
Biological Resources Assessment

Proposed Moorland Park Site (APNs: 043-280-027 & 043-280-028)
ROSELAND, SONOMA COUNTY, CALIFORNIA

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LIST OF ACRONYMS AND ABBREVIATIONS

CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
Conservation Strategy	Santa Rosa Plain Conservation Strategy
Corps	United States Army Corps of Engineers
ESA	Federal Endangered Species Act
FAC	Facultative Plant Species
FACU	Facultative Upland Plant Species
FACW	Facultative Wetland Plant Species
Inventory	CNPS Inventory of Rare and Endangered Plants
MBTA	Migratory Bird Treaty Act of 1918
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
NWPL	National Wetland Plant List
OBL	Obligate Wetland Plant Species
OHWM	Ordinary High Water Mark
PBO	Programmatic Biological Opinion
Rank	California Rare Plant Rank
RWQCB	Regional Water Quality Control Board
SWQCB	State Water Quality Control Board
UPL	Upland Plant Species
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WRA	WRA, Inc.

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EXECUTIVE SUMMARY

The purpose of this report is to provide an analysis of potential biological resources on the proposed Moorland Park site (Study Area) located at the intersection of Moorland Avenue and West Robles Avenue in the community of Roseland, unincorporated Sonoma County, California. The Study Area includes two parcels (APNs 043-280-027 and 043-280-028) totaling approximately 4 acres. WRA, Inc. (WRA) conducted a reconnaissance level assessment of biological resources within the Study Area and routine wetland delineation on February 25, 2015. The Study Area consists of vacant land located within a commercially and residentially developed area just south of the Santa Rosa City limits in unincorporated Sonoma County. It is bordered by residential development to the north and east as well as commercial development to the west and south. The Study Area is dominated by non-native grassland, a non-sensitive biological community. One potential 404-jurisdictional seasonal wetland were observed in the western portion of the Study Area. No other biological communities were identified.

Based on a review of relevant resources and the types and condition of biological communities observed at the site, it was determined that 11 special-status plant species have moderate potential to occur in the Study Area. Special-status plant species with potential to occur include Sonoma sunshine (*Blennosperma bakeri*), johnny nip (*Castilleja ambigua* var. *ambigua*), pappose tarplant (*Centromadia parryi* ssp. *parryi*), dwarf downingia (*Downingia pusilla*), congested-headed hayfield tarplant (*Hemizonia congesta* ssp. *congesta*), hogwallow starfish (*Hesperevax caulescens*), Burke's goldfields (*Lasthenia burkei*), Sebastopol meadowfoam (*Limnanthes vinculans*), Baker's navarretia (*Navarretia leucocephala* ssp. *bakeri*), Lobb's aquatic buttercup (*Ranunculus lobbii*), and saline clover (*Trifolium hydrophilum*). In addition, three special-status wildlife species have moderate potential to occur within the Study Area. These species include California tiger salamander (CTS; *Ambystoma californiense*), white-tailed kite (*Elanus leucurus*), and *Blennosperma* vernal pool andrenid (*Andrena blennospermatis*).

The proposed project will need to comply with the conservation measures established as part of the Santa Rosa Plain Conservation Strategy, including conducting protocol-level rare plant surveys and mitigating for potential impacts to sensitive resources including seasonal wetlands, suitable rare plant habitat, and suitable CTS habitat. The proposed project will also need to obtain regulatory permits from the United States Army Corps of Engineers and the Regional Water Quality Control Board for any impacts to seasonal wetland habitat.

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1.0 INTRODUCTION

WRA, Inc. performed an assessment of biological resources, including a routine wetland delineation, on the proposed Moorland Park site (Study Area) on February 25, 2015. The Study Area is located at the intersection of Moorland Avenue and West Robles Avenue in the community of Roseland, in unincorporated Sonoma County, California (Figure 1). The Study Area includes two vacant parcels (APNs 043-280-027 and 043-280-028) totaling approximately 4 acres. It is bordered by residential development to the north and east, and commercial development to the west and south. The purpose of these studies was to gather the information necessary to complete a review of biological resources under the California Environmental Quality Act (CEQA).

This report describes the results of the site visit, which assessed the Project Area for the (1) potential to support special-status species; and (2) presence of other sensitive biological resources protected by local, state, and federal laws and regulations. If special-status species were observed during the site visit, they were recorded. Specific findings on the habitat suitability or presence of special-status species or sensitive habitats may require that protocol-level surveys be conducted.

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

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.

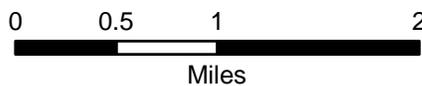
2.1 Special-Status Species

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 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, United States. Fish and Wildlife Service (USFWS) Birds of Conservation Concern, Western Bat Working Group (WBWG) Priority Species, and CDFW special-status invertebrates are all considered special-status species. Although CDFW Species of Special Concern and other special-status species generally have no special legal status, they are given special consideration under the California Environmental Quality Act (CEQA). The Study Area is located within the Santa Rosa Plain, an ecoregion which supports habitat for many vernal pool-associated special-status species. The USFWS developed the Santa Rosa Plain Conservation Strategy (Conservation Strategy; USFWS et al. 2005) as a conservation plan for these species. The Conservation Strategy is discussed in greater detail in Section 2.2 below.



Figure 1. Study Area Location Map

Moorland Park
Santa Rosa, California



Map Prepared Date: 3/3/2015
 Map Prepared By: MRochelle
 Base Source: National Geographic
 Data Source(s): WRA

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 (MTBA). Under this legislation, destroying active nests, eggs, and young is illegal. Plant species included in the California Native Plant Society (CNPS) Rare and Endangered Plant Inventory (Inventory) with California Rare Plant Ranks (Rank) of 1 and 2 are also considered special-status plant species and must be considered under CEQA. Rank 3 and Rank 4 species are afforded reduced protection under CEQA, but are included in this analysis for completeness. A description of the CNPS Ranks is provided below in Table 1.

