	The Central Valley ESU includes all naturally spawned populations (and their progeny) in the Sacramento and San Joaquin Rivers and their tributaries, excluding San Francisco and San Pablo bays and their tributaries. Preferred spawning habitat for steelhead is in cool	**No Potential.** The Project Area is outside this species known range and the Project will not affect the Petaluma River.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
		to cold perennial streams with high dissolved oxygen levels and fast flowing water. Abundant riffle areas for spawning and deeper pools with sufficient riparian cover for rearing are necessary for successful breeding.		
Chinook salmon - California coastal ESU *Oncorhynchus tshawytscha*	FT, RP, NMFS	California Coastal Chinook Salmon ESU includes all naturally spawned populations of Chinook salmon from rivers and streams south of the Klamath River (exclusive) to the Russian River (inclusive). Adult numbers depend on pool depth and volume, amount of cover, and proximity to gravel. Water temps >27 degrees C lethal to adults.	**No Potential.** The Project Area is outside this species known range and does not affect the Petaluma River.	No further actions are recommended for this species.
Sacramento splittail *Pogonichthys macrolepidotus*	SSC, RP	Endemic to the lakes and rivers of the Central Valley, but now confined to the Sacramento Delta, Suisun Bay and associated marshes. Occurs in slow-moving river sections and dead end sloughs. Requires flooded vegetation for spawning and foraging for young. Splittail are primarily freshwater fish, but are tolerant of moderate salinity and can live in water where salinity levels reach of 10-18 parts per thousand.	**No Potential.** This species has been documented within the vicinity of the Project Area in the Petaluma River (CDFW 2017), not affected by the Project	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
longfin smelt *Spirinchus thaleichthys*	FC, ST, SSC, RP	Euryhaline, nektonic and anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column. Prefer salinities of 15 to 30 ppt, but can be found in completely freshwater to almost pure seawater.	**No Potential.** The Project Area is located outside of the known range of this species (PISCES 2017). The species does occur within San Pablo Bay, and is believed to move into the lower portions of the Petaluma River; however, there are no known occurrences near the Project Area which is over 13 miles upstream from the confluence. Therefore, it is unlikely that the species would occur within the riverine portion of the Project Area.	No further actions are recommended for this species.
river lamprey *Lampetra ayresi*	SSC	Lower Sacramento River, San Joaquin River and Russian River. May occur in coastal streams north of San Francisco Bay. Adults need clean, gravelly riffles, Ammocoetes need sandy backwaters or stream edges, good water quality and temps < 25 degrees C.	**No Potential. T**he Project Area is not within the Petaluma River, the known range of the species (PISCES 2017). The riverine portion of the Project Area may be used for migration to suitable spawning habitat upstream.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Pacific lamprey *Entosphenus (=Lampetra) tridentatus*	SSC	Spawn between March and July in gravel bottomed streams in riffle habitat. Larvae drift downstream to areas of low velocity and fine substrates and are relatively immobile in the stream substrates.	**No Potential.** The Project Area is not within the Petaluma River, the known range of this species (PISCES 2017). The riverine portion of the Project Area may be used for migration to suitable spawning habitat upstream.	No further actions are recommended for this species.
Invertebrates				
San Bruno elfin butterfly *Callophrys mossii bayensis*	FE, SSI	Limited to the vicinity of San Bruno Mountain, San Mateo County. Colonies are located on in rocky outcrops and cliffs in coastal scrub habitat on steep, north-facing slopes within the fog belt. Species range is tied to the distribution of the larval host plant, Sedum spathulifolium.	**No Potential.** The Project Area does not contain tree groves or rocky outcrops to support a colony.	No further actions are recommended for this species.
monarch butterfly *Danaus plexippus*	SSI	Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico. Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, Monterey cypress), with nectar and water sources nearby.	**Unlikely.** The Project Area does not contain trees to support a winter roost of this species. Suitable coastal habitat is over 5 miles from the Project Area (CDFW 2017).	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Myrtle's silverspot butterfly *Speyeria zerene myrtleae*	FE, RP, SSI	Restricted to the fog belt of northern Marin and southernmost Sonoma County, including the Point Reyes peninsula; extirpated from coastal San Mateo County. Occurs in coastal prairie, dunes, and grassland. Larval foodplant is typically *Viola adunca*. Adult flight season may range from late June to early September.	**Unlikely.** The Project Area is surrounded by urban development and the larval foodplant to support this species is not present within the Project Area.	No further actions are recommended for this species.
California freshwater shrimp *Syncaris pacifica*	FE, SE, SSI, RP	Endemic to Marin, Napa, and Sonoma counties. Found in low elevation, low gradient streams where riparian cover is moderate to heavy. Shallow pools away from main stream flow. Winter: undercut banks with exposed roots. Summer: leafy branches touching water.	**Unlikely.** The Project Area does not contain water features to support this species. Additionally, areas adjacent to the Project Area lack riparian cover typical of this species. The nearest documented occurrence of this species is approximately 10 miles east of the Project Area (CDFW 2017).	No further actions are recommended for this species.
California linderiella *Linderiella occidentalis*	SSI	Seasonal pools in unplowed grasslands with old alluvial soils underlain by hardpan or in sandstone depressions. Water in the pools has very low alkalinity, conductivity, and TDS.	**Unlikely.** The Project Area does not contain vernal pool habitat to support this species. The nearest documented occurrence in 10 miles north of the Project Area (CDFW 2017).	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Blennosperma vernal pool andrenid bee *Andrena blennospermatis*	SSI	A solitary, ground-nesting bee found in upland areas near vernal pools. Its host plant is *Blennosperma* spp. and does not forage far from the host plant. Range is Contra Costa, El Dorado, Lake, Placer, Sacramento, San Joaquin, Solano, Sonoma, Tehama, and Yolo counties.	**No Potential.** The Project Area does not have the host plant that this species needs. Additionally, the Project Area does not contain vernal pools.	No further actions are recommended for this species.
western bumble bee *Bombus occidentalis*	SSI	Formerly common throughout much of western North America; populations from southern British Columbia to central California have nearly disappeared (Xerces 2017). Occurs in a wide variety of habitat types. Nests are constructed annually in pre-existing cavities, usually on the ground (e.g. mammal burrows). Many plant species are visited and pollinated.	**Unlikely.** The Project Area does not contain burrows to support nesting.	No further actions are recommended for this species.
Tomales isopod *Caecidotea tomalensis*	SSI	Inhabits localized fresh-water ponds or streams with still or near-still water in several San Francisco Bay Area counties. Found in several localities from Sonoma to San Mateo counties. Most collections occurred in the 1980s and earlier, but in 2002 the species was collected in Glenbrook Creek at Point Reyes (LoBianco and Fong 2003). This aquatic species prefers practically still to slow-moving, vegetated water, such as from spring-fed ponds.	**No Potential.** The Project Area does not contain fresh water ponds to support this species. The nearest documented occurrence is 7 miles northeast of the Project Area.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Ricksecker's water scavenger beetle *Hydrochara rickseckeri*	SSI	Small aquatic beetle known only from pond habitats scattered around the San Francisco Bay area, including Marin, Sonoma, Alameda, and Contra Costa counties. Extensive surveys from 1988 failed to locate this species. The locations of existing populations remain unknown (Hafernick 1989).	**No Potential.** The urban nature and lack of pond habitat within and surrounding the Project Area preclude presence of this species.	No further actions are recommended for this species.

