Biological Assessment Report

RIVERVIEW APARTMENTS (APN 005-060-041 & 042)
CASA GRANDE ROAD, PETALUMA, CALIFORNIA

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1.0 INTRODUCTION

The Riverview Apartments Project, formerly Baywood Village, is a proposed high density, 264-unit residential development located in Petaluma, Sonoma County, California is located at the southern end of Casa Grande Road (Figure 1). This Biological Resources Assessment report provides update information of a 2008 report (WRA 2008) that identified existing sensitive natural resources, such as wetlands, and evaluated the potential to support special-status plant and wildlife species.

The 2008 Biological Resources Assessment report had been prepared for a larger original property totaling 20.4 acres (Study Area) which included the 14.45 ac Project Area and a "panhandle" landform extending south to the Petaluma River. In 2017 the linear panhandle area, covering 5.95 ac, was dedicated by Baywood, LLC to the State Lands Commission to avoid its development and preserve tidal wetlands that covered much of that area (Preserved Land). This report includes basic biological assessment information of the larger Study Area that includes the Preserved Land, but focuses on the 14.45 acre Project Area for evaluation of potential impacts that the proposed development may cause to biological resources.

This update also includes an area approximately 1.8 miles northeast of the Project Area where wetlands unavoidably impacted by the Project will be mitigated by creation of seasonal wetlands. The 11.5 acre site is the Adobe Creek Wetlands Mitigation Area and is adjacent to Adobe Creek where a golf course (Adobe Creek Golf Course) was operated until 2017. A total of 3.5 acres of wetlands will be created at the Adobe Creek Mitigation Site that is now dominated by ruderal upland grasslands.

A biological assessment provides general information on the potential presence of sensitive species or 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, but may include information from such focused studies or recommend that protocol surveys be conducted. This assessment is based on information available at the time of the study and on site conditions that were observed on the dates of site visits listed.

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 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 and proposed for listing species. In addition, California Department of Fish and Wildlife (CDFW) Species of Special Concern, which are species that face extirpation in California if current population and habitat trends continue, U.S. Fish and Wildlife Service (USFWS) Birds of Conservation Concern, sensitive species included in USFWS Recovery Plans, and CDFW special-status invertebrates are all considered special-status species. Although CDFW Species of Special Concern generally have no special legal status, they are given special consideration under the California Environmental Quality Act (CEQA). In

addition to regulations for special-status species, most birds in the United States, including non-status species, are protected by the Migratory Bird Treaty Act of 1918 (MBTA). Under this legislation, destroying active nests, eggs, and young is illegal. Plant species on California Native Plant Society (CNPS) Lists 1 and 2 are also considered special-status plant species. Impacts to these species are considered significant according to CEQA. CNPS List 3 and List 4 plants are not required to be evaluated under CEQA, but are included in this analysis for completeness.

Critical Habitat

Critical habitat is a term defined and used in the Federal Endangered Species Act as a specific geographic area that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. The FESA requires federal agencies to consult with the USFWS to conserve listed species on their lands and to ensure that any activities or projects they fund, authorize, or carry out will not jeopardize the survival of a threatened or endangered species. In consultation for those species with critical habitat, federal agencies must also ensure that their activities or projects do not adversely modify critical habitat to the point that it will no longer aid in the species' recovery. In many cases, this level of protection is similar to that already provided to species by the FESA "jeopardy standard." However, areas that are currently unoccupied by the species but which are needed for the species' recovery, are protected by the prohibition against adverse modification of critical habitat.

2.2 Sensitive Biological Communities

Sensitive biological communities include habitats that fulfill special functions or have special values, such as wetlands, streams, and riparian habitat. These habitats are given special consideration under CEQA and are protected under federal regulations (such as the Clean Water Act), state regulations (such as the Porter-Cologne Act, the CDFW Streambed Alteration Program), or local ordinances or policies (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. "Waters of the U.S." are defined broadly 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 stated 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 for sufficient duration and depth 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." (including wetlands) 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, but 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 these 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 follows: "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. This includes 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. Riparian is defined as, "on, or pertaining to, the banks of a stream;" therefore, 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". Removal of riparian vegetation also requires a Section 1602 Lake and Streambed Alteration Agreement from CDFW.

San Francisco Bay and Shoreline

The San Francisco Bay Conservation and Development Commission (BCDC) has regulatory jurisdiction, as defined by the McAteer-Petris Act, over tidal areas of the Bay and its shoreline, which generally consists of the area between the Bay shoreline and a line 100 feet landward of and parallel to the shoreline (unless specified otherwise). These areas are defined in the McAteer-Petris Act (PRC Section 66610) as:

> San Francisco Bay, being all areas that are subject to tidal action from the south end of the Bay to the Golden Gate (Point Bonita-Point Lobos) and to the Sacramento River line (a line between Stake Point and Simmons Point, extended northeasterly to the mouth of Marshall Cut), including all sloughs, and specifically, the marshlands lying between mean high tide and five feet above mean sea level; tidelands (land lying between mean high tide and mean low tide); and submerged lands (land lying below mean low tide).
>
> A shoreline band consisting of all territory located between the shoreline of San Francisco Bay as defined above and a line 100 feet landward of and parallel with that line, but excluding any portions of such territory which are included in other areas of BCDC jurisdiction; the Commission may exclude any area within the shoreline band that it finds and declares is of no regional importance to the Bay.

While BCDC jurisdiction extends up the Petaluma River from San Francisco Bay, the jurisdiction ends at the confluence of Petaluma River and Adobe Creek and, therefore, the Preserved Land and Project Area is not within BCDC jurisdiction.

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 Natural Diversity Database. Sensitive plant communities are also identified by CDFW on their *List of California Natural Communities Recognized by the CNDDB*. Impacts to sensitive natural communities identified in local or regional plans, policies, regulations or by the CDFW or USFWS must be considered and evaluated under CEQA (California Code of Regulations: Title 14, Div. 6, Chap. 3, Appendix G). Specific habitats may also be identified as sensitive in City or County General Plans or ordinances.

3.0 METHODS

Site visits were made to the 20.4 ac Study Area on May 14, 2018 and again on September 12, 2019 to verify conditions since the previous assessment and report had been prepared. The Study Area, including the 5.95 ac panhandle Preserved Land and the 14.45 ac northern portion Project Area, was found to be in the same condition with no disturbance outside of established stockpile that was on the Project Area that existed in 2008 (Figure 2). Therefore, determination of the following were confirmed: (1) plant communities present, (2) condition of habitats for providing suitable habitat for special-status plant or wildlife species, and (3) sensitive habitats present. All plant and wildlife species encountered were recorded, and are summarized in Appendix A. Following Study Area habitat confirmation, the assessment focused on evaluating the Project Area because the dedicated Preserved Land would not be subject to any development; however, potential indirect impacts are addressed.

3.1 Biological Communities of the Project Area

Biological communities present were classified based on existing plant community descriptions described in the *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986). 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.

The Soil Survey of Sonoma County, California [U.S. Department of Agriculture (USDA) 1972] was examined to determine if any unique soil types that could support sensitive plant communities and/or aquatic features were present in the Preserved Land and Project Area.

3.1.1 Non-sensitive Biological Communities

Non-sensitive biological communities are community types, such as common, non-native annual grasslands, that are not required to be evaluated 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 below.

3.1.2 Sensitive Biological Communities

Sensitive biological communities are defined as those community types that are required to be evaluated 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 20.4 ac Study Area (Project Area and Preserved Land) was surveyed to determine if wetlands and waters previously determined in 2015 by the Corps of Engineers were still present. The reverification was based primarily on the presence of wetland plant indicators, but also included any observed indicators of wetland hydrology or wetland soils. Wetland areas were identified as areas dominated by plant species with a wetland indicator status of OBL, FACW, or FAC as given on the U.S. Fish and Wildlife Service List of Plant Species that Occur in Wetlands (Lichvar 2016). Evidence of wetland hydrology also included direct evidence (primary indicators), such as visible inundation or saturation, surface sediment deposits, algal mats and drift lines, or indirect indicators (secondary indicators), such as oxidized root channels. 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), Field Indicators of Hydric Soils in the United States (NRCS, 2002), and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (Corps 2008).

The reverification of “other waters” (non-vegetated waters areas) was based primarily on the presence of unvegetated, ponded areas or flowing water, or evidence indicating waters presence such as a high water mark or a defined drainage course.

Other Sensitive Biological Communities

The presence of other sensitive biological communities, including riparian areas or sensitive plant communities recognized by CDFW, was evaluated. If present, these sensitive biological communities were mapped (Figure 3) and are described in the Section 4.1.1 below.

3.2 Special-Status Species

3.2.1 Literature Review

Potential occurrence of special-status species was evaluated by first determining which special-status species occur in the vicinity of the 20.4 ac Study Area through a literature and database search. Database searches for known occurrences of special-status species focused on the Petaluma River 7.5 minute USGS quadrangle and the eight surrounding 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 Study Area:

- California Native Plant Society Electronic Inventory (CNPS 2019)
- Consortium of California Herbaria (CCH 2018)
- California Natural Diversity Database (CNDDB) records (CDFW 2019)
- IPaC (Information for Planning and Conservation Species Lists) (USFWS 2019)
- WBWG online species accounts (WBWG 2019)

- 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

Based on information of the previous assessment report (WRA 2008) and site visits that were conducted in 2018 and 2019, the potential for special-status species to occur within the Study Area was then evaluated according to the following criteria:

> 1) 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).
>
> 2) 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.
>
> 3) 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.
>
> 4) 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.
>
> 5) Present. Species is observed on the site or has been recorded (i.e. CNDDB, other reports) on the site recently.

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 the potential for species to be present. A 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 a site visit, its presence is recorded and discussed. Appendix B presents the evaluation of potential for occurrence of each special-status plant and wildlife species known to occur in the vicinity of the Study Area with their habitat requirements, potential for occurrence, and rationale for the classification based on criteria listed above. Recommendations for further surveys are made in Section 5.0 below for species with a moderate or high potential to occur in the Project Area.

4.0 RESULTS

The following sections present the results and discussion of the biological assessment for special-status species and sensitive habitats within the 14.45 ac Project Area because the 5.95 ac Preserved Land panhandle area is not subject to development. However, if any biological resource may potentially be affected by Project development (indirect impact), it is noted.

The Project Area covers 14.45 ac and is located at the terminus of Casa Grande Road, just south

of State Highway 116, north of Adobe Creek, and east of Highway 101 (Figure 1). The Project Area is located in the northwest quadrant of the Petaluma River 7.5 minute USGS quadrangle. The Project Area, now vacant except for a caretaker mobile trailer, was formerly the site of a soap factory facility, called Royal Tallow Soap, and other uses. The current Project Area is surrounded by a dog park to the west, apartment housing to the north, a light industrial complex to the east, and open space to the south (including the preserved panhandle area). A public footpath/trail on adjacent property parallels the eastern and southern portion of the Project Area boundary.

One native soil type was mapped for the Project Area, Clear Lake clay, sandy substratum drained, 0 to 2 percent slopes. Except for areas of past soil disturbance, the soils in the Project Area matched the mapped soil type.

The Project Area was likely once within historic tidal influence that was filled and farmed for hay production for many decades, before its use as an industrial facility beginning in 1941 (soap factory). Situated on a gently undulating low terrace adjacent to the Petaluma River, the current elevation is above 5 feet National Geodetic Vertical Datum and the slope is less than 2 percent. Vegetation is composed primarily of non-native, annual grasses and weedy forbs; the Project Area receives no tidal action and contains a dirt stockpile that has been present for years. A list of observed plant species is provided in Appendix A and site photographs are in Appendix C.

The Project Area is not subject to regulations of the Bay Conservation and Development Commission (BCDC) because jurisdiction of that agency ends at Adobe Creek just downstream. In addition, there is no designated critical habitat within the Project Area for any species.

4.1 Biological Communities of the Project Area and Preserved Land

Coverage of the biological communities within the Preserved Land and Project Area are summarized in Table 1 as confirmed by site visits in 2018 and 2019. The dominant plant community within the Project Area is ruderal/non-native annual grassland which is inclusive of planted windrows of non-native eucalyptus trees (96) and pines (2) along the northern and western boundaries of the Project Area. CDFW determined that 53 trees along the western channel should be considered to be riparian trees. Also present is seasonal wetland, emergent freshwater marsh, and a drainage ditch (classified as “other waters of the U.S.” by the Corps of Engineers). A map of these plant communities in the Project Area is provided as Figure 3. A map of jurisdictional wetlands and other waters within the Project Area, as approved by the Corps of Engineers, is provided as Figure 4.

Table 1. Biological community types within the Project Area and Preserved Land.

Community type	Preserved Land (ac)	Project Area (ac)
Ruderal Disturbed Grassland	0.80	10.66*
Seasonal Wetland	2.63	2.00
Salt Panne	0.61	0.00
Freshwater Emergent Marsh	0.10	0.15
Stockpile	0.00	1.63
Tidal Marsh	1.48	0.00
Waters	0.33	0.01
Total	**5.95**	**14.45**

* - includes up to 0.75 acre of eucalyptus tree canopy along the western channel

4.1.1 Sensitive Communities

Based upon a review of records on occurrences of sensitive natural communities maintained by the CNDDB (CDFW 2019), emergent freshwater marsh is considered to be sensitive or rare plant community by CDFW. Emergent marsh and seasonal wetlands were identified within the Preserved Land and Project Area as meeting the Corps' definition of wetlands based upon the presence of wetland vegetation, hydrology, and hydric soils parameters. These areas, along with "waters" feature, have been determined to be within the Corps' jurisdiction and were described in a formal wetland delineation report for the Project Area (WRA 2008a). The Corps made a final jurisdictional determination in 2009, re-verified the determination in 2015, and is still a valid determination.

Seasonal Wetland

Seasonal wetland is not described in literature as a distinct series because it is not characterized by a single dominant plant species, or a typical group of plant species. Seasonal wetland areas in the Project Area were vegetated by species such as ryegrass (*Lolium perenne = Festuca perennis*), rabbits-foot grass (*Polypogon monspeliensis*), Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), curly dock (*Rumex crispus*), swamp timothy (*Crypsis schoenoides*), hyssop (*Lythrum hyssopifolia*), and tall flatsedge (*Cyperus eragrostis*).

Salt Panne

Salt panne also is not described in literature as a distinct series because such areas are subtle depressions on tidal high marsh plains that are sparsely vegetated due to residual salt concentration present in the soil (from periodic tidal flooding and subsequent evaporation). Salt panne is only present within the Preserved Land and is not present the Project Area. Plant species present were salt tolerant species (halophytes), such as pickleweed (*Salicornia pacifica*) and alkali heath (*Frankenia salina*).