Table 1. Description of CNPS Ranks and Threat Codes

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

Critical Habitat

Critical habitat is a term defined in the ESA 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 ESA 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 ESA 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, or riparian habitat. These habitats are protected under federal regulations such as the Clean Water Act; state regulations such as the Porter-Cologne Act, the CDFW Streambed Alteration Program, and CEQA; or local ordinances or policies such as city or county tree ordinances, Special Habitat Management Areas, and General Plan Elements.

Waters of the United States

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

Waters of the State

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

Streams, Lakes, and Riparian Habitat

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

Other Sensitive Biological Communities

Other sensitive biological communities not discussed above include habitats that fulfill special functions or have special values. Natural communities considered sensitive are those identified in local or regional plans, policies, regulations, or by the CDFW. CDFW ranks sensitive communities as "threatened" or "very threatened" and keeps records of their occurrences in its California Natural Diversity Database (CNDDDB; CDFW 2013). Sensitive plant communities are also identified by CDFW (2010). CNDDDB vegetation alliances are ranked 1 through 5 based on NatureServe's (2013) methodology, with those alliances ranked globally (G) or statewide (S) as 1 through 3 considered sensitive. Impacts to sensitive natural communities identified in local or regional plans, policies, or regulations or those identified by the CDFW or USFWS must be considered and evaluated under CEQA (CCR Title 14, Div. 6, Chap. 3, Appendix G). Specific habitats may also be identified as sensitive in city or county general plans or ordinances.

Sonoma County Tree Protection Ordinance

The Sonoma County Tree Protection Ordinance (SCTPO) requires the protection and/or replacement of trees defined as "protected." Protected trees include all native species with a diameter at breast height (DBH) of nine inches or greater. Exemptions to tree protections include timber harvest plans (THP) filed with the State of California, emergency tree removal in the instance of hazards, lot line adjustments, zoning permits, and agricultural uses. Additionally, SCTPO shall not be applied in the instance of rendering a property undevelopable or to reduce an allowable density lower than that permitted as a result of CEQA. Removal of protected trees requires a permit from the County of Sonoma, and replacement plantings of the same species as the removed trees or an in-lieu fee.

Santa Rosa Plain Conservation Strategy

The Conservation Strategy Area is an area established by the USFWS for the protection and continued existence of California tiger salamander (CTS; *Ambystoma californiense*) and three endangered plant species: Burke's goldfields (*Lasthnia burkei*), Sonoma sunshine (*Blennosperma bakeri*), and Sebastopol meadowfoam (*Limnanthes vinculans*). The Final Conservation Strategy (USFWS et al. 2005) outlines the species of concern for this area along with guidance for specific conservation measures. In 2007 the Corps consulted with USFWS for Section 404 permitting within Conservation Strategy Area, which resulted in the issuance of a Programmatic Biological Opinion (PBO; USFWS 2007). The PBO for the Conservation Strategy outlines the mitigation requirements necessary to compensate for impacts to wetlands and associated species including CTS and the three listed plants. The PBO can be appended to permits authorized by the Corps.

3.0 METHODS

On February 25, 2015, the Study Area was traversed on foot to determine (1) plant communities present within the Project Area, (2) if existing conditions provide suitable habitat for any special-status plant or wildlife species, and (3) if sensitive habitats including jurisdictional wetlands and/or non-wetland waters are present. All plant and wildlife species encountered were recorded, and are summarized in Appendix A. Plant nomenclature follows Baldwin et al. (2012) and subsequent revisions by the Jepson Flora Project (2015), except where noted. Because of recent changes in classification for many of the taxa treated by Baldwin et al. and the Jepson Flora Project, relevant synonyms are provided in brackets for ease of reference. For cases in which regulatory agencies, CNPS, or other entities base rarity on older taxonomic treatments, precedence was given to the treatment used by those entities.

3.1 Biological Communities

Prior to the site visit, the Soil Survey for Sonoma County [U.S. Department of Agriculture (USDA) 1977], was examined to determine if any unique soil types that could support sensitive plant communities and/or aquatic features were present in the Project Area. Biological communities present in the Project Area were classified based on existing plant community descriptions described in the *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986) and/or *A Manual of California Vegetation, Second Edition* (Sawyer et al. 2009). However, in some cases it is necessary to identify variants of community types or to describe non-vegetated areas that are not described in the literature. Biological communities were classified as sensitive or non-sensitive as defined by CEQA and other applicable laws and regulations.

3.1.1 Non-Sensitive Biological Communities

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

3.1.2 Sensitive Biological Communities

Sensitive biological communities are defined as those communities that are afforded special protection under the CEQA or other applicable federal, state, or local laws, regulations or ordinances. Applicable laws and ordinances are discussed above in Section 2.0. Special methods used to identify sensitive biological communities are discussed below. Descriptions of sensitive biological communities observed in the Study Area are provided in Section 4.1.2

3.2 Delineation of Waters of the United States and State

Wetlands and non-wetland waters (including lakes, rivers, and streams) are considered to be sensitive resources 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, and CEQA; or local ordinances or policies

The methods used in this study to delineate federal jurisdictional wetlands and waters are based on the *Corps of Engineers Wetlands Delineation Manual* (hereafter called the Corps Manual; Environmental Laboratory 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (hereafter called the Arid West Supplement; Corps 2008a), and *A Field Guide to the Identification of the Ordinary High Water Mark in the Arid West Region of the Western United States* (Corps 2008b). These methods are described in detail in Sections 3.2.1 and 3.2.2 below.