*** Key to status codes:**

BCC	Birds of Conservation Concern (U.S. Fish and Wildlife Service)
CFP	CDFW Fully Protected Animal
EPA	Eagle Protection Act Species
FE	Federal Endangered
FT	Federal Threatened
NMFS	Species under the Jurisdiction of the NMFS
RP	Species included in a USFWS Recovery Plan or Draft Recovery Plan
SC	State Candidate
SE	State Endangered
SD	State Delisted
ST	State Threatened
SSC	CDFW Species of Special Concern
SSI	CDFW Special-Status Invertebrate
WBWG	Western Bat Working Group (High or Medium) Priority species
Rank 1A	CNPS Rank 1A: Plants presumed extinct in California
Rank 1B	CNPS Rank 1B: Plants rare, threatened or endangered in California and elsewhere
Rank 2A	CNPS Rank 2A: Plants presumed extirpated in California, but more common elsewhere
Rank 2B	CNPS Rank 2B: Plants rare, threatened, or endangered in California, but more common elsewhere
Rank 3	CNPS Rank 3: Plants about which CNPS needs more information (a review list)
Rank 4	CNPS Rank 4: Plants of limited distribution (a watch list)

Potential to Occur:

No Potential. Habitat on and adjacent to the site is clearly unsuitable for the species requirements (cover, substrate, elevation, hydrology, plant

community, site history, disturbance regime).
Unlikely. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.
Moderate Potential. Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.
High Potential. All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.

APPENDIX C

SITE PHOTOGRAPHS

Above: View of property for Haystack project adjacent to Weller Street looking north toward East Washington Street.

Below: The Haystack project area looking east from Weller Street toward Copeland Street. Much of the property is open with hardscape gravel and pavement and warehouses, and vegetated areas are ruderal, non-native annual grassland areas.

Photographs taken February 2017.

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