Freshwater Emergent Marsh

Freshwater emergent marsh is also not described in literature as a distinct series due to highly variable plant species composition. A pocket of freshwater cattail marsh (*Typha latifolia*) occurred in the western portion of the Project Area near the boundary with the adjacent dog park.

Waters

A predominantly unvegetated drainage channel was present on the western Project Area boundary at the access driveway into the property from Casa Grande Road. This feature conveys runoff during winter storms and likely from nuisance water (irrigation, car washing, etc.) generated from surrounding developments during other times of the year. A portion of the Preserved Land also has waters in side channels and at the Petaluma River, however, these waters will not be affected by the Project because these lands were dedicated to State Lands Commission and are preserved from development.

Riparian Habitat

The drainage channel swale present within the Project Area was determined to be riparian habitat by CDFW (Figure 2). With the exception of a single willow (*Salix lasiolepis*) shrub along the southwest channel, the channel supports planted eucalyptus trees. However, during a site visit in March 2020 with staff from the City and agencies, CDFW determined that the channel on the west side of the Project Area at the access driveway off of Casa Grande Road was considered to be jurisdictional riparian habitat, including 53 eucalyptus trees, and that a 1602 Streambed Alteration Agreement would be needed for Project work in or adjacent to it, including removal of the eucalyptus trees. The channel swale at the entrance into the Project Area off of Casa Grande Road is mostly open and concrete lined with a section of steel culvert. This portion of the channel requires periodic sediment removal in order to maintain flow during storms to prevent local flooding, and vegetation present would likely be removed with it. Downstream the channel changes to soil substrate.

4.1.2 Non-Sensitive Communities

Ruderal/Grassland

Ruderal/grassland vegetation occurs throughout the Project Area and in portions of the Preserved Land. This plant community is not described in the literature as a distinct series; plants in this community include predominantly non-native species such as Italian ryegrass, wild oat (*Avena barbata*), ripgut grass (*Bromus diandrus*), ox-tongue (*Picris echioides*), broad-leaved pepperweed (*Lepidium latifolia*), canary grass (*Phalaris aquatica*), and curly dock.

Included within the non-native grassland habitat are windrows of single row planted non-native Eucalyptus trees along the north and western boundaries of the Project Area. These trees, consisting of 96 eucalyptus and 2 pines, were planted and are decades old, however none of these trees are considered to be protected trees according to the Petaluma Tree Preservation Ordinance. Eucalyptus trees, in particular, have notorious safety issues due to sudden limb drop and potential fire hazard, but may provide nesting habitat for some birds. In addition, CDFW has determined that the 53 eucalyptus trees along approximately 465 feet of the western channel are considered to be riparian trees with an overhead canopy of up to 0.75 acre.

4.2 Special-Status Species of the Project Area

4.2.1 Plants

Based upon a review of CNDDB (CDFW 2019) and CNPS Electronic Inventory (CNPS 2019) records, no special-status plants are present or are likely to be present in the Project Area. It

was initially anticipated that five special-status plant species had a moderate potential to occur on the Project Area, based on specific habitat requirements in the vicinity of the Project Area. These species were the focus of protocol-level special-status plant surveys conducted in 2008 and described in the Rare Plant Survey report for the Study Area (WRA, 2008b). However, none of the plants were observed to be present during the focused surveys and none were observed during site visits in 2018 and 2019. One hundred additional species were reviewed and determined to be unlikely or had no potential to occur because of the lack of suitable habitat for these species for a variety of factors, including limited extent of native vegetation communities (e.g., coastal scrub, chaparral, forest or woodland), lack of appropriate substrates or land forms (e.g., adobe clay or serpentine soils, coastal bluffs, sand dunes, rock outcrops), and/or site elevation, which is lower or higher than the typical elevation range of many of the species. The names and ecological requirements of the plant species considered are included in the species list in Appendix B.

A total of 37 species of plants were observed within the greater Study Area during the biological assessment and rare plant surveys conducted during site surveys in 2008 and 2018-2019 site visits (Appendix A). Suverys coincided with peak blooming periods for all 16 special-status plant species with potential to occur (Figure 5). No special-status plant species were detected during the protocol-level surveys in 2008 or during the May 14, 2018 and September 12, 2019 site visits.

Inspection of the Project Area in 2018 and 2019 indicated that the conditions have not changed in the Project Area except for goat grazing for fire management. The list of special-status species (Appendix B) prepared in 2008 has been updated as of this report for 2019.

4.2.2 Wildlife

Eighty-two special-status species of wildlife have been recorded in the vicinity of the greater Study Area, and Appendix B summarizes the potential for occurrence for these species. Of these species, nine species were rated to have a moderate or high potential for occurrence.

For those wildlife species determined to have a no potential for occurrence or those not likely to be present, the habitat conditions within the greater Study Area are clearly unsuitable for breeding, rearing, and/or foraging. Human disturbance and residential development adjacent to the Project Area offers limited value for special-status wildlife species.

Nineteen wildlife species have been observed in or adjacent to the greater Study Area during site assessment site visits in 2008, 2018, and 2019 (Appendix A). Most of the wildlife observed were commonly occurring species, and many adapted to occupying disturbed or urban areas. Special-status species with moderate or high potential to occur in proximity to the Project Area are discussed below.

Western Pond Turtle (*Actinemys marmorata*), CDFW Species of Special Concern. The Western Pond Turtle (WPT) is the only native turtle in central and northern California. This turtle is uncommon to common in suitable aquatic habitat throughout California, west of the Sierra-Cascade crest. WPT inhabits perennial aquatic habitats, such as lakes, ponds, rivers, and streams, that provide submerged cover and basking structures (Zeiner et. al. 1990). WPT prefer to nest on unshaded slopes close to their aquatic habitat, and hatchlings require shallow water with relatively dense emergent and submerged vegetation for foraging (Jennings and Hayes, 1994). This species has a known occurrence less than 0.5 miles east of the Project Area. There is no suitable habitat within the Project Area that would sustain long-term occupation and the Preserved Land is likely too saline.

White-tailed Kite (*Elanus leucurus*), CDFW Fully Protected Species. White-tailed Kite is associated with annual grasslands, agricultural areas, scrub habitats, wet meadows, and emergent wetlands throughout the lower elevations of California. Nesting generally occurs in shrubs or small trees. Individuals are likely to forage over open areas throughout the year. The non-native annual grassland within the Project Area and the marsh habitat in adjacent areas, including the Preserved Land, provide foraging habitat; nesting habitat is available in the eucalyptus trees within the Project Area.

Northern Harrier (*Circus cyaneus*), CDFW Species of Special Concern. Harriers are residents of open wetlands, including marshy meadows; wet, lightly grazed pastures; old fields; freshwater and brackish marshes. The also frequent in upland areas, including upland prairies, mesic grasslands, drained marshlands, croplands, cold desert shrub-steppe, and riparian woodland throughout California (MacWhirter and Bildstein 1996). Harriers typically nest on ground in open (treeless) habitats in dense, often tall, vegetation in extremely varied choice of vegetative cover, even within a single area. Soil types include drained and undrained wetlands as well as uplands. The goat grazing in the Project Area precludes nesting and foraging habitat for this species, and chronic disturbance from dog walkers likely precludes nesting attempts within and immediately adjacent to the Project Area to the west.

California Black Rail (*Laterallus jamaicensis coturniculus*), State Threatened, CDFW Fully Protected, USFWS Bird of Conservation Concern. California black rail (CBR) occurs most commonly in upper tidal zone of emergent wetlands or brackish marshes dominated by bulrush (*Schoenoplectus* spp.), cordgrass (*Spartina* spp.), and pickleweed, most commonly nesting in dense cover such as pickleweed (Eddelman et.al., 1994). This species is known to occur within 1.5 miles of the greater Study Area and the adjacent marsh habitat to the south and east may provide suitable foraging and nesting habitat. This species may occasionally venture into the Preserved Land and Project Area, but it would not likely remain for long periods in the Project Area.

California Ridgway's Rail (*Rallus longirostris obsoletus*), Federal Endangered, State Endangered, CDFW Fully Protected. California Ridgway's rail (CRR) nesting occurs predominantly in the low portions of coastal wetlands and tidal sloughs dominated by cordgrass (*Spartina spp*.), pickleweed (*Salicornia spp.*), and gumplant (*Grindelia stricta*). This species is known to occur approximately one mile to the southeast of the greater Study Area where tidal wetland habitat is more broad, however the tidal marsh of the Preserved Land may provide suitable foraging and nesting habitat.

Loggerhead Shrike (*Lanius ludovicianus*), CDFW Species of Special Concern, USFWS Bird of Conservation Concern. The loggerhead shrike is a common resident and winter visitor in lowlands and foothills throughout California. It prefers open habitats with scattered trees, shrubs, posts, fences, utility lines or other perches. Nests are usually built on a stable branch in a densely-foliated shrub or small tree and are usually well-concealed. Non-native grassland and the adjacent marsh provide foraging habitat. Nesting habitat is available in the shrubs and trees within the Project Area.

Saltmarsh Common Yellowthroat (*Geothlypis trichas sinuosa*), CDFW Species of Special Concern, USFWS Bird of Conservation Concern. This subspecies of the common yellowthroat is found in freshwater marshes, coastal swales, riparian thickets, brackish marshes, and saltwater marshes. Their breeding range extends from Tomales Bay in the north, Carquinez Strait to the

east, and Santa Cruz County to the south. This species requires thick, continuous cover such as tall grasses, tule patches, or riparian vegetation down to the water surface for foraging and prefers willows for nesting. A species account has been recorded for lands adjacent to the Study Area, including the southern portion of the Project Area. Emergent vegetation in the Preserved Land and adjacent tidal wetlands may provide foraging and nesting habitat south of, but not within, the Project Area.

Samuels (San Pablo) Song Sparrow (*Melospiza melodia samuelis*), CDFW Species of Special Concern, USFWS Bird of Conservation Concern. San Pablo song sparrows inhabit salt, fresh, and brackish marshes and the moist, brushy, weedy edges of these habitats in the San Pablo Bay. The song sparrow will avoid areas where water is stagnant and/or tidal flow is obstructed (Shuford 1993). Suitable nesting and foraging habitat may be available in the Preserved Land and adjacent tidal wetlands south of the Project Area, but not within the Project Area.

Salt Marsh Harvest Mouse (*Reithrodontomys raviventris*), Federal and State Endangered, CDFW Fully Protected. This small mammal is typically associated with salt marsh vegetation (pickleweed), occasionally seeking refuge in adjacent upland areas during extreme high tides. Species occurrence has been recorded in unspecified areas adjacent to the greater Study Area (Figure 6). The tidal wetlands south and east of the Project Area, including the Preserved Land, may provide suitable foraging and nesting habitat for this species during normal tidal series and upland habitat immediately adjacent to marsh habitat may provide suitable foraging and/or refuge habitat during extreme high tide events. SMHM is considered a cover dependent species and will avoid open areas; even areas as narrow as 10 meters wide will act as a barrier for movement (Shellhammer 1978). Goat grazing that removes vegetation cover for fire prevention in the Project Area likely precludes SMHM in that area.

California Red-legged Frog (*Rana draytonii*), Federal Threatened Species, CDFW Species of Special Concern. The California red-legged frog (CRLF) is dependent on suitable aquatic, estivation, and upland habitat. During periods of wet weather, starting with the first rainfall in late fall, CRLF disperse away from their estivation sites to seek suitable breeding habitat. Aquatic and breeding habitat is characterized by dense, shrubby, riparian vegetation and deep, still or slow-moving water. Breeding occurs between late November and late April. CRLF estivate (period of inactivity) during the dry months in small mammal burrows, moist leaf litter, incised stream channels, and large cracks in the bottom of dried ponds.

The Project Area has suitable habitat for CRLF and occurrences are known within 1.5 miles. However, focused surveys conducted for CRLF have not produced any of this species (Biosearch Associates 2010). If CRLF ever migrate onto the property they likely do not find conditions suitable to sustaining a population (see Section 5.3).

5.0 IMPACTS SUMMARY AND RECOMMENDATIONS

Five biological communities were identified within the Project Area that include non-native annual grassland, freshwater emergent marsh, seasonal wetlands, and jurisdictional waters habitat. In addition, CDFW determined that 53 trees along the western channel should be considered to be riparian trees. These trees, initially to be avoided by Project development, were determined to be removed at the result of required soil remediation to remove lead contaminated soils.

No special-status plant species were determined to be present based on 2008 protocol surveys and follow up site visits in 2018 and 2019. Nine special-status wildlife species have a moderate or high potential to occur within the Project Area.

Based on the results of this biological assessment, special-status species, their potential habitat, or sensitive communities within the Project Area may be impacted if site alterations occur. The following sections present recommendations for measures to avoid or reduce impacts to these species and sensitive habitats for proposed alterations to the Project Area.

5.1 Biological Communities

Wetlands and Waters

Three of the four biological communities identified within the Project Area have been determined to be wetlands or waters within the Corps, RWQCB, and CDFW jurisdiction and include: seasonal wetlands, perennial wetlands (freshwater emergent marsh), and other waters (non-vegetated waters). The Corps verified and made final jurisdictional determinations for the Project Area in 2009. Prior to expiration of the determination in 2014, an extension of the determination was requested based on unchanged conditions within the Project Area. On January 29, 2015 the Corps issued a Preliminary Jurisdictional Determination (PJD) of the extent and location of wetlands and other waters of the U.S. Because PJDs have no expiration date unless conditions change, the PJD is still valid and in effect since conditions at the Project Area have not changed as determined by site visits in 2018 and 2019.

Permits will need to be authorized by regulatory agencies for any proposed impacts to wetlands or waters within the Project Area (Figure 7). In addition, compensatory mitigation for wetland losses will likely be required as determined at time of permit processing and authorization by regulatory agencies. Mitigation is typically provided by purchase of mitigation bank credits or creation of replacement wetlands on-site or off-site. It is recommended that wetlands mitigation replace functions and values of wetlands that are lost as a result of the project at not less than a 1:1 mitigation ratio.