Prior to conducting field studies, available reference materials were reviewed, including the Santa Rosa USGS 7.5-minute quadrangle (USGS 2012), the National Wetland Inventory (NWI) (USFWS 2015a), rainfall data (USDA 2015), and aerial photographs of the site (Google Earth 2015). We also reviewed a prior wetland delineation and rare plant survey report that was completed in 1995 by Charles Patterson (Patterson 1995; Corps File Number 21319N96; Appendix E).

3.2.1 Potential Section 404 Jurisdictional Wetlands

The Corps has defined the term “wetlands” as follows:

Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

(33 CFR 328.3)

The three parameters listed in the Corps Manual that are used to determine the presence of wetlands are: (1) hydrophytic vegetation, (2) wetland hydrology, and (3) hydric soils. According to the Corps Manual:

"...[E]vidence of a minimum of one positive wetland indicator from each parameter (hydrology, soil, and vegetation) must be found in order to make a positive wetland delineation."

Data on vegetation, hydrology, and soils collected at sample points during the delineation site visits are reported on standard Corps data forms included in Appendix D. If an area was determined to be a potential jurisdictional wetland, its boundaries were delineated using GPS equipment with sub-meter accuracy and mapped on a geo-referenced aerial photograph. The total acreage of potential jurisdictional wetlands was measured digitally using ArcGIS software.

Vegetation

Plant species observed in the Study Area were identified using the Jepson Manual, Second Edition (Baldwin et al. 2012) and the Jepson eFlora (Jepson Flora Project 2015). Plants were assigned a wetland indicator status according to the National Wetland Plant List (NWPL; Lichvar 2014). Where differences in nomenclature occur between the Jepson Manual or the Jepson eFlora and the NWPL, the species name as it occurred in the NWPL is listed in brackets.

Wetland indicator statuses listed in the NWPL are based on the expected frequency of occurrence in wetlands as follows:

Classification (Abbreviation)	Definition*	Hydrophytic Species? (Y/N)
Obligate (OBL)	Almost always is a hydrophyte, rarely in uplands	Y
Facultative Wetland (FACW)	Usually is a hydrophyte but occasionally found in uplands	Y
Facultative (FAC)	Commonly occurs as either a hydrophyte or non-hydrophyte	Y
Facultative Upland (FACU)	Occasionally is a hydrophyte but usually occurs in uplands	N
Upland/Not Listed (UPL/NL)	Rarely is a hydrophyte, almost always in uplands	N

*See Lichvar (2014).

The Arid West Supplement requires the process to be conducted to determine if hydrophytic vegetation is present. The procedure first requires the delineator to apply the “50/20 rule” (Indicator 1) described in the manual. To apply the “50/20 rule”, dominant species are chosen independently from each stratum of the community. In general, dominant species are determined for each vegetation stratum from a sampling plot of an appropriate size surrounding the sample point. In general, dominants are the most abundant species that individually or collectively account for more than 50 percent of the total vegetative cover in the stratum, plus any other species that, by itself, accounts for at least 20 percent of the total cover. If greater than 50 percent of the dominant species has an OBL, FACW, or FAC status, ignoring + and - qualifiers, the sample point meets the hydrophytic vegetation criterion.

Soils

The Natural Resource Conservation Service (“NRCS”) defines a hydric soil as follows:

“A hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part.”

Federal Register July 13, 1994,
United States Department of Agriculture, NRCS

Soils formed over long periods of time under wetland (anaerobic) conditions often possess characteristics that indicate they meet the definition of hydric soils. Hydric soils can have a hydrogen sulfide (rotten egg) odor, low chroma matrix color, generally designated 0, 1, or 2, used to identify them as hydric, presence of redox concentrations, gleyed or depleted matrix, or high organic matter content.

Specific indicators that can be used to determine whether a soil is hydric for the purposes of wetland delineation are provided in the NRCS *Field Indicators of Hydric Soils in the United States* (NRCS 2010). The Arid West Supplement provides a list of 23 of these hydric soil indicators which are known to occur in the Arid West region. Soil samples were collected and described according to the methodology provided in the Arid West Supplement. Soil chroma and values were determined by utilizing a standard Munsell soil color chart (Munsell Color 2009).

Hydric soils were determined to be present if any of the soil samples met one or more of the 23 hydric soil indicators described in the Arid West Supplement.

Hydrology

The Corps jurisdictional wetland hydrology criterion is satisfied if an area is inundated or saturated for a period sufficient to create anoxic soil conditions during the growing season (a minimum of 14 consecutive days in the Arid West region). Evidence of wetland hydrology can include primary indicators, such as visible inundation or saturation, drift deposits, oxidized root channels, and salt crusts, or secondary indicators such as the FAC-neutral test, presence of a shallow aquitard, or crayfish burrows. The Arid West Supplement contains 16 primary hydrology indicators and 10 secondary hydrology indicators. Only one primary indicator is required to meet the wetland hydrology criterion; however, if secondary indicators are used, at least two secondary indicators must be present to conclude that an area has wetland hydrology.

The presence or absence of the primary or secondary indicators described in the Arid West Supplement was utilized to determine if sample points within the Study Area met the wetland hydrology criterion. Recent and historical rainfall data was obtained from the Santa Rosa Sonoma County Airport station (Station #23274). WETS analysis was used to assess whether precipitation was “normal” in the period of time preceding the site visits (USDA 2015).