Mitigation for wetlands impacts has been proposed by the project proponent that will occur upstream from the Project Area adjacent to Adobe Creek south of Adobe Road and east of Frates Road. While the design of the Project will avoid most of the wetlands (5.67 acres) that were on the original property, 1.67 acres of wetlands cannot be avoided in order to meet the overall project purpose of constructing much needed residential apartment dwellings in Petaluma and Sonoma County. Unavoidable wetlands impacts will be replaced by creating 3.34 acres of compensatory wetlands mitigation, a 2:1 ratio, consisting of both onsite replacement of temporary impacts resulting from soil remediation activities and permanent development impacts. In addition, the short segment of existing concrete lined drainage channel swale (approximately 85 feet long) at the entry off of Casa Grande Road that will be impacted will be replaced by a linear swale between mitigation wetlands at the Adobe Creek Wetlands Mitigation site. A Habitat Mitigation Monitoring Plan (HMMP) has been prepared that provides details of the proposed wetlands mitigation (WRA 2019). The HMMP and its implementation will require approval by regulatory agencies prior to authorization of regulatory permits.

Temporary and indirect impacts to wetlands and waters that are avoided and/or preserved in the Project Area and the Preserved Land could result from development activities, primarily from sediment runoff or restricted flow into or out of wetlands. To preclude sedimentation potential,

grading work will be conducted during the dry months of the year, typically between May and through October (with early start and late finish extensions depending on weather conditions and approval by agencies), implementation of best management practices (BMPs) at all times that will include installation of sediment runoff prevention measures and testing of runoff water during construction. These measures will prevent sediment in runoff from entering the wetlands. Preventing restricted flow of water either into or out of existing wetlands that will be avoided and preserved will be by providing appropriate inlets or outlets or confirming that natural inlet or outlets will exist after grading and development.

Riparian Habitat

No plant community within the Project Area meets the definition of "riparian habitat" described in the Fish and Game Code and the California Code of Regulations and, therefore, no riparian habitat potentially subject to regulation by the CDFW is present or will be removed, and no riparian mitigation will be required. The non-native eucalyptus trees planted in a windrows along the northern and western boundaries that will be removed, either as a result of development grading (approximately 45 trees) and/or for contaminated soil remediation (approximately 53 trees) are not considered riparian and will not be replaced in-kind or in the same location (but will be replaced by tree planting throughout the Project, as indicated below.

Other Plant Communities

Ruderal herbaceous grassland composed predominantly of non-native grasses and forbs is not a protected habitat and does not require evaluation under CEQA. While grassland habitat may provide nesting habitat for ground nesting birds and foraging habitat for other birds, such as white tailed kite, the project area has been under grazing management for fire control using goats. Consequently, the land is relatively devoid of vegetation making ground bird nesting unlikely and foraging by birds unsuitable due to lack of vegetation or fossorial prey.

The eucalyptus trees (and one pine tree) that will be removed (Figure 7) are non-native trees that were planted decades ago. Ordinarily, eucalyptus trees are not considered protected trees by the Petaluma Tree Preservation Ordinance, do not need to be evaluated under CEQA, and their removal requires no mitigation. Moreover, these trees with their height, oils produced in leaves, and falling limbs and leaves, are viewed as a fire hazard and their removal will generally promote safety.

However, CDFW has determined that the trees along the western drainage channel meet the definition as riparian habitat and require their removal resulting from contaminated soil remediation be approved under a Streambed Alteration Agreement (1600 Fish and Game Code) with mitigation replacement of each removed tree with native trees at a 1:1 ratio. Replacement of the 53 riparian eucalyptus trees to be removed will occur along the channel once contaminated soil remediation is completed. In addition, Project landscape plans (Parker 2019) show that approximately 600 trees that fit the scale and safety of the Project will be planted throughout the development consisting of a mix of native and non-native trees.

5.2 Special-Status Plant Species

A protocol level rare plant survey was conducted in the Project Area in 2008 and no special-status plant species were observed (WRA 2008b). The plant list has been updated for this report with plant name changes and/or rarity status changes, however conditions in the Project Area have

not changed since 2008 based on site visits in 2018 and 2019, and the conclusion remains that no special-status species of plants are present or are likely to be present. In addition, goat grazing used for fire control precludes special-status species from colonizing the Project Area.

5.3 Special-Status Wildlife Species

Salt Marsh Harvest Mouse

The SMHM was detected during a 1990 trapping effort in unspecified areas near (but not on) the Project Area. This species is most commonly associated with salt marsh vegetation, especially pickleweed, which is not present in the Project Area but may move into upland areas to forage and for refuge during extreme high tides. Suitable uplands habitat for refuge is available adjacent to tidal habitat that is closer and more easily accessible than the Project Area uplands. For example, the dedicated Preserved Land has uplands near the Petaluma River, Alman Marsh has uplands north of the pedestrian trail, and Adobe Creek-Shollenberger Park share uplands east and west of Adobe Creek. Therefore, development of the Project Area uplands is not considered a significant loss for SMHM.

Determination of SMHM habitat and associated impacts and mitigation is often a mercurial process due to the involvement of more than one resource agency (CDFW and USFWS) and the constant influx of new research and new data. The assumptions presented henceforth are based on WRA involvement with similar studies that involved SMHM and resource agencies.

For the purpose of this report, SMHM presence may be assumed in all pickleweed dominated (15% pickleweed or greater) salt marsh habitat south of the Project Area. There are no pickleweed areas within the Project Area. Impacts to SMHM could potentially occur from remediation and construction grading activities, as well as avoidance and minimization measures when implemented, habitat degradation and/or removal, disturbance and displacement of SMHM, resulting in injury, mortality, and habitat loss for SMHM. While occasional SMHM presence in uplands adjacent to pickleweed may occur with cover of vegetation, the vegetation removed because of goat grazing for fire control is likely to preclude SMHM presence in the Project Area.

SMHM is a federally endangered species a California fully protected species, and as such, avoidance of SMHM take is required, and the following avoidance measures will be implemented out of an abundance of caution, subject to approval by federal and/or state regulatory agencies:

- A qualified biologist shall be present on site to survey and monitor for salt marsh harvest mouse (SMHM) during a) all salt marsh vegetation removal; b) the construction of exclusion fencing; c) all work within 300 feet of tidal or pickleweed habitats. The qualified biologist or biological monitor shall have the authority to stop work if deemed necessary for any reason to protect these species, or any other special status species.
- Goat grazing used to remove vegetation to reduce the possibility of wild fire will passively remove cover that SMHM will naturally avoid.
- For any vegetation not removed by goat grazing, non-motorized equipment or hand-held motorized equipment (i.e., string trimmers) will be used to remove the remaining vegetation.
- The USFWS-approved biologist will inspect areas of vegetation not removed by goat grazing immediately prior to the initiation of removal to search for SMHM and “flush” small mammals out of the area and toward adjacent tidal marsh areas.

- Vegetation removed by motorized equipment will start in the position furthest from the highest quality and most accessible SMHM habitat outside of the work area, and progress toward that habitat, such that SMHM are protected to the greatest degree possible as they move out of the work area.
- Vegetation to be removed by motorized equipment will be cut in at least two passes: with the first pass cutting vegetation at approximately half of its height above the ground (mid-canopy) and the next pass, or subsequent passes, cutting vegetation to ground-level or no higher than 1-2 inches. An approximately 2-foot wide de-vegetated buffer shall be created next to the project site.
- Cut vegetation will be removed from the exclusion area (work area) so that no cut vegetation remains there once the exclusionary fence is installed.
- All non-native, invasive vegetation removed will be discarded at a location outside of any tidal marsh areas to prevent reseeding.

Following completion of vegetation removal, temporary exclusionary fencing will be installed to isolate work areas and prevent SMHM from entering work areas during construction grading.

- The fencing will be installed between suitable habitat areas (e.g., tidal marsh and other pickleweed-dominated areas) and the defined work area (or areas) immediately following vegetation removal and prior to the start of construction grading activities. A figure showing the location(s) of proposed fencing will be provided to the USFWS for approval prior to the initiation of vegetation removal and construction grading.
- The fence will consist of a non-textured, slick material (such as heavy plastic sheeting) that does not allow SMHM to pass through or climb, or silt fence with slick tape (or an effectively similar material) a minimum of 6 inches wide fixed to the fence to render it non-climbable. The bottom should be buried to a depth of at least 4 inches so that animals cannot crawl under the fence. Fence height should be at least 12 inches higher than the highest adjacent vegetation with a maximum height of 4 feet.
- Fence posts should be placed facing the work area side (i.e., vegetation-cleared side) and not the side of the fencing facing intact habitat areas. The fencing will be installed under the supervision of an approved monitor.
- A qualified biological monitor will routinely inspect exclusionary fencing to ensure that it remains intact and effective daily during all fill placement events. Fencing deficiencies, such as gaps, tears, or other damage, that are noted will immediately reported to the contractor and they are to be repaired promptly (within 24 hours).

Rails

Rails could potentially be present in wetlands areas adjacent to the Petaluma River and may be sensitive to activities or noise caused by construction grading work during the nesting season. Options to reduce potential impacts would be to conduct construction grading activities in phases from north to south during the breeding season in order to acclimate rails to visual and acoustic disturbance from construction grading activities. If construction grading activities occur during the rail breeding season, conducting protocol level surveys may be required as will be determined by CDFW and USFWS during permitting process. Surveys for CBR and CRR should be conducted following the rail survey protocol (or any subsequent revision). Consultation with CDFW and USFWS will be conducted prior to construction grading activities as determined by these regulatory agency requirements.

The USFWS has used 213 meter (700 feet) from a nest site or "call-count" center as a suitable buffer distance for most construction grading noise activities during the rail breeding season. This distance can be substantially reduced in some cases during agency consultation process, because of factors such as existing high ambient noise level and habitat qualities. If breeding season surveys confirm presence of CBR or CRR, appropriate minimization measures (such as buffers from potential nest sites) should be implemented upon consultation with the agencies. Observing this safe distance between nest sites or call-count centers will likely be easily met during construction since the distance from the southern edge of the development to the Petaluma River is approximately 1,300 feet.

Because the Project Area is adjacent to a dog park, business park, pedestrian trail use, highway, and Petaluma River boat/shipping traffic, there is a certain level of disturbance and noise already associated with human activities in and adjacent to the Project Area. A case may be presented to the regulatory agencies that the proposed construction grading activities do not constitute a level of disturbance that is greater than the ambient acoustic and visual level of disturbance from the dog park, business park, pedestrian trail, highway, and Petaluma River boat/shipping traffic.

Western Pond Turtle

WPT are capable of migrating into terrestrial areas that are adjacent to aquatic habitat where they are present. Females are not likely to move away from ponds or stream channels more than approximately 325 feet to nest which may occur between March and August (CDFW 2019). Individual turtles may migrate farther distances on occasion to seek suitable pond or stream habitat if a current aquatic habitat dries. The nearest presence of WPT to the Project Area is in Shollenberger Park approximately 1,000 feet to the east that has extensive wetlands and areas of open water for WPT. Other wetlands along the Petaluma River and west of Rocky Memorial Dog Park may provide suitable habitat, however no occurrences have been reported in these areas.

WPT has never been observed in and is not likely to be present in the Project Area for either nesting or migration because of the distance away from aquatic habitat where WPT is known to occur, because development to the north, northeast and northwest creates barriers, and there is no suitable habitat for WPT to stay if it did manage to migrate onto the Project Area. Moreover, Adobe Creek, the Petaluma River, and wetlands to the east, south, and west provide perennial habitat that would not force WPT to leave in search of other aquatic habitat. Sufficient suitable uplands habitat for nesting is available adjacent to these aquatic habitats that is closer and more easily accessible than the Project Area uplands. For example, the dedicated Preserved Land uplands near the Petaluma River, Alman Marsh has uplands north of the pedestrian trail, and Adobe Creek-Shollenberger Park share uplands east and west of Adobe Creek. Therefore, development of the Project Area uplands is not considered a significant loss of habitat or migration corridor for WPT.

Post-construction development will not remove habitat for WPT for the same reasons described above.

California Red-legged Frog

There are numerous records of CRLF within 3 miles of the project area, with a single closest occurrence being 1.5 miles away to the east, and other occurrences being on the opposite side (west of) of the Petaluma River. The Project Area contains 85 linear feet of concrete-lined

ditch, 0.15 acre of emergent marsh, and 2.00 acres of seasonal wetland, all of which could potentially support breeding by CRLF during wet years, but are not high quality breeding habitat. The grasslands and semi-riparian habitat on the Project Area could serve as dispersal habitat for CRLF. There is also habitat on the Project Area that could provide suitable summer refuge habitat. However, portions of the Project Area are contaminated with metals (lead), a large proportion has been maintained as an unvegetated stockpile of gravel and soil, and vegetation removal has been managed using goat grazing. Meanwhile, there is abundant higher quality aquatic habitat for CRLF in areas away from the Project Area, which reduces the likelihood that CRLF would need to utilize the poor habitat within the Project Area.

In 2010, Biosearch Associates performed protocol level surveys for CRLF (Biosearch Associates 2010). No CRLF were observed or heard during eight surveys conducted between February and August 2010. All surveys were conducted in conditions that were conducive to accurately locating and identifying frogs (USFWS 2005) and Pacific tree frog was the only amphibian detected onsite. Therefore, it is unlikely that the Project Area supports or would support a population of CRLF, though migrant individuals may occasionally be encountered there.

Project effects could result in temporary or permanent adverse effects to CRLF in the form of reduced foraging opportunities or forage quality, and reduced refuge, which could lead to predation, increased conflict, lead contamination, and disease transmission due to compacted CRLF population densities.

Breeding Birds

Breeding birds protected by the Migratory Bird Treaty Act (MBTA) could be adversely affected during the breeding season because of construction grading related activities. Construction activity may directly remove nesting areas or noise, vibration, and movement may cause nest failure.

5.4 Potential Biological Resources Impacts and Avoidance or Mitigation

Potential Impact Bio 1: The Project will result in unavoidable temporary or permanent filling of jurisdictional wetlands and other waters of the U.S. resulting in potential loss of wetlands and waters functions and values.

Mitigation Measure Bio 1: To mitigate for potential impacts to wetlands and other waters of the U.S.:

- Prior to filling jurisdictional wetlands, permits to fill wetlands and other waters of the U.S. shall be obtained from regulatory agencies with jurisdiction over wetlands which are U.S. Army Corps of Engineers (Section 404 Clean Water Act), California Regional Water Quality Control Board (Section 401 Clean Water Act), and California Department of Fish and Wildlife (1602 Fish and Game Code).
- Regulatory agency approved mitigation shall not be less than a 1:1 replacement of the functions and values of the wetlands and waters that are filled. Approval of the mitigation shall include a mitigation plan that outlines acceptable mitigation performance criteria for success which shall be verified and approved by results of a monitoring program of five years. The mitigation plan shall be accepted by regulatory agencies prior to authorization of regulatory permits and prior to ground disturbance.
- Precise mitigation requirements for unavoidable temporary and permanent impacts shall be determined by regulatory agencies during the permitting process. Mitigation shall

consist of offsite mitigation bank credits purchased from an agency approved mitigation bank or proponent sponsored mitigation created onsite or offsite or a combination. Offsite proponent sponsored mitigation has been proposed upstream along Adobe Creek at the former Adobe Creek Golf Course (operations ceased in 2017) at 2:1 ratio, and some on-site wetlands restoration following contaminated soil remediation (0.13 acres) will also be conducted. Regulatory agencies shall review and approve mitigation monitoring plans as part of the permit authorization process.

Implementation of these measures will either avoid impacts or reduce impacts to a less than significant level.

Potential Impact Bio 2. Impacts to special-status wildlife species including salt marsh harvest mouse (SMHM), California Ridgway's Rail (CRR), California black rail (CBR), Western pond turtle (WPT), and California red-legged frog (CRLF) from contaminated soil remediation and construction grading activities, as well as avoidance and minimization measures implemented for species protection, could include habitat degradation and loss, disturbance and displacement, injury and mortality.

Mitigation Measure Bio 2. To mitigate potential impacts to special-status species including SMHM, CRR, CBR, WPT, and CRLF:

- Dedicating 5.95 acres of the panhandle of the original property to State Lands Commission (Preserved Land) that preserved tidal wetlands habitat and uplands will augment other preserved habitat along the Petaluma River for special-status species, particularly SMHM, CRR, and CBR.
- Vegetation cover removal using goat grazing will preclude special-status species from most areas of the Project Area. If vegetation removal is required in areas where goats have not grazed, it shall be removed by motorized string trimmers with first pass high cut followed by second pass low cut, and starting in uplands away from the Preserved Land (the land dedicated to State Lands Commission) and moving toward the Preserved Land which will cause special-status species to safely migrate towards the wetlands/marsh and upland areas of the Preserved Land.
- A qualified biologist or biological monitor shall be present on site to survey and monitor a) all salt marsh vegetation removal; b) the construction of exclusion fencing; c) all work within 300 feet of tidal or pickleweed habitats. The qualified biologist or biological monitor shall have the authority to stop work if deemed necessary for any reason to protect these species, or any other special status species.
- Prior to start of construction grading, temporary exclusion fencing shall be installed along appropriate portions of the Project Area boundary as determined by a qualified biologist. Fencing shall be of suitable materials and dimensions that will act as a barrier to keep any of the specials-status species from entering the work area. An exclusion fence plan shall be prepared by a qualified biologist and shall be agency approved. Installation of the exclusion fence shall be inspected and approved by a qualified biologist. The fence shall remain in place during construction grading and shall be periodically inspected by a qualified biologist to provide instructions for repair, as needed. Once construction grading is completed, the fence shall be removed.
- A contractor education program shall be developed and given to work crew that identifies species to be protected during construction grading activities. Instruction shall be by a qualified biologist and shall cover general biology and behavior of species, how they may be encountered, and procedures to follow if they are encountered. Species

legal status and protection, penalties for violations, and project-specific protective management measures shall be discussed. Wallet sized card or factsheet handouts shall be handed out to crew to carry on-site. Upon completion of the instruction, recipients shall sign an affidavit acknowledging receiving the training and understanding all protective measures.

- Grading activities shall cease one half hour before sunset and shall not begin prior to one half hour before sunrise.
- Grading activities shall not occur during rain events or within 24 hours of events projected to deliver >0.2 inches of rain or within 24 hours after rain events exceeding 0.2 inches in measureable precipitation.
- No grading shall occur after 0.5 inches of rain has occurred after November 1 in the year construction grading work is occurring unless one-week extensions based on fair weather are approved by agencies.
- Dogs shall be kept on leash at all times within development boundaries when approaching within 50 feet of the southern and portions of the eastern and western boundary with preserved habitat.
- Trash receptacles shall be secured within barriers that exclude mesopredators, such as raccoons and coyotes, to avoid attracting and subsidizing these predators.

Implementation of these measures will either avoid impacts or reduce impacts to a less than significant level.

Potential Impact Bio 3: Impacts to breeding birds, including migratory and special-status birds, from remediation and construction grading activities, as well as avoidance and minimization measures for species, could include disturbance and displacement or injury and mortality to active nests of breeding birds.

Mitigation Measure Bio 3: To mitigate for potential impacts to breeding birds, including migratory and special-status species:

- If grading work must be conducted during the breeding bird season, pre-construction breeding bird surveys shall be conducted by a qualified biologist using recognized CDFW and USFWS protocols prior to vegetation removal or ground disturbance activities between January 15 and August 31. Surveys shall be conducted within suitable nesting habitat within and immediately adjacent to the Project Area, and will include call counts, as appropriate. If active nests are determined to be present, a protective no-work buffer zone shall be established around nests until no longer active (young have fledged or the nest was predated). Once nests are no longer active or no active nests are observed, work may continue within the no-work buffer zone without restriction. A lapse in construction activity or if construction activity is phased at the work site, protocol surveys shall be repeated.
- Specific to CCR and CBR, if breeding rails are determined to be present, no activities, visual disturbance (direct line of sight) and/or an increase in the ambient noise level shall occur within 700 feet of areas where CCR and/or CBR have been detected during the breeding season. If surveys have not been conducted, all work shall be conducted 700 feet from CCR and/or CBR habitat during nesting season.
- Specific to SMHM, CCR, or CBR, no project activities shall occur within 50 feet of suitable SMHM, CCR, or CBR habitat during extreme high tide events or when adjacent tidal marsh is flooded. Extreme high tides events are defined as a tide forecast of 6.5 feet or higher measured at the Golden Gate Bridge and adjusted to the timing of local high tides.

- No-work buffer zone distance as determined by a qualified biologist may vary depending on habitat characteristics and species, and is generally a larger area for raptors, colonial nesting birds and special-status species. Each exclusion zone shall remain in place until all young have fledged or until the nest has been naturally abandoned or predated. Following fledging of young or natural nest abandonment/predation, proposed activities may begin or continue without restriction.
- Vegetation from vegetation clearing activities shall be collected and transported off the site to prevent birds from nesting in vegetation debris prior to start of construction.

Implementation of these measures will either avoid impacts or reduce impacts to a less than significant level.

Potential Impact Bio 4: Removal of 96 non-native eucalyptus and 2 pine trees and along the northern and western boundaries for development and contaminated soil remediation could remove potential nesting and perching habitat for birds, including raptors.

Mitigation Measure Bio 4: Eucalyptus and pine trees along the northern boundary to be removed will not be replaced, however, approximately 600 trees of various species and varying heights and canopy coverage that will be planted on the Project will replace lost nesting and perching habitat by removal of these northern boundary trees. Mitigation for removal of 53 eucalyptus trees along the western drainage channel, considered to be riparian trees, see Mitigation Measure Bio 6.

Implementation of the measures described above will reduce impacts to a less than significant level.

Potential Impact Bio 5: Indirect impacts to existing wetlands that will be avoided or preserved in the Project Area and in Preserved Land could result from sediment in runoff reaching the wetlands or blockage of natural inflow or outflow of water caused by grading or development.

Mitigation Measure Bio 5: Conduct grading or other ground disturbance during the dry months of the year typically between May and through October (with early start and late finish extensions depending on weather conditions and approval by agencies). Implement best management practices (BMPs) at all times that will include installation of sediment runoff prevention measures (straw wattles, hay bales, etc.) and periodic testing of runoff water during construction. These measures will prevent sediment in runoff from entering the wetlands. Preventing restriction of natural flow of water either into or out of existing wetlands that will be avoided and preserved will be by providing appropriate inlets or outlets or confirming that natural inlet or outlets will exist after grading and development. Implementation of these measures will reduce impacts to a less than significant level.

Implementation of these measures will either avoid impacts or reduce impacts to a less than significant level.

Potential Impact Bio 6: Riparian habitat may be lost due to access across a channel swale into the Project from Casa Grande Road impacting 85 linear feet of open swale into culverts. Also, remediation of lead contaminated soil along the western channel will require removal of 53 eucalyptus trees, considered to be riparian trees. The distance for removal of trees due to soil remediatio along the western channel is approximately 465 feet and tree canopy aerial coverage is approximately 0.75 acre.

Mitigation Measure Bio 6: To mitigate for potential impacts to linear swale channel swale and riparian habitat:

- Prior to receiving a grading permit, permits to alter linear channel and riparian habitat shall be obtained from regulatory agencies with jurisdiction including California Department of Fish and Wildlife, Regional Water Quality Control Board, and/or U.S. Army Corps of Engineers.
- Regulatory agency approved mitigation for impacts shall not be less than 1:1 replacement of linear channel and riparian habitat. Mitigation to replace linear channel swale shall consist of creating 85 linear feet of swale between created wetlands at Adobe Creek Mitigation Area, and due to this offsite mitigation, 26 native trees will be planted onsite along the western channel as additional replacement of riparian habitat. A tree planting plan shall be prepared that includes a monitoring program with specified performance of a minimum of 85 percent survival after five years. The plan shall be reviewed and accepted by regulatory agencies prior to authorization of regulatory permits and prior to ground disturbance.
- Following contaminated soil remediation adjacent to the western channel that will remove 53 eucalyptus trees, 53 native trees shall be planted in approximately the same location as the removed eucalyptus trees along approximately 465 feet of the western channel. A tree planting plan shall be prepared that includes a monitoring program with specified performance of a minimum of 85 percent survival after five years that will be approved by CDFW and any other interested agencies prior to removal of the eucalyptus trees.

Implementation of the measures described above will reduce impacts to a less than significant level.

6.0 REFERENCES

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7.0 Addendum: Adobe Creek Mitigation Area

In order to provide mitigation for unavoidable wetlands impact caused by development and contaminated soil remediation, wetlands will be created at the Adobe Creek Mitigation Site (Mitigation Site). The Adobe Creek Mitigation Site is located east of Casa Grande Road and south of Adobe Road along Adobe Creek approximately 1.8 miles northeast of the Project Area. This area was Adobe Creek Golf Course operated between 1993 and 2017 when this portion of the golf course ceased operations (a southern portion of the golf course in and adjacent to a residential area continues to be operated). The formerly irrigated golf course dried during summers and non-native grassland with weedy forbs quickly colonized and became the dominate plant community. No wetlands were observed during recent surveys of the mitigation area, except for a portion of an artificial reservoir that extends into the mitigation area used for irrigation purposes; the reservoir water level is maintained by well pumping and the reservoir has no natural inlet or outlet. This reservoir feature is not considered jurisdictional, however it will be totally avoided by the wetland creation activities.

Methods

Site visits were made during spring, summer, and fall seasons to the Mitigation Site in 2019 and 2020 to observe existing conditions and for mitigation planning. A site visit was also made to the Project Area and the Adobe Creek Mitigation Site in March 2020 by staff of the City of Petaluma, Regional Water Quality Control Board, US Fish and Wildlife Service, California Department of Fish and Game, and project proponent and consultants to observe existing conditions.

Existing Conditions of the Mitigation Site

The Mitigation Site (Figure 8) covers 11.5 acres and has 10.75 acres of ruderal non-native annual grasslands, 0.15 acre mixed riparian woodland (a fringe along the northwestern boundary), 0.16 acre non-jurisdictional waters (irrigation reservoir), and 0.44 acre developed lands (former golf course trail).

The mitigation area is currently dominated by upland, non-native grasses which have colonized and grown since golf course maintenance and irrigation ceased in 2017. These species include grasses, such as ripgut grass (*Bromus diandrus*) and wild oat (*Avena barbata*), and forbs, such as bristly ox tongue (*Picris echioides*) and mustard (*Brassica nigra*). Two established coast live oak trees (*Quercus agrifolia*) present in the center of the mitigation area cannot be avoided by the wetlands creation plan, however it is anticipated that oak and other native trees will be planted in upland areas of the resulting final mitigation plan. No wetlands currently exist within the selected mitigation area (WRA 2020, Appendix A), however a portion of an artificial reservoir, a non-jurisdictional golf course water feature and irrigation water storage sourced from a well, is located in the southwest portion of the mitigation area. It will not be considered as part of the mitigation and will be avoided by the grading needed to complete the created mitigation wetlands.

Adobe Creek and riparian corridor are adjacent to the Mitigation Site. The riparian plant community is a mix of valley oak, coast live oak, arroyo willow and understory shrubs, grasses, and forbs. The creek and riparian corridor will not be affected by the work of creating the mitigation wetlands on the Mitigation Site because the boundary of grading will be outside of the FEMA 100-year flood zone and buffer distances ranging from 70 to 120 feet (except for one location where a meander in the creek reduces the buffer to approximately 16 feet).

Adobe Creek Mitigation Site Wetlands Creation

The goal at the Adobe Creek Mitigation Site is to create seasonal wetlands as replacement habitat for unavoidable impacts to seasonal wetlands at the Project Area. The mitigation work will consist of:

- Creation of a total of 3.5 acres of seasonal wetlands habitat on 11.5 acres representing at least a 2:1 mitigation ratio of created wetlands to impacted wetlands

- Approximately 1/3 created wetland area to 2/3 surrounding land area

- Create a linear swale approximately 85 feet long as mitigation to replace impact of a linear channel at the Project Area

- Avoid the existing irrigation reservoir, the northern portion of which enters into the southern portion of the mitigation area

- Avoid Adobe Creek by maintaining a buffer distance at the 100-year FEMA flood zone which ranges 70 to 120 feet from the creek (except at one point due to a meander in the creek where the buffer decreases to approximately 16 feet)

- Monitoring performance criteria for a period of 5 years

This creation of seasonal wetlands, in addition to replacing wetlands lost because of development at a 2:1 ratio, is considered a beneficial impact by increasing habitat, improving habitat value, and improvement of the Adobe Creek and Petaluma River watershed. Creation of the seasonal wetlands that will pond water, some of which will infiltrate to groundwater, and contribute to support of base flow in Adobe Creek.

Grading to create 3.5 acres of mitigation seasonal wetlands at the Adobe Creek Mitigation Area will be conducted in one phase during dry summer months followed by planting of native wetland plants and/or seed in the fall just prior to beginning of winter rains. A grading plan (in preparation) will be used to create seven depressional wetlands on native Clear Lake clay soils and one 85-foot long linear swale.

Access to the Adobe Creek Mitigation Area will be from the south on existing former golf course land owned by the applicant. All equipment, construction grading vehicles, and work crew vehicles will be staged within the Adobe Creek Mitigation Area during construction grading, away from Adobe Creek as is feasible. Construction fence will be installed to protect Adobe Creek and its riparian habitat from accidental entry by construction equipment or materials.