3.2.2 Potential Section 404 Jurisdictional Non-wetland Waters

The Study Area was also evaluated for the presence of non-wetland waters. Non-wetland waters subject to Corps jurisdiction include lakes, rivers, and perennial or intermittent streams. Corps jurisdiction of non-wetland waters in non-tidal areas extends to the ordinary high water mark (“OHWM”), defined as:

The term “ordinary high water mark” means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impresses on the bank, shelving, changes in the characteristics of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

Federal Register Vol. 51, No. 219,
Part 328.3 (d). November 13, 1986.

Non-wetland waters are identified in the field by the presence of a defined river or streambed, a bank, and evidence of the flow of water, or by the absence of emergent vegetation in ponds or lakes. Identification of the ordinary high water mark followed the Corps Regulatory Guidance Letter No. 05-05, *Ordinary High Water Mark Identification* (Corps 2005) and *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (Corps 2008b).

3.2.3 Areas Excluded from Section 404 Jurisdiction

Some areas that meet the technical criteria for wetlands or non-wetland waters may not be jurisdictional under the Clean Water Act. Included in this category are some man-induced wetlands, which are areas that have developed at least some characteristics of naturally occurring wetlands due to either intentional or incidental human activities. Examples of man-induced wetlands include, but are not limited to, irrigated wetlands, impoundments (such as stock ponds for livestock), or drainage ditches constructed in uplands, wetlands resulting from filling of formerly deep water habitats, dredged material disposal areas, and wetlands resulting from stream channel realignment.

3.2.4 Waters of the State

The State Water Resources Control Board (SWRCB) and RWQCB released a Preliminary Draft Water Quality Control Policy in January 2013 (SWRCB 2013). The plan includes the following elements:

- 1) A wetland definition that reliably defines the diverse array of California wetlands;
- 2) Wetland delineation procedures based on the methods of the Corps;

3) Procedures for the review and approval of discharges of dredged or fill material into waters of the state, including wetlands, regardless of whether a federal permit is required.

In the Preliminary Draft Water Quality Control Policy, the SWRCB defines wetland as follows:

An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area either lacks vegetation or the vegetation is dominated by hydrophytes.

This definition differs from the current federal definition in that it can include unvegetated areas. However, this plan has not yet been formally adopted nor implemented. Therefore, the methods used to determine potential Waters of the State were the same as those described above for potential Section 404 jurisdiction.

3.2.5 Areas Exempt from State Jurisdiction

Unlike Federal regulations, dredging, filling, or excavation within isolated wetlands and non-wetland waters constitutes a discharge to Waters of the State, and prospective dischargers are required to submit a report of waste discharge to the RWQCB to comply with requirements of the California Porter-Cologne Water Quality Control Act (SWRCB 2002). However, since the State of California has not developed a formal wetlands definition or wetlands delineation protocol, the wetlands delineation method outlined in the Corps Manual and Arid West Supplement was utilized to map wetlands subject to SWRQCB and RWQCB jurisdiction.

3.3 Other Sensitive Biological Communities

The Study Area was evaluated for the presence of other sensitive biological communities, including sensitive plant communities recognized by CDFW. Prior to the site visit, aerial photographs, Soil Survey data (USDA 1977), the CDFW's *List of Vegetation Alliances and Associations* (CDFG 2010), and *A Manual of California Vegetation, Second Edition* (Sawyer et al. 2009) were reviewed to assess the potential for sensitive biological communities to occur in the Study Area. All alliances within the Study Area with a ranking of 1 through 3 were considered sensitive biological communities. Sensitive biological communities identified in the Study Area are described in Section 4.1.2 below.

3.4 Special-Status Species

3.4.1 Literature Review

The potential for special-status plant and wildlife species to occur in the Study Area was evaluated by first determining which special-status species have been documented from within the vicinity of the Study Area through a literature and database search. Database searches for known occurrences of special-status species focused on the United States Geological Survey (USGS) 7.5-minute maps for the Santa Rosa quadrangle and three surrounding quadrangles, Healdsburg, Sebastopol, and Cotati. These quadrangles were selected because they encompass the Study Area and are most representative of the Santa Rosa Plain ecosystem. The following sources were reviewed to determine which special-status plant and wildlife species have been documented from the referenced quadrangle:

- California Natural Diversity Database (CNDDDB) records (CDFW 2015)
- USFWS 7.5-minute quadrangle species lists (USFWS 2015b)
- CNPS Inventory records (CNPS 2015)
- CDFW publication *California's Wildlife, Volumes I-III* (Zeiner et al. 1990)
- CDFW publication, *An Annotated Checklist of Amphibians and Reptile Species of California and Adjacent Waters, third revised edition* (Jennings 2004)
- *California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California.* (Shuford and Gardali 2008)
- *Fairy Shrimps of California's Puddles, Pools and Playas* (Eriksen and Belk 1999)

3.4.2 Site Assessment

Following the database and literature review, a site visit was made to the Study Area to identify the biological communities present and to assess their condition. Habitat conditions observed in the Study Area were used to evaluate the potential for special-status plant or wildlife species to occur there. This assessment is based on conditions observed at the site, the results of the database and literature review, and the professional expertise of the investigating qualified biologists. The potential for each special-status species to occur in the Study Area was ranked based on the following criteria:

- No Potential. Habitat on and adjacent to the site is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).
- Unlikely. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.
- Moderate Potential. Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.
- High Potential. All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.
- Present. Species was observed during the site visit or has been recently recorded from the site.

The site assessment is intended to identify the presence or absence of suitable habitat for each special-status species known to occur in the vicinity of the Study Area. The site visit does not constitute a protocol-level survey and is not intended to determine the actual presence or absence of a species; however, if a special-status species was observed during the site visit, its presence was recorded and is discussed in Section 4.3, below.

If a special-status species was observed during the site visit, its presence was recorded and is discussed below in Section 4.2. For some species, a site assessment visit at the level

conducted for this report may not be sufficient to determine presence or absence of a species to the specifications of regulatory agencies. In these cases, a species may be assumed to be present or further protocol-level special-status species surveys may be necessary. Special-status species for which further protocol-level surveys may be necessary are described below in Section 5.0.

4.0 RESULTS

The Study Area consists of approximately 4 acres of vacant land in the community of Roseland in unincorporated Sonoma County. It is bordered by residential development to the north and east and commercial development to the south and west. Topography on the site is flat, with elevations ranging from 108 to 112 feet above mean sea level. Soils underlying the site are mapped as Wright loam, shallow, wet (0 to 2 percent slopes). This nearly level soil has slightly concave slopes and is somewhat poor drainage; permeability and runoff are very slow (USDA 1977).

The majority of the site is dominated by disturbed, non-native grassland and is interspersed with small stands of apple trees, which appear to be remnants from a former orchard. Aerial imagery from 1942 confirms that the site was previously used as an orchard and homestead (SCVMP 2015). Analysis of more recent historical aerial images taken between 1993 and 2015 (Google Earth 2015) suggests that the site has been routinely mowed and has been used by unauthorized all-terrain vehicles. Currently, much of the surrounding land has been converted to suburban housing developments. At the time of the initial site visit (February 25, 2015), seasonal rainfall was considered to be normal for the area (USDA 2015; see table below).

Table 2. WETS Analysis for 2014-2015 Water Year to Date.

Month	WETS			2014-2015 Water Year To Date		
	Below	Average	Above	Precipitation	Above/Below	Percent of Average
October	0.8	1.8	2.3	0.5	Below	27.6%
November	1.7	4.3	5.2	2.4	Normal	55.9%
December	2.1	4.5	5.6	14.5	Above	322.0%
January	2.9	6.3	7.6	0.1	Below	1.9%
February	2.7	6.1	7.4	4.2	Normal	69.1%
Total	10.1	23.0	28.1	21.7	Normal	94.6%

The following sections present the results of the biological resources assessment within the Study Area. Plant and wildlife species observed in the Study Area during the site visit are listed in Appendix A. Representative photographs are provided in Appendix B.

4.1 Prior Studies

A wetland delineation and rare plant survey of the current Study Area and adjacent parcels to the north was previously completed in 1995 (Patterson 1995; Corps File Number 21319N96; Appendix E). The 1995 report identified approximately 0.9 acre of very shallow, broken, and degraded swale wetlands. Approximately half of this 0.9 acre was located within the current Study Area boundary; the remainder occurring in areas that have already been developed in conjunction with the adjacent subdivision. The report further described the Study Area as follows:

The habitats in the study area are generally not well developed (nor undisturbed) enough to represent good habitat for any of the sensitive species. In fact, virtually all of the common seasonal wetland species (e.g. *Downingia*, *Lasthenia*, *Plagiobothrys*, *Gratiola*, *Limnanthes*, etc.) known from this region are conspicuously absent from the onsite swale and ditch habitats. The overall grassland is relatively dense and completely composed on non-native, and extensive dead grass thatch has accumulated beneath old orchard trees. As potential habitat for sensitive plants, the site's shallow swales are extremely marginal at best, and in drier years (such as 1992) exhibited almost no evidence of even saturated soil within large areas.

The results of the protocol-level special-status plant surveys were negative and the report concluded that there was no suitable habitat for special-status species, including CTS, due to an insufficient depth and duration of ponding in the on-site wetlands. The report cited the lack of Pacific tree frog (*Pseudacris regilla*) larvae as evidence for the insufficient hydrology to support CTS.

4.2 Biological Communities

Table 1 summarizes the area of each biological community type observed in the Study Area. The Study Area is dominated by non-native grassland, but also contains a likely jurisdictional seasonal wetland. Descriptions for each biological community are contained in the following sections. Biological communities within the Study Area are shown in Figure 2.

Table 3. Summary of Biological Communities in the Study Area

Community Type	Area (acres)
Non-native grassland	4.06
Seasonal Wetland	0.47
Total Study Area Size	4.53

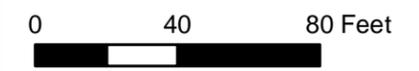
4.2.1 Non-Sensitive Biological Communities

Non-native grassland

Holland (1986) describes non-native grassland as a dense to sparse cover of annual grasses, often associated with numerous species of showy-flowered, native annual forbs. The timing of the site visits early in the growing season when most plants are in a very early stage of vegetative development limited our ability to accurately identify plants to species, particularly grasses. However, the site appears to be dominated by a mix of non-native grasses, predominantly Harding grass (*Phalaris aquatica*), with Italian rye grass (*Festuca perennis*), foxtail barley (*Hordeum murinum*), and wild oat (*Avena barbata*) also present in lower densities. Common forbs included wild radish (*Raphanus sativus*), prickly lettuce (*Lactuca serriola*), cheeseweed (*Malva parviflora*), field vetch (*Vicia sativa*), and filarees (*Erodium* spp.). The non-native grassland in the western parcel is interspersed with Apple trees (*Malus pumila*) that appear to be remnants from a former orchard.