Equipment used during construction grading will include bulldozers, scrapers, blades, skip-loaders, water trucks, excavators, and dump trucks. Appropriate BMPs will be installed to prevent the possibility of sediment in runoff from reaching Adobe Creek. The created wetlands work area will be inspected following rain events to identify eliminate erosion and sediment runoff. The requisite monitoring program will be implemented to document the effectiveness of the BMP erosion control measures.

Special-Status Species at the Adobe Creek Mitigation Site

The same list of special-status species as described for the Project Area above apply to the Mitigation Site, with the exception that no suitable habitat is present for salt marsh harvest mouse,

California Ridgway's rail, black rail, and Samuel's song sparrow. The other species listed above would have potential for presence and, in addition, the adjacent Adobe Creek is known to support foothill yellow-legged frog and steelhead trout. None of these species have been observed at the Mitigation Site, however consideration of special-status species at the Mitigation Site are as follows:

California Red-legged Frog - No CRLF have ever been recorded in Adobe Creek, including the lower reaches near the Project Area and upstream reaches past the Mitigation Site. There are occurrences of CRLF on Sonoma Mountain that are part of the Adobe Creek watershed, so it is conceivable that CRLF could migrate down the creek, and why no occurrences in the creek have ever been reported is unknown. CRLF, if present in Adobe Creek, are not likely to migrate out of the creek and riparian corridor during dry periods of the year, from late spring through summer and fall, but could potentially migrate overland during moist periods in winter and early spring. However, no CRLF have been reported in the creek or surrounding area (Figure 6).

Foothill Yellow-legged Frog - Foothill yellow-legged frog (*Rana boylii*) (FYLF) is known to be present in Adobe Creek from lower reaches to upstream reaches, including the reach past the Adobe Creek Mitigation Area (Figure 6). FYLF is known to not venture far from moist habitat and safety of streams and riparian corridor, especially during dry periods such as from late spring through summer and fall.

Western Pond Turtle – WPT have not been recorded in the upper reaches of Adobe Creek, including in the reach adjacent to the Mitigation Site. While WPT could use the creek to migrate upstream, the dense riparian cover is not conducive to basking and open water habitat that pond turtles typically seek. There is potential for WPT to occupy the artificial irrigation reservoir that extends into the southern portion of the Mitigation Site, however none have ever been observed and the dense tules around the perimeter may not be suitable for allowing basking. Finally, the native soil type in the Mitigation Site area is all Clear Lake clay which is not the sandy substrate in which WPT prefers to construct nests, another indication for absence in the Mitigation Site.

White-tailed Kite – Foraging habitat over the Mitigation Site grasslands and nesting habitat in the two oak trees and adjacent riparian corridor could be attractive to white-tailed kite.

Northern Harrier – This species would potentially find the grasslands of the Mitigation Site attractive to nesting and foraging.

Loggerhead Shrike - The grasslands of the Mitigation Site and nesting habitat in the adjacent Adobe Creek riparian corridor would be attractive to this species.

Saltmarsh Common Yellowthroat – Although most suitably attracted to more open areas with salt marsh habitat, this species could potentially or occasionally find use of the Adobe Creek riparian corridor for nesting and foraging.

Steelhead – The Central California Coast Distinct Population Segment (*Oncorhynchus mykiss irideus*) is on the federal threatened list of the Endangered Species Act and Adobe Creek is part of designated critical habitat. While there is no habitat present for steelhead in the Mitigation Site, this species is known to be present in Adobe Creek (Leidy et al. 2005; USNMFS 2007; CDFW 2014). Surveys have found adult fish as well as juveniles in the creek at various times of the year. Spawning habitat is available in the creek, however the creek has several structural

impediments to fish migration, such as at road crossings. Adult fish, for the most part, are able to pass these impediments as proven by being found in upstream reaches of the creek, but juvenile fish often are not able to pass. Efforts to improve habitat for steelhead include creek and riparian habitat restoration and enhancement along segments of the creek and a hatchery program at Casa Grande High School (with United Anglers) produces juveniles for release.

Potential Impacts and Avoidance or Mitigation at Adobe Creek Mitigation Site

The Mitigation Site is mostly non-native annual grassland where grading activities will create 3.5 acres of seasonal wetland and one 85-foot long linear swale. A fringe of riparian habitat along the northern boundary of the Mitigation Site with the Adobe Creek riparian corridor and the portion of the artificial irrigation reservoir will not be included in the grading for wetlands creation and will be avoided. Grading work will occur during the dry period between May and October 31 (with possible early start or late finish work extensions, weather permitting and with agency approval), BMPs for prevention of erosion and sediment in runoff will be installed and maintained at all times. Moreover, a buffer between the grading area and the creek and riparian corridor will be established and marked with construction fencing to prevent inadvertent entry by equipment during grading. Therefore, no impacts to sensitive habitat will result.

Impacts to sensitive species will be avoided or mitigated by:

- conducting construction work at the time of the year when species would not be expected within the Mitigation Site grading area and/or the Adobe Creek and riparian corridor. The dry period months between May and October generally would preclude CRLF and FYLF from migrating out of the creek and riparian corridor.
- Installing construction fencing along the Mitigation Site and creek/riparian corridor boundary which will also inhibit wildlife from migrating into the work area
- Installing and maintaining BMPs at all times during grading to prevent erosion and sediment runoff and requiring fueling and maintenance of equipment to be located away from Adobe Creek and riparian corridor; this is in addition to the buffer distance between the mitigation grading and the creek that will preclude any sediment in runoff from reaching the creek.
- Conducting surveys when ground disturbance work is initiated during the bird nesting season, which is from February 1 through August 31, and protecting any active nests until eggs or young are no longer present by establishing an appropriate work buffer around the nest determined by a qualified biologist.

With implementation of these avoidance and mitigation measures, impacts to sensitive habitat and species resulting from creation of seasonal wetlands at the Mitigation Site will be reduced to less than significant. Creation of seasonal wetlands is considered a beneficial impact.

APPENDIX A

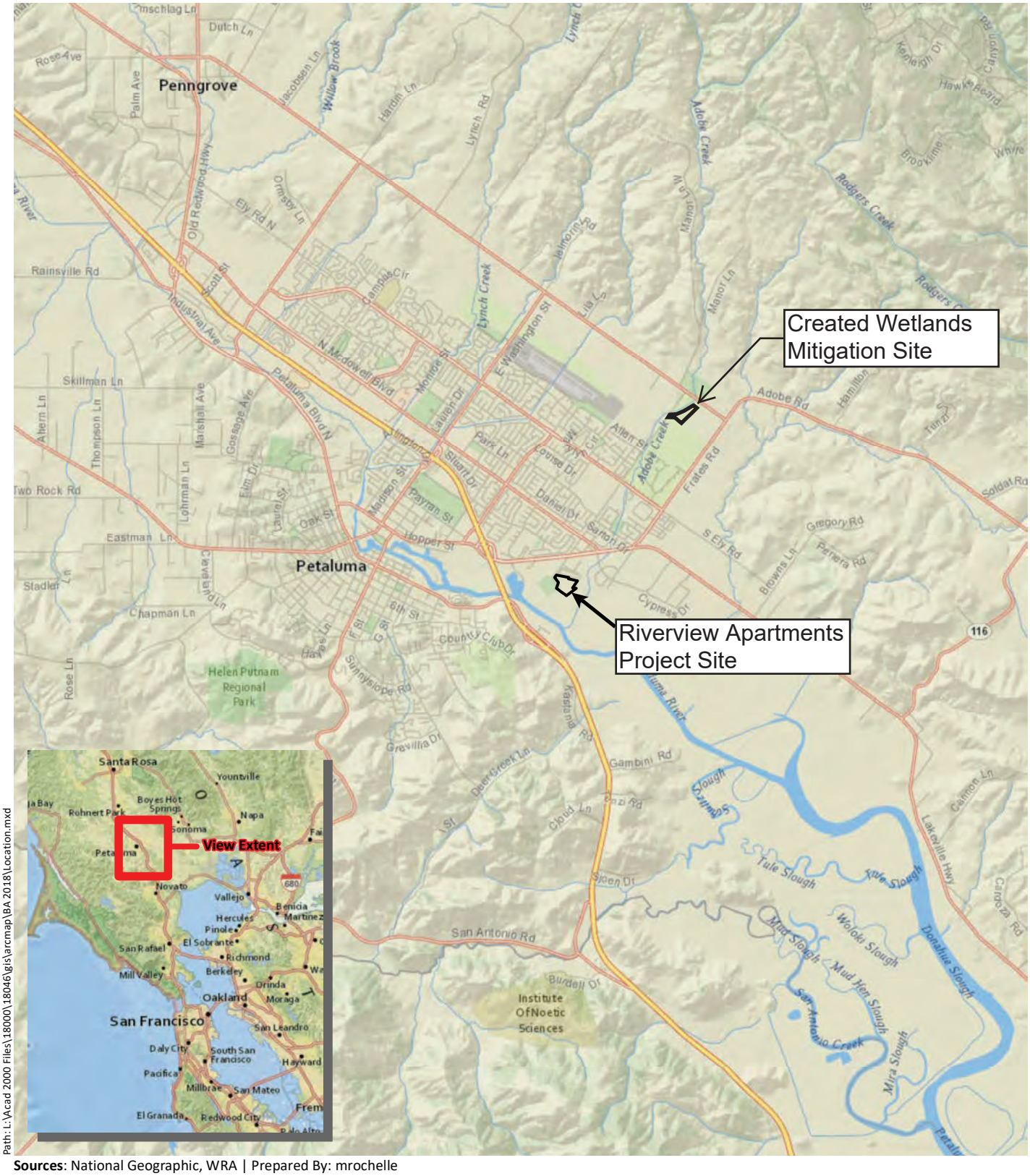
LIST OF OBSERVED PLANT AND ANIMAL SPECIES

Appendix A. Wildlife and plant species observed during 2008 and 2018-2019 site visits for the Riverview Apartments Project (formerly Baywood Village) in Petaluma, California.

Scientific Name	**Common Name**
Mammals	
Lepus californicus	Black-tailed Jackrabbit (scat)
Mephitis mephitis	Striped Skunk
Microtus californicus	California Vole
Odocoileus hemionus	Black-tailed Deer
Procyon lotor	Northern Raccoon
Thomomys sp.	Gopher (burrows)
Birds	
Buteo jamaicensis	Red-tailed Hawk
Calypte anna	Anna's Hummingbird
Carpodacus mexicanus	House Finch
Cathartes aura	Turkey Vulture
Circus cyaneus	Northern Harrier
Cistothorus palustris	Marsh Wren
Dendroica coronata	Yellow-rumped
Melospiza melodia	Song Sparrow
Passerculus sandwichensis	Savannah Sparrow
Regulus calendula	Ruby-crowned
Sturnus vulgaris	European Starling
Zonotrichia atricapilla	Golden-crowned
Zonotrichia leucophrys	White-crowned
Plants	
Alisma plantago-aquatica	water plantain
Atriplex triangularis	spearscale
Avena barbata	slender wild oats

Scientific Name	**Common Name**
Baccharis pilularis	coyote brush
Brassica nigra	black mustard
Bromus diandrus	ripgut brome
Bromus hordeaceus	soft chess brome
Centaurea solstitialis	yellow star-thistle
Conium maculatum	poison hemlock
Crypsis shoenoides	swamp timothy
Cynodon dactylon	Bermuda grass
Cynara cardunculus	artichoke thistle
Cyperus eragrostis	tall flatsedge
Dittrichia graveolens	*stinkwort*
Epilobium ciliatum	willow herb
Eryngium armatum	coyote thistle
Eucalyptus globulus	blue gum
Euphorbia, sp.	Spurge
Foeniculum vulgare	Fennel
Hemizonia pungens	common spikeweed
Hordeum marinum ssp. *gussoneanum*	Mediterranean barley
Lactuca serriola	prickly lettuce
Lepidium latifolium	broadleaved
Leymus triticoides	wildrye
Lolium multiflorum	Italian rye-grass
Festuca perennis (= Lolium perenne)	rye grass
Madia sp.	Tarweed
Malvella leprosa	alkali mallow

Scientific Name	**Common Name**
Phalaris aquatica	harding grass
Picris echioides	bristly ox-tongue
Polypogon monspeliensis	rabbit’sfoot grass
Raphanus sativus	wild radish
Rumex pulchre	Sheep soral
Rumex crispus	curly dock
Scirpus maritimus	prairie bulrush
Typha latifolia	Cattail
Xanthium spinosum	spiny cocklebur



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Sources: National Geographic, WRA | Prepared By: mrochelle

Figure 1. Location of Riverview Apartments Project and Wetlands Mitigation Site at former Adobe Golf Course

Baywood LLC
Petaluma, California

0 1 2 Miles

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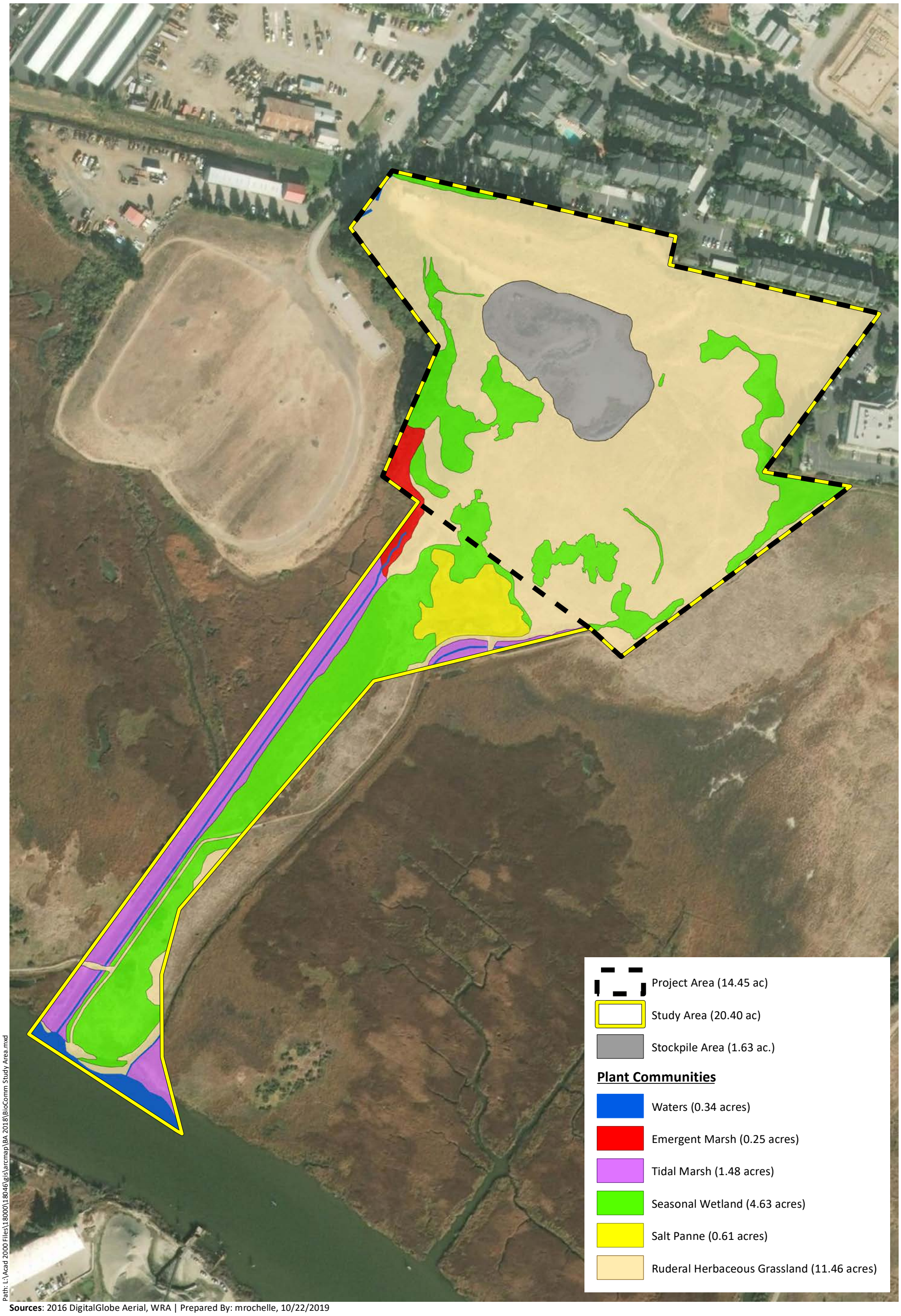

Sources: 2016 DigitalGlobe Aerial, WRA | Prepared By: mrochelle, 10/22/2019

Figure 2. Plant Communities within the Study Area

Riverview Apartments Project
Petaluma, California

0 200 400 Feet

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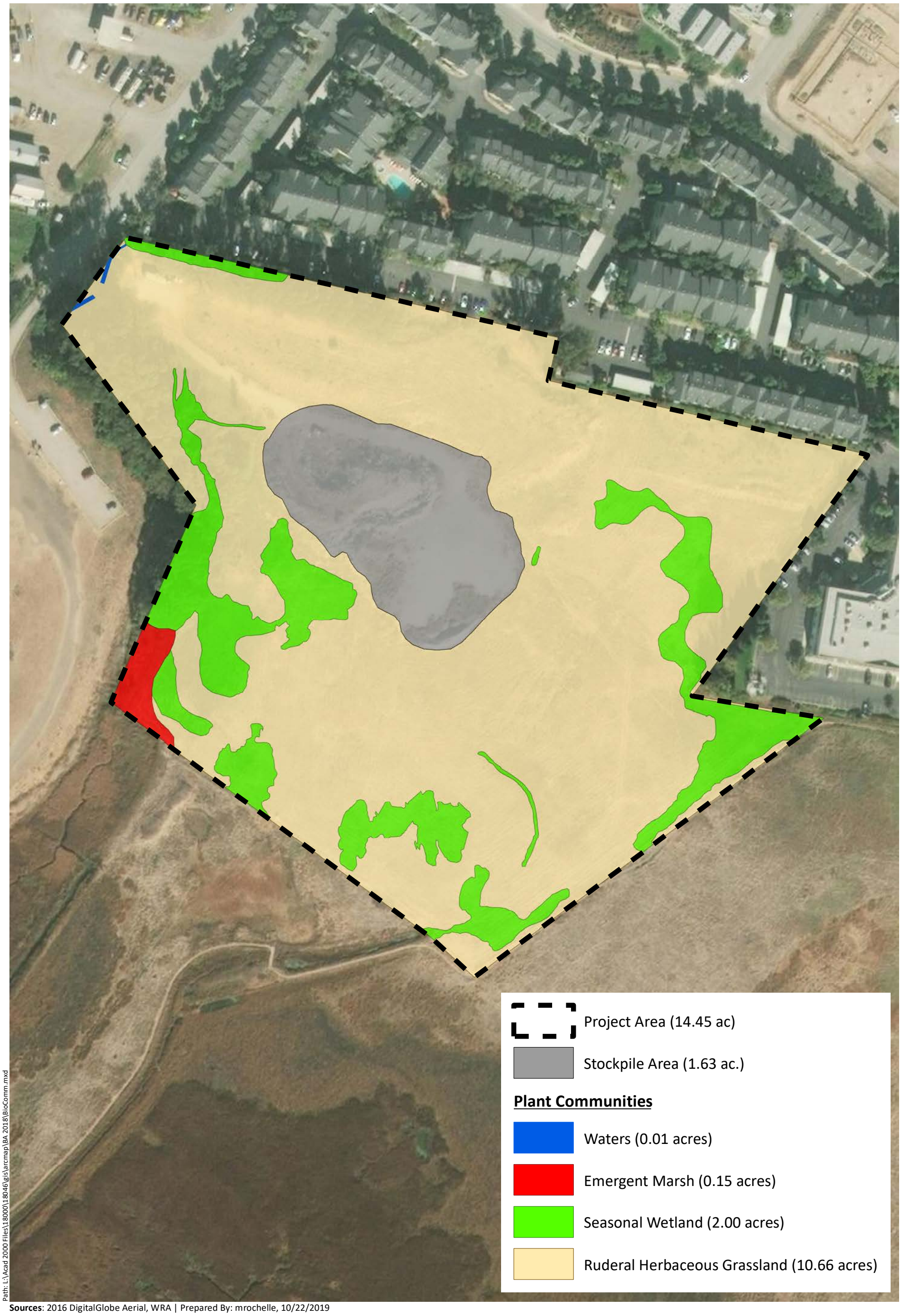
ENVIRONMENTAL CONSULTANTS



Sources: 2016 DigitalGlobe Aerial, WRA | Prepared By: mrochelle, 10/22/2019

Figure 3. Plant Communities within the Project Area

Riverview Apartments Project
Petaluma, California

0 200 400 Feet

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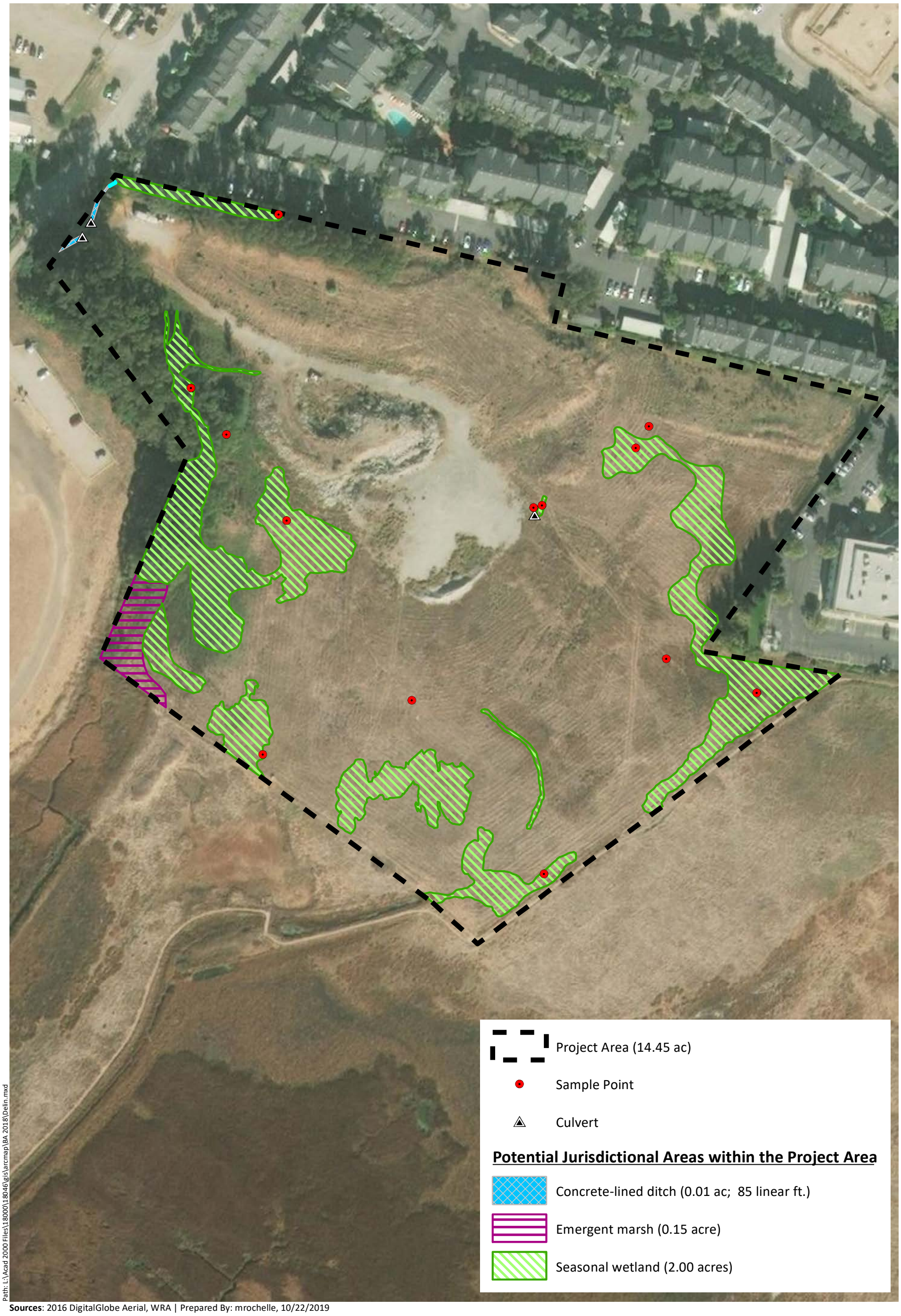

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Sources: 2016 DigitalGlobe Aerial, WRA | Prepared By: mrochelle, 10/22/2019

Figure 4. Preliminary Section 404 Jurisdictional Areas

Riverview Apartments Project
Petaluma, California

0 200 400 Feet

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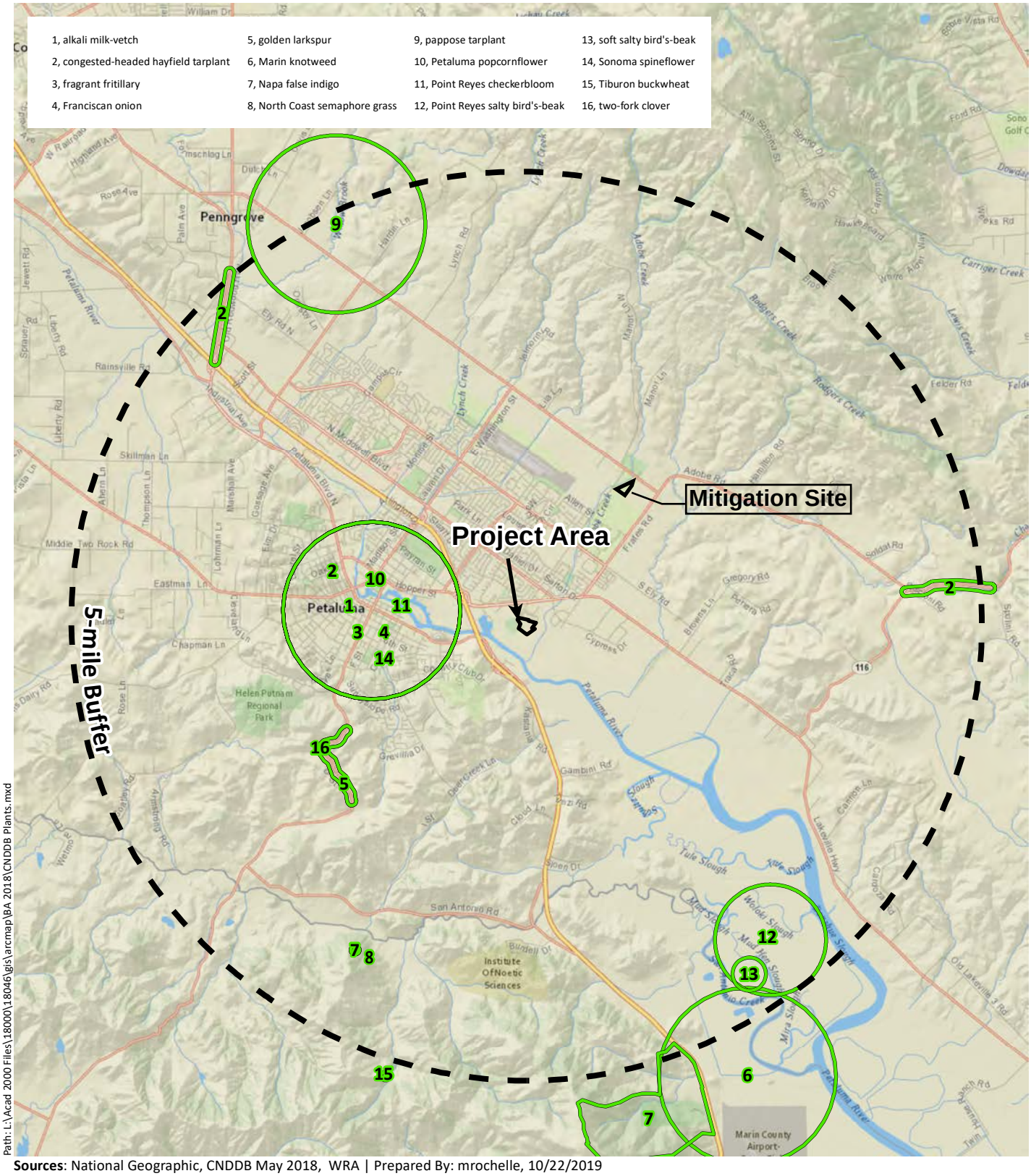


Sources: National Geographic, CNDDB May 2018, WRA | Prepared By: mrochelle, 10/22/2019