Figure 2.
Biological Communities
within the Study Area

	Study Area (4.34 acres)
	Non-Native Grassland (3.89 acres)
	Potential Section 404 Jurisdictional Seasonal Wetland (0.45 acre)
	Sample Points



Map Prepared Date: 5/27/2015
 Map Prepared By: MRochelle
 Base Source: Sonoma Veg 2013 Aerial
 Data Source(s): WRA, Sonoma County Parcels

4.2.2 Sensitive Biological Communities

Seasonal Wetland

One potentially jurisdictional seasonal wetland, comprising 0.47 acres, was identified within the western portion of the Study Area. Standing water up to 4 inches in depth was observed in portions of the wetland and soils were saturated to the surface throughout the wetland; a water table was present at a depth of approximately 11 inches. Soils were dark, reddish black (7.5YR 2.5/1) with no mottles. Vegetation was dominated by hydrophytic grasses and sedges including semaphore grass (*Pleuropogon californicus*, OBL), Italian rye grass (FAC), and an unidentified sedge (*Carex* sp.). The forbs present were also indicative of wetland hydrology and included Hyssop loosestrife (*Lythrum hyssopifolia*, OBL) and fiddle dock (*Rumex pulcher*, FAC). Apple trees were observed on the fringe of the wetland with very few occurring within the wetland boundary. There was no distinct vegetative or topographic break separating the seasonal wetland from the surrounding upland habitat; therefore, the boundary was delineated primarily based on the presence/absence of soil saturation at various sampling points.

The mapped wetland boundary loosely corresponds to the boundaries from a previous wetland delineation that was completed in 1995 (Corps File Number 21319N96); however, changes to the supporting hydrology due to adjacent development have contributed to an overall loss of wetland habitat acreage, particularly on the eastern parcel which no longer supports any wetland habitat and is dominated by Harding grass. However, the remaining wetland habitat has apparently become wetter, with an increased depth and duration of ponding. In 1995, ponding was not observed for any substantial duration and the wetland lacked Pacific tree frog larvae, which are now present.

4.3 Special-Status Species

4.3.1 Special-Status Plants

Based upon a review of the resources and databases listed in Section 3.2.1 for the Cotati, Healdsburg, Sebastopol, and Santa Rosa USGS 7.5-minute quadrangles, it was determined that 58 special-status plant species have been documented from the vicinity of the Study Area. Of these 58 special-status species, 11 were determined to have a moderate potential for occurrence. No species were determined to have a high potential for occurrence. The species with a moderate potential for occurrence generally require seasonal wetland or vernal pool habitat. The species with a moderate potential for occurrence include:

- Sonoma sunshine (*Blennosperma bakeri*). Federally Endangered; State-Endangered; Rank 1B.1.
- Johnny Nip (*Castilleja ambigua* var. *ambigua*). Rank 4.2.
- Pappose tarplant (*Centromadia parryi* ssp. *parryi*). Rank 1B.2.
- Dwarf downingia (*Downingia pusilla*). Rank 2B.2.
- Congested-headed hayfield tarplant (*Hemizonia congesta* ssp. *congesta*). Rank 1B.2.
- Hogwallow starfish (*Hesperervax caulescens*). Rank 4.2.
- Burke's goldfields (*Lasthenia burkei*). Federally Endangered; State-Endangered; Rank 1B.1.
- Sebastopol meadowfoam (*Limnanthes vincularis*). Federally Endangered; State-Endangered; Rank 1B.1.
- Baker's navarretia (*Navarretia leucocephala* ssp. *bakeri*). Rank 1B.1.
- Lobb's aquatic buttercup (*Ranunculus lobbii*). Rank 4.2.

- Saline clover (*Trifolium hydrophilum*). Rank 1B.2.

The remaining 47 special-status plants were determined to have no potential or be unlikely to occur in the Study Area. For most of the special-status plant species listed in Appendix C, suitable habitat such forest, woodland, chaparral, scrub, or coastal habitat is completely absent from the Study Area. For other species, general habitat components (grassland) are present, but the site lacks suitable microhabitat requirements (e.g., serpentine, alkaline, or rocky soils) and/or is too degraded to provide suitable habitat.

Appendix C summarizes the potential for these species to occur in the Study Area. No special-status plant species were observed in the Study Area during the site visit; however, additional protocol-level surveys would be necessary to detect most species due to the early phenology of many species on-site in February 2015. Additional surveys will be conducted from March to May 2015 and again in 2016. Special-status plant species that have been documented within a 5-mile radius of the Study Area are depicted below in Figure 3.

Special-status plant species with a moderate potential for occurrence that are listed as state- or federally endangered are discussed in greater detail below.

Sonoma sunshine (*Blennosperma bakeri*) Federal Endangered, State Endangered, Rank 1B. Moderate Potential. Sonoma sunshine is an annual herb in the sunflower family (Asteraceae) that blooms from March to May. It typically occurs on heavy clay soils in vernal wet areas in vernal pool, and valley and foothill grassland habitat (CDFW 2015, CNPS 2015). This species is an obligate (OBL) wetland plant (Lichvar 2014), and is restricted to vernal pool habitat (VPI) (Keeler-Wolf et al. 1998). Observed associated species include semaphore grass, bractless hedge hyssop (*Gratiola ebracteata*), Douglas' mesamint (*Pogogyne douglasii*), calico flowers (*Downingia* spp.), stipitate (*Plagiobothrys stipitatus*), goldfields (*Lasthenia bakeri*, *L. glaberrima*), seep monkeyflower (*Mimulus guttatus*), lady's-thumb (*Polygonum persicaria*), tidy tips (*Layia platyglossa*), wild hyacinth (*Triteleia hyacinthina*), meadowfoams (*Limnanthes douglasii*, *L. vinculans*), and non-native annual grasses (CDFW 2015). Sonoma sunshine has a moderate potential to occur in the Project Area due to the presence of a seasonal wetland and grassland habitat as well as the presence of associated species, the nearest known occurrence is approximately 1.5 miles south of the Study Area.

Burke's goldfields (*Lasthenia burkei*) Federal Endangered, State Endangered, Rank 1B. Moderate Potential. Burke's goldfields are annual herbs in the sunflower family (Asteraceae) that bloom from April to June. It typically occurs in mesic portions of pools and swales in meadow, seep, and vernal pool habitat at elevations ranging from 45 to 1970 feet (CDFW 2015, CNPS 2015). This species is an obligate (OBL) wetland plant (Lichvar 2012), and is restricted to vernal pool habitat (VPI) (Keeler-Wolf et al. 1998). Observed associated species include Italian rye grass, Mediterranean barley (*Hordeum marinum*), semaphore grass, California oat grass (*Danthonia californica*), meadowfoams (*Limnanthes douglasii*, *L. vinculans*), goldfields (*L. glaberrima*, *L. californica*, *L. glabrata*), and rushes (*Juncus* spp.) (CDFW 2015). The nearest documented occurrence is approximately 1.2 miles east of the Study Area. Burke's goldfields has a moderate potential to occur in the Project Area due to the presence of suitable seasonal wetland habitat and associated species within the Study Area.

Sebastopol meadowfoam (*Limnanthes vinculans*) Federal Endangered, State Endangered, Rank 1B. Moderate Potential. Sebastopol meadowfoam is an annual herb in the meadowfoam family (Limnanthaceae) that blooms from April to May. It typically occurs on poorly drained clay or sandy soils in swales, depressions, and pools of marshy areas of valley

oak savanna, mesic meadow, vernal pool, and valley and foothill grassland habitat at elevations ranging from 45 to 1000 feet (CDFW 2015, CNPS 2015). This species is an obligate (OBL) wetland plant (Lichvar 2012), and is restricted to vernal pool habitat (VPI) (Keeler-Wolf et al. 1998). Observed associated species include semaphore grass, goldfields (*Lasthenia* spp.), blennosperma species (*Blennosperma nanum* var. *nanum*, *B. bakeri*), Lobb's buttercup (*Ranunculus lobbii*), Douglas's mesamint (*Pogogyne douglasii*), California oat grass (*Danthonia californica*), Italian rye grass, Mediterranean barley (*Hordeum marinum*), pennyroyal (*Mentha pulegium*), popcornflowers (*Plagiobothrys* spp.), spikerushes (*Eleocharis* spp.), and quillwort (*Lilaea scilloides*) (CDFW 2015). The nearest documented occurrence is approximately 1.2 miles south of the Study Area. Sebastopol meadowfoam has a moderate potential to occur in the Project Area due to the presence of suitable seasonal wetland habitat, and the presence of associated species.

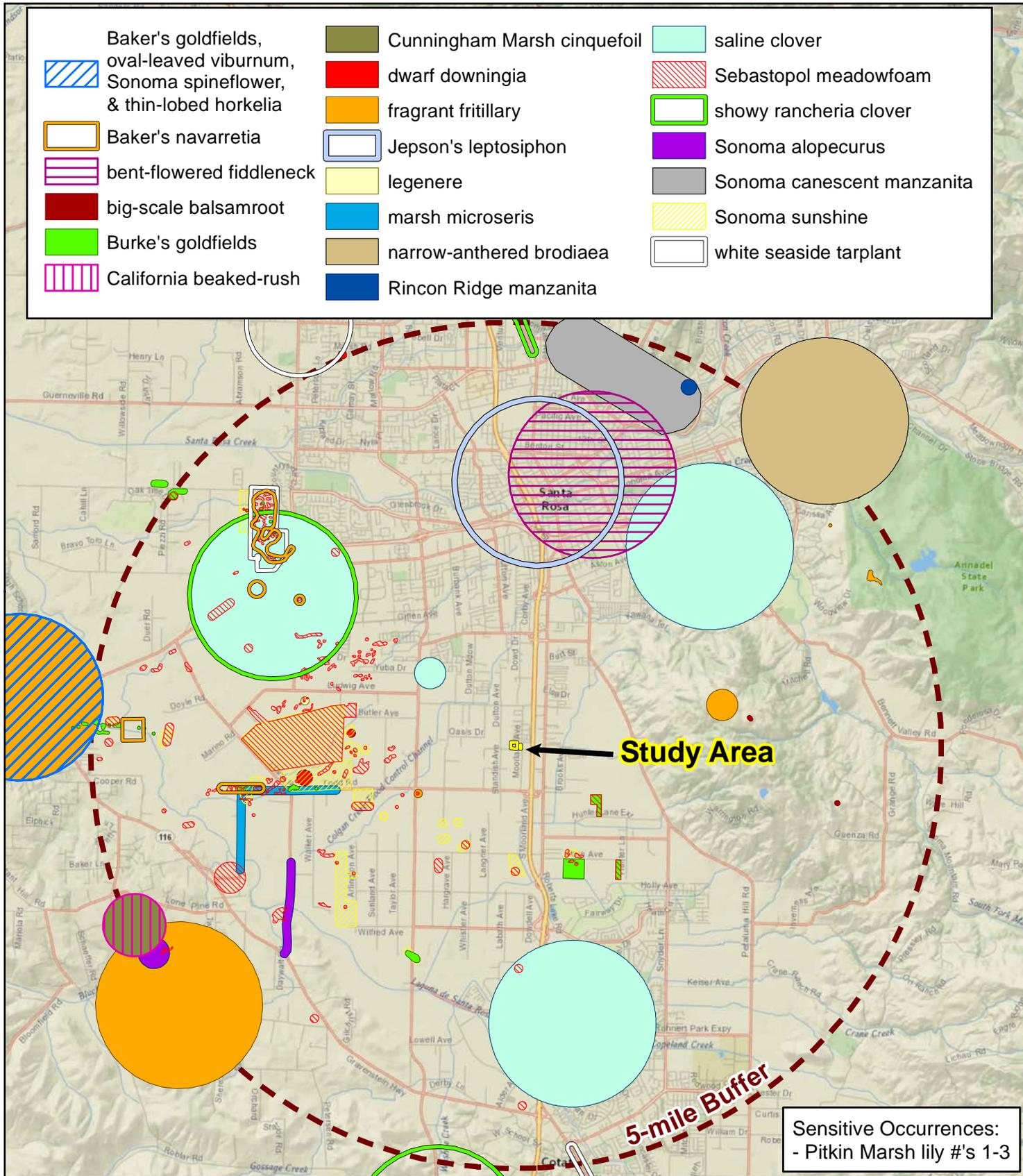


Figure 3. Special Status Plant Species within a 5-Mile Radius of the Study Area

Moorland Park
Santa Rosa, California



Map Prepared Date: 3/4/2015
Map Prepared By: MRochelle
Base Source: National Geographic
Data Source(s): CNDDB (March 2015)