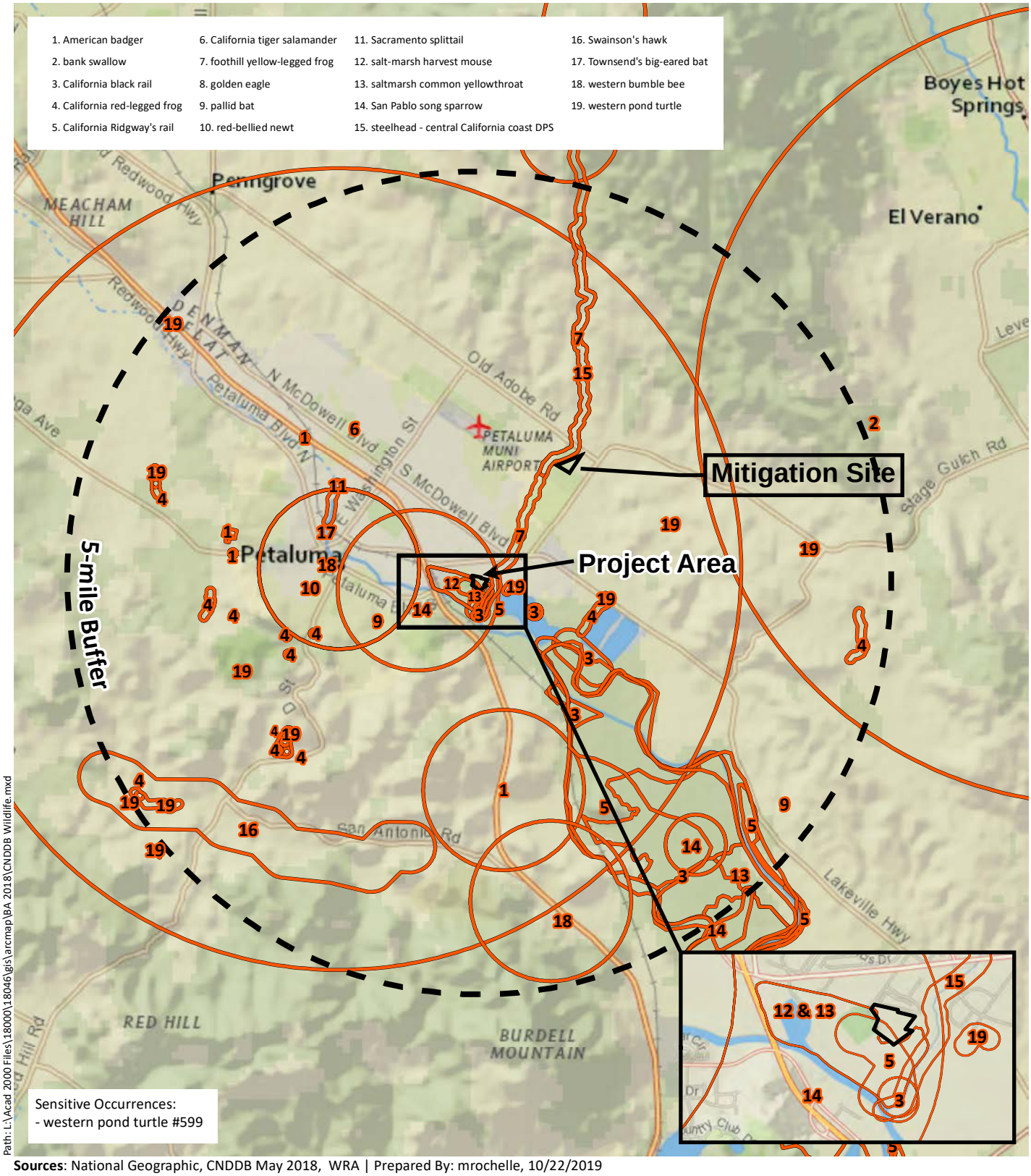
Figure 5. Special-Status Plant Species Documented within 5-miles of the Project Area

Riverview Apartments Project
Petaluma, California

0 1 2 Miles

N

ENVIRONMENTAL CONSULTANTS



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Sources: National Geographic, CNDDB May 2018, WRA | Prepared By: mrochelle, 10/22/2019

Figure 6. Special-Status Wildlife Species Documented within 5-miles of the Project Area

Riverview Apartments Project
Petaluma, California

0 1 2 Miles

N

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GENERAL NOTES

1. ALL DISTANCES AND DIMENSIONS ARE GIVEN IN FEET AND DECIMALS THEREOF.
2. BOUNDARY SHOWN IS BASED UPON PARCEL MAP NO. 92, FILED IN BOOK 232 OF MAPS, AT PAGE 27, SONOMA COUNTY RECORDS.
3. WETLANDS BOUNDARIES "PRELIMINARY SECTION 404 JURISDICTIONAL AREAS" WERE PROVIDED BY WRA ENVIONMENTAL CONSULTANTS, INC. DATED JUNE 2008. A SECTION 404 (b)(1) ALTERNATIVES ANALYSIS OF BAYWOOD VILLAGE, PETALUMA, CA, WAS PREPARED BY TED WINFIELD & ASSOCIATES AND BRUCE ASPINALL & ASSOCIATES, DATED MAY 15, 2012. TOTAL SQUARE FOOTAGE OF WETLANDS ON SITE (NORTHEASTERLY OF PROPOSED CALIFORNIA STATE LANDS COMMISSION TITLE SETTLEMENT AGREEMENT LINE): 2.11 ACRES. SUBSEQUENTLY THIS JURISDICTIONAL WETLANDS DELINEATION WAS RE-VERIFIED BY USACE JANUARY 29TH 2015.

KEYNOTES

WP_ WETLAND AREA TO BE PRESERVED POST SITE DEVELOPMENT. SEE TABLES THIS SHEET FOR GROSS AREAS AND SUMMARY.

WR_ WETLAND AREA TO BE REMOVED POST SITE DEVELOPMENT. SEE TABLES THIS SHEET FOR GROSS AREAS AND SUMMARY.

CR EXISTING ONSITE CULVERT & SWALE TO BE FILLED AS PART OF SITE IMPROVEMENTS.

AREA I.D.	Gross Area (ft^2)	Gross Area (acre)
WR1	3,122	0.07
WR2	25,472	0.58
WR3	3,275	0.08
WR4	5,375	0.12
WR5	10,238	0.24
WR6	913	0.02
WR7	2,881	0.07
WR8	580	0.01
WR9	13,537	0.31
WR10	163	0.00
WR11	447	0.01
TOTAL WETLAND AREAS REMOVED	**66,002**	**1.52**

AREA I.D.	Gross Area (ft^2)	Gross Area (acre)
WP1*	11,758	0.27
WP2	3,445	0.08
WP3	11,718	0.27
TOTAL WETLAND AREAS PRESERVED	**26,921**	**0.62**

*THE WETLAND AREAS PRESETNED IN GREEN ARE AREAS THAT WILL BE RESTORED AFTER THE SOIL REMEDIATION ACTIONS, AHEAD OF THE REMAINING SITE IMPROVEMENT WORK PRESENTED HEREIN. THIS AREA COMPRISES A TOTAL OF 5,668 SQ.FT

ABBREVIATIONS

AC	ASPHALTIC CONCRETE
AD	AREA DRAIN
ADS	PLASTIC PIPE
BSL	BUILDING SETBACK LINE
C	COMMUNICATIONS BOX
CB	CATCH BASIN
CCWL	CONCRETE WALL
CULV	CULVERT
DI	DROP INLET
DN	DOCUMENT NUMBER
FC	FACE
FNC	FENCE
IG	INVERT GRADE
JBM	JOB BENCHMARK
JP	JOINT POLE
LB	LIGHT BASE
MW	MONITORING WELL
OFF	IMPROVEMENT IS OFF SUBJECT PARCEL
ON	IMPROVEMENT IS ON SUBJECT PARCEL
PG&E	PG&E BOX
SCR	SONOMA COUNTY RECORDS
SDMH	STORM DRAIN MANHOLE
SS	SANITARY SEWER
SSMH	SANITARY SEWER MANHOLE
TBC	TOP BACK OF CURB
TEL	TELEPHONE
UG	UNDERGROUND
W	WATER
WL	WALL

LEGEND

- OVERHEAD WIRES
- EASEMENT
- CENTER LINE
- FENCE, POST AND WIRE
- FENCE, CHAIN LINK
- FENCE, WROUGHT IRON
- EDGE OF PAVEMENT
- WATER LINE
- OVERHEAD UTILITIES
- STORM DRAIN
- RETAINING WALL
- R1 — DOCUMENT REFERENCE
- N XX°XX'XX" E XXX.XX' R1 — HELD RECORD BEARING OR DISTANCE
- CONCRETE
- WATERS PER WETLANDS REPORT, SEE GENERAL NOTE 6
- DRAINAGE CHANNEL TO BE FILLED AS PART OF DEVELOPMENT.
- A — KEYNOTE
- IMPACTED WETLAND AREAS TO BE REMOVED AS PART OF DEVELOPMENT SEE TABLE THIS SHEET FOR AREAS
- IMPACTED WETLAND AREAS TO BE REMOVED AS PART OF REMEDIAL EXCAVATION OF METAL IMPACTED SOILS.
- WETLAND AREAS TO BE PRESERVED POST SITE DEVELOPMENT. SEE TABLE THIS SHEET FOR AREAS
- WETLAND AREA RESTORED POST SOIL REMEDIATION ACTIONS
- LIMITS OF DEVELOPMENT & EARTHWORK
- EUC30 — TREE TO BE REMOVED FOR SITE IMPROVEMENTS
- EUC24 — TREE TO BE REMOVED PRIOR TO SITE DEVELOPMENT AS PART OF SEPARATE SOIL REMEDIATION PROJECT
- EUC24 — TREE TO BE SAVED

GRAPHIC SCALE 0 25 50 100 200

NORTH

Figure 7. Project plans showing existing wetlands and trees impacts and preservation.

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

REVISIONS	BY

WETLAND PRESERVATION PLAN

RIVERVIEW APARTMENTS FORMERLY LANDS OF BAYWOOD, LLC
2592 CASA GRANDE ROAD APN 005-060-041; 042 & 067
PETALUMA CALIFORNIA

STEVEN J. LAFRANCHI & ASSOCIATES, INC.
CIVIL ENGINEERS ~ LAND SURVEYORS
LANDSCAPE ARCHITECTURE ~ LAND PLANNERS
PETALUMA THEATRE SQUARE
140 SECOND STREET, SUITE 312
PETALUMA, CA 94952
(707) 762-3122 FAX (707) 762-3239

DATE:	2019.12.18
SCALE:	1" = 50'
DESIGN:	SJL
DRAWN:	NOF
CHECK:	SJL
JOB:	BAYWOOD 2018
JOB No:	181980
SHEET	C-3
OF	19 SHEETS

Figure 8.
Land Cover Types within the Adobe Creek Mitigation Site

Riverview Apartments
Petaluma, California

Mitigation Site - 11.5 ac.

Action Area - 24.9 ac.

Non-sensitive Land Cover

Artificial Irrigation Reservoir - 0.87 ac.

Developed - 1.47 ac.

Ruderal Herbaceous Grassland - 17.45 ac.

Sensitive Land Cover

Mixed Riparian Woodland - 4.70 ac.

Waters - 0.43 ac.

N

0 200 400

Feet

wra
ENVIRONMENTAL CONSULTANTS

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Sources: Sonoma Veg 2013 Aerial, WRA | Prepared By: mrochelle, 7/21/2020

APPENDIX B

SPECIAL-STATUS PLANT AND ANIMAL SPECIES POTENTIALLY PRESENT IN PROJECT AREA

Appendix B. Potential for special-status plant and wildlife species that may occur in the vicinity of the Riverview Apartments Project Area and at the Adobe Creek Mitigation Area where noted. List compiled from a search of the California Department of Fish and Wildlife Natural Diversity Database (CNDDB 2020), and the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants (CNPS 2020) 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 Information for Planning and Consultation (IPaC).