4.3.2 Special-Status Wildlife

Based upon a review of the resources and databases listed in Section 3.2.1, it was determined that 19 special-status wildlife species have been documented from within the Cotati, Healdsburg, Sebastopol, and Santa Rosa USGS 7.5-minute quadrangles. Appendix C summarizes the potential for each of these species to occur in the Study Area. Special-status wildlife species that have been documented within a 5-mile radius of the Study Area are depicted below in Figure 4.

Of the 19 special-status wildlife species listed in Appendix C, it was determined that 16 species are unlikely or have no potential to occur within the Study Area. The species determined to have no potential to occur within the Study Area require habitat elements which are completely absent from the site such as streams, ponds, or rivers. For the species determined to be unlikely to occur at the site, some elements of suitable habitat may be present (e.g., grassland or trees potentially suitable for nesting); however, the high disturbance levels near potential nest sites, urbanized nature of the site and surrounding areas, and/or the lack of ground squirrels (and their burrows) reduce the potential for these species to occur and may preclude their presence.

Three species were found to have a moderate potential to occur within the Study Area; these species are discussed in detail below.

Blennosperma vernal pool andrenid (*Andrena blennospermatis*). Moderate Potential. This bee is oligolectic (specialist pollinator) on vernal pool *Blennosperma*. Although this species has no formal listing status it is tracked by the CNDDDB and is considered imperiled with a state rank of S2 (CNDDDB 2015).

The nearest record of this species is approximately 2.5 miles west of the Study Area. This species is considered to have moderate potential to occur due to the presence of suitable habitat for *Blennosperma*. However, if *Blennosperma* is determined to be absent, this species would have no potential to occur.

White-tailed kite (*Elanus leucurus*). CDFW Fully Protected Species. Moderate Potential. The white-tailed kite is resident in open to semi-open habitats throughout the lower elevations of California, including grasslands, savannahs, woodlands, agricultural areas and wetlands. Vegetative structure and prey availability seem to be more important habitat elements than associations with specific plants or vegetative communities (Dunk 1995). Nests are constructed mostly of twigs and placed in trees, often at habitat edges. Nest trees are highly variable in size, structure, and immediate surroundings, ranging from shrubs to trees greater than 150 feet tall (Dunk 1995). This species preys upon a variety of small mammals, as well as other vertebrates and invertebrates.

Although the Study Area is highly disturbed, the large contiguous area of open space located to the west provides suitable foraging and nesting habitat for the white-tailed kite. Kites may nest in close proximity to development, and thus there is some potential for nesting on or adjacent to the Study Area.

California Tiger Salamander (*Ambystoma californiense*) Sonoma Distinct Population Segment (DPS), Federal Endangered, State Threatened. Moderate Potential. The CTS is restricted to grasslands and low-elevation foothill regions in California (generally under 1500 feet) where it uses seasonal aquatic habitats for breeding. The salamanders breed in natural ephemeral pools, or ponds that mimic ephemeral pools (stock ponds that go dry), and occupy substantial

areas surrounding the breeding pool as adults. CTS spend most of their time in the grasslands surrounding breeding pools. They survive hot, dry summers by estivating (going through a dormant period) in refugia (such as burrows created by ground squirrels and other mammals and deep cracks or holes in the ground) where the soil atmosphere remains near the water saturation point. During wet periods, the salamanders may emerge from refugia and feed in the surrounding grasslands or disperse to breeding locations.

The Conservation Strategy requires three elements to be considered when analyzing the potential for CTS to occur on a site in the Conservation Strategy Area. Each of these three elements is considered below:

1) Is the project site within the range of the CTS?

The Study Area is within the known range of the Sonoma DPS for CTS and there are numerous records of CTS in the vicinity of the Study Area (Figure 4).

2) What are the known localities within the project site and within 3.1 miles of the project boundaries?

The CNDDDB (2015) includes 51 occurrence records of CTS within 3.1 miles of the Study Area. The nearest adult record is located approximately 1500 feet (0.3 mile) west of the Study Area. Three males and two females were observed at this location in 2002 (Occurrence 788; CNDDDB 2015). According to the Conservation Strategy (USFWS 2007), the nearest known or extirpated breeding pool is located approximately 3200 feet (0.6 mile) south of the Study Area (USFWS et al. 2005). However, according to CNDDDB, the nearest breeding record is located approximately 4500 feet (0.9 mile) south of the Study Area. Two larvae were observed at this site in 2003 and one juvenile was caught in a pitfall trap in 2010 (Occurrence # 780; CNDDDB 2015).

3) What are the habitats within the project site and within 1.24 miles of the project boundaries?

Adult CTS are known to travel up to 1.3 miles from breeding sites (Sweet 1998) and sites within 1.3 miles of known breeding sites are considered to be CTS habitat unless there are significant barriers to movement (USFWS et al. 2005). The Study Area is located within 1.3 miles of known breeding sites, but consists of a small (approximately 4-acre) vacant