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Plants				
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 Project Area does not contain 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.** Project Area has a small perennial freshwater wetland habitat created from disturbance.	**Not Present.** No further actions are recommended for this species.
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.	**No Potential.** Project 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.
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 Project 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 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 Project 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 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 Project 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 Project 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 Project Area does not contain volcanic chaparral or woodlands necessary to support this species.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
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 Project 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.
Alkali milk-vetch *Astragalus tener v*ar. *tener*	Rank 1B	Valley grassland, alkali sink, freshwater wetlands, wetland-riparian. Elevation range: 3 – 180 feet. Blooms March – June.	**Moderate Potential.** Occurrence within 2 miles to the west.	**Not Present.** Species was not observed during protocol surveys in 2008 and not observed during 2018 site visit. No further actions are recommended for this species.
San Joaquin spearscale Atriplex joaquiniana	Rank 1B	Chenopod scrub, alkali meadow, valley and foothill grassland. In seasonal alkali wetlands or sink scrub with salt grass, alkali heath, etc. Blooms April-October.	**Moderate Potential.** Seasonal wetlands may provide suitable habitat.	**Not present.** Species was not observed during protocol surveys and other site visits.
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 Project 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 brodiaea	Rank 1B	Broadleaf upland forest, chaparral, lower montane coniferous forest. Elevation range: 360 – 3000 feet. Blooms: May – July.	**No Potential.** The Project Area does not contain chaparral or woodlands necessary to support this species.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
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 Project 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.** Project Area has highly disturbed past and known occurrence is from 1880. Possibly extirpated.	**Not Present.** No further actions are recommended for this species.
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 Project 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.** Project 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.
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.** Project 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.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
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 Project Area does not contain lake or pond habitat that may support this species.	**Not Present.** No further actions are recommended for this species.
Castilleja affinis var. *neglecta* Tiburon paintbrush	FE, ST, Rank 1B	Valley and foothill grassland (serpentine). Elevation ranges from 200 to 1310 feet. Blooms April-June.	**No Potential.** The Project Area lacks serpentine substrates necessary to support this species.	**Not Present.** No further actions are recommended for this species.
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 Project 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.** Project 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 Project Area does not contain volcanic chaparral or woodlands necessary to support this species.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
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 Project 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 Project Area does not contain coastal habitats (e.g., strand, bluffs, cliffs, dunes, prairies, maritime chaparral) necessary to support this species. Out of elevation range.	**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 Project Area does not contain volcanic subsrate, 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.	**Moderate Potential.** Only seasonal wetlands, however Project Area does not contain alkali substrate necessary to support this species.	**Not Present.** Species was not observed during protocol surveys and site visits. 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 Project 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
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 Project Area has no coastal brackish marsh.	**Not Present.** Never observed on surveys or site visits. No further actions are recommended for this species.
Chloropyron molle ssp. molle *Soft salty bird's-beak*	FE, SR Rank 1B	Marshes and swamps (coastal salt). Elevation range: 0-10 feet. Blooms July-November	**Unlikely.** The Project Area has no coastal brackish marsh.	**Not Present.** Never observed during surveys or site visits. No further actions are recommended for this species.
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 Project Area does not contain coastal habitats (e.g., strand, bluffs, cliffs, dunes, prairies, scrubs, maritime chaparral) necessary to support.	**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 Project 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.	**Unlikely.** The Project Area does not contain sandy soil to support this species. Out of elevation range.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
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 Project Area does not contain serpentine or 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.
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 Project 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 Project Area does not contain serpentine habitat (e.g., grasslands, chaparrals, woodlands, barrens, outcrops) necessary to support this species. Out of elevation range.	**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 Project Area does not contain serpentine habitat (e.g., grasslands, chaparrals, woodlands, barrens, outcrops) necessary to support this species. Out of elevation range.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
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. Out of elevation range.	**Not Present.** No further actions are recommended for this species.
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 Project 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 Project Area does not contain the habitat types for this species and is below the elevation range.	**Not Present.** No further actions are recommended for this species.
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 Project Area does not contain coastal habitats (e.g., strand, bluffs, cliffs, dunes, prairies, maritime chaparral) or north-facing slopes of shale to support this species. Out of elevation range.	**Not Present.** No further actions are recommended for this species.
Delphinium luteum Yellow (golden) 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 Project Area does not contain coastal habitats (e.g., strand, bluffs, cliffs, dunes, prairies, maritime chaparral) or north facing slopes 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 Project Area does not have habitats types and is below the elevation range of this plant. Out of elevation range.	**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.	**Moderate Potential.** In seasonal wetlands, however, the Project Area does not contain vernal pool or seasonal wetlands similar to vernal pools necessary to support this species.	**Not Present.** Not observed during protocol surveys or other site visits. 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 associated with large wetlands 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 Project Area has highly disturbed and development past. Out of elevation range.	**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 Project Area does not contain rocky areas in North Coast coniferous forest (coast redwood forest) that may support this species. Out of elevation range.	**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 Project 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 Project 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 Project Area does not contain serpentine habitat (e.g., grasslands, chaparrals, woodlands, barrens, outcrops) necessary to support this species. Out of elevation range.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Eriogonum luteolum var. canum Tiburon buckwheat	Rank 1B	Coastal Prairie, Chaparral, Valley Grassland with affinity (strict endemic) for serpentine soil. Elevation range: <2100 feet. Blooms: May-October.	**No Potential.** The Project Area does not have serpentine soils.	**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 Project 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.
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.** Project 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 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 Project 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.** Project 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.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
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 Project 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.
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 Project 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.
Hemizonia congesta ssp. congesta Congested-headed hayfield tarplant	Rank 1B	Coastal scrub, valley and foothill grassland. Elevation range: 65 – 1840 feet. Blooms: April – October.	**Unlikely.** The Project Area is highly disturbed and is lower than the elevation range.	**Not Present.** No further actions are recommended for this species.
Hesperevax caulescens hog wallow 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.** Project 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.
Hesperolinon congestum Marin western flax	FT, ST, Rank 1B.1	Chaparral, valley and foothill grassland. Elevation ranges from 15 to 1215 feet (5 to 370 meters). Blooms Apr-Jul.	**No Potential.** The Project Area does not contain serpentine soils.	This species is not present. No further recommendations.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
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 Project 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 Project 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.
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 Project 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 Project Area does not coastal prairie, lower montane coniferous forest or meadows and seeps.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
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 Project 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 Project 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 californica ssp. macrantha perennial goldfields	Rank 1B	Coastal bluff scrub, coastal dunes, coastal scrub. Elevation range: 5 – 520 feet. Blooms: January – November.	**No Potential.** Project 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.	**Moderate Potential.** In seasonal wetlands, however the Project Area does not contain vernal pool or seasonal wetlands similar to vernal pools necessary to support this species.	**Not Present.** Not observed during protocol surveys and other site visits. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
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.** Project 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.** Project 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.** Project 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.
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 Project 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
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 Project 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 Project Area does not contain perennial wetland habitat or acidic sandy substrate riparian wetlands. Out of elevation range.	**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 road cuts. Elevation range: 95 – 6210 feet. Blooms: April – September.	**No Potential.** The Project Area does not contain suitable habitat that supports and no serpentine substrate.	**Not Present.** No further actions are recommended for this species.
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 Project Area does not contain habitat similar to vernal pools 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 Project 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.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Monardella viridis green Monardella	Rank 4	Broadleaf upland forest, chaparral, cismontane woodland. Elevation range: 325 – 3285 feet. Blooms: June – September.	**No Potential.** Project Area does not contain habitat to support this species and is below the elevation range.	**Not Present.** No further actions are recommended for this species.
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 Project 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 Project 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 Project Area does not contain open, mesic areas in chaparral, or woodland habitat necessary to support this species. None observed during surveys.	**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 Project Area does not contain the habitat type necessary and is below the elevation range. Only one historic documented occurrence from Sonoma County in 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.** Project 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 Project 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.
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.** Project Area contains no perennial wetland habitat and is below elevation range.	**Not Present.** No further actions are recommended for this species.
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 Project 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.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
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 Project 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 Project 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 Project 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 Project 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.
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.	**Unlikely.** The Project Area contains small area of freshwater marsh habitat created out of disturbance that is not likely to support this species.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
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 Project 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 Project 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 Project Area does not contain serpentine habitat (e.g., grasslands, chaparrals, woodlands, barrens, outcrops) necessary to support this species. Out of elevation range.	**Not Present.** No further actions are recommended for this species.
Streptanthus morrisonii ssp. *elatus* Three Peaks jewel-flower	FSC; Rank 1B	Serpentine chaparral. Elevation range: 90 – 815 feet. Blooms: June – September.	**No Potential.** The Project 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. *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 Project 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 Project 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 Project Area does not contain exposed sandstone rock outcrops habitat necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Trifolium amoenum two-fork 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 Project 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.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
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 Project 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.	**Unlikely.** The Project Area does not contain alkali wetlands habitat necessary to support this species.	**Not Present.** Not observed during protocol surveys and other site visits. 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 Project 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.
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 Project Area does not contain suitable habitat or trees that would support this species.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
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 Project 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, 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 suitable habitat by urban development.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
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. The Adobe Creek riparian habitat along the Mitigation Area is not well developed/old growth to provide habitat needed by this species.	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.	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 Project 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.	**Moderate Potential.** The Project Area does not have pickleweed that this species needs for foraging and nesting, but is near areas of documented occurrence.	Pre-construction surveys, exclusion fences, hand vegetation removal, and other conservation measures. Consultation with USFWS and CDFW may be required.
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.	**Unlikely.** The Project Area does not contain a suitable building to provide roosting of this species.	No further actions are recommended for this species.
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. The Adobe Creek riparian habitat along the Mitigation Area is not well developed/old growth to provide habitat needed by this species.	No further actions are recommended for this species.
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	**Unlikely.** The Project Area does not contain suitable structures to provide diurnal roosting for this species.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
		moths gleaned from vegetation.		
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. The Adobe Creek riparian habitat along the Mitigation Area is not well developed/old growth to provide habitat needed by this species.	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 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 roosting 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.
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	**Unlikely.** The Project Area does not contain large trees adjacent to large water bodies of	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
		features large concentrations of waterfowl or fish.	water to support nesting of this species. Additionally, due to the developed nature of the Petaluma River, foraging within the along the river is reduced.	
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.
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.	**No Potential.** The Project Area is not within the known breeding range of this species. This species is presumed extirpated from the Petaluma Area.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
		Preys on arthropods year-round as well as smaller vertebrates during the breeding season.		
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.	**High Potential.** The Project Area contains open grassland habitat, however the urban development immediately adjacent to the Project Area makes this species less likely to occur.	Postpone ground disturbance until completion of breeding season or conduct pre-construction surveys.
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 contains trees that may support nesting of this species. This species may be seen foraging within the Project Area.	Pre-construction surveys prior to construction if beginning during nesting season.
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. None observed during site visits.	No further actions are recommended for this species.
northern spotted owl	FT, ST,	Year-round resident in dense,	**No Potential.** Project	No further actions are

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Strix occidentalis caurina	SSC	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.	Area and immediately adjacent areas do not contain old-growth coniferous forest habitat needed for nesting.	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 contains herbaceous vegetation and nearby trees to support nesting of this species, however no known occurrences within 5 miles.	Pre-construction surveys prior to construction if beginning during nesting season.
California least tern *Sternula antillarum browni*	FE, SE, CFP	Summer resident along the coast from San Francisco Bay 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.
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.** Vegetated islands or sand bars to support a nesting colony not in the area and is outside of the known breeding range of this species.	No further actions are recommended for this species.
double-crested cormorant	DFG:WL	(Rookery site) colonial nester on coastal cliffs, offshore islands, and	**Unlikely.** The Project Area and surrounding	No further actions are recommended for this

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Phalacrocorax auritus not SSC or BCC		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.	areas do not contain coastal cliffs of trees to support a nesting colony.	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.	**Moderate Potential.** Project Area does not contain the wetlands suitable for this species which may be in habitat closer to the river, but individuals may venture into the Project Area**.**	Pre-construction surveys prior to construction if beginning during nesting season.
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.	**Moderate Potential.** Project Area does not contain the wetlands suitable for this species which may be in habitat closer to the river, but individuals may venture into the Project Area**.**	Pre-construction surveys, exclusion fence, and conservation measures. Consultation with USFWS may be required.
great blue heron *Ardea herodias*	none (breeding sites protected	Year-round resident. Nests colonially or semi-colonially in tall trees and cliffs, also sequestered terrestrial substrates. Breeding sites usually in close	**Unlikely**. The Project Area does not contain trees to support a nesting colony. This	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
	by CDFW)	proximity to foraging areas: marshes, lake margins, tidal flats, and rivers. Forages primarily on fishes and other aquatic prey, also smaller terrestrial vertebrates.	species may forage within the Project Area.	
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. Additionally, the Project Area does not contain the wetland habitat to support foraging of this species.	No further actions are recommended for this species.
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.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
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.	**Moderate Potential.** The Project Area is adjacent to areas that contain pickleweed and marsh vegetation with shrubs or trees to support nesting of this species.	Pre-construction surveys prior to construction if beginning during nesting season.
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. 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.	No further actions are recommended for this species.
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	**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.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
		surf. Forages aerially over wide areas.		
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.
Loggerhead shrike *Lanius ludovicianus*	SSC	Prefers open habitats with scattered shrubs, trees, posts, or other perches. Eats mostly large insects.	**Moderate Potential.** The Project Area contains suitable breeding and foraging habitat. But no known occurrence within 5 miles.	Pre-construction surveys prior to construction if beginning during nesting season.
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.
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,	**No Potential.** The Project Area does not	No further actions are recommended for this

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
		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.	contain trees to support nesting or foraging of this species.	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.	**Moderate Potential.** The Project Area is adjacent to areas that contain salt and freshwater marsh vegetation with shrubs or trees to support nesting of this species.	Pre-construction surveys prior to construction if beginning during nesting season.
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.	**Unlikely.** The Project Area and adjacent areas do not contain mature	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
		Nests in tree cavities.	oak trees or riparian habitat to support 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.	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.
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.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
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 more than five miles.	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 more than 5 miles.	No further actions are recommended for this species.
(Brewster'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. Project Area does not provide suitable foraging habitat.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
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.	**Unlikely.** The Project Area lacks suitable freshwater aquatic habitat with emergent vegetation. Additionally burrows are not present to support upland refugia and/or movement. Potential to be present in Adobe Creek, however no occurrences ever recorded.	As a listed federal threatened species and a species subject of a recovery plan, although unlikely to be present, out of abundance of caution, measures designed to prevent harm should be developed and approved in consultation with U.S. Fish and Wildlife Service.
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.	No further actions are recommended for this species.
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	**No Potential.** The Project Area is outside the known range of this species within the Santa Rosa Plain and does not contain seasonal pool habitat. This species is presumed extirpated	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
		primarily in vernal pools and other seasonal water features.	from Petaluma.	
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 north of the Project Area in stream habitat of Adobe Creek.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
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.	**Moderate Potential.** This species is found on the Petaluma River. Documented occurrence east of the Project Area. Species is more likely to migrate through but not remain in Project Area.	Pre-construction surveys prior to construction if beginning during nesting season, exclusion fencing.
Green sea turtle *Chelonia mydas*	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.** Although the Petaluma River is Critical Habitat for this species, the Project Area has no direct aquatic connection to the River.	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. Project will not affect the Petaluma River.	No further actions are recommended for this species
tidewater goby	FE, SSC	Brackish water habitats along the	**No Potential.** This	No further actions are recommended for this

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Eucyclogobius newberryi		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.	species is extirpated from San Francisco Bay.	species.
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, but Project Area is away from the 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 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 does not have aquatic habitat for this species. Present in Adobe Creek.	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.	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 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 to cold perennial streams with high dissolved oxygen levels and fast flowing water.	**No Potential.** The Project Area is outside this species known range.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
		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.	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. Occurs in slow-moving river sections and dead end sloughs. Requires flooded vegetation for spawning and foraging for young. Primarily freshwater fish, but tolerate moderate salinity reaching 10-18 parts per thousand.	**No Potential.** This species has been documented within the vicinity of the Project Area in freshwater reaches of the Petaluma River but cannot occur within the Project Area.	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. 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.	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. 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. 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.	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 food plant 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.	**No Potential.** 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.	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.	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

REPRESENTATIVE PROJECT AREA PHOTOGRAPHS

Above: Riverview Apartments Project property looking east toward the northeastern corner and an existing residential development beyond.

Below: View of a seasonal wetland along a fence in northeastern portion of the property.

Photographs taken May 14, 2018

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Above: View of non-native annual grassland looking south toward the Petaluma River and the hills south of Petaluma. Most of this land has not been subject to any changes or disturbance since the Royal Tallow soap factory building was closed in 1994.

Below: View looking west toward a stockpile area that has been on the property for many years.

Photographs taken May 14, 2018.

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Above: Goat grazed Project Area removes vegetation for fire control. Looking east from Rocky Dog Park.

Below: View of Project Area grazed by goats. Note that vegetation remains outside of the Project Area.

Photographs taken November 4, 2019.

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Above: Abandoned golf course at Adobe Creek Mitigation Site looking east from approximately the center of the site. Adobe Creek and riparian corridor is a left side of photograph.

Below: View in Adobe Creek Mitigation Site looking west.

Photographs taken September 29, 2019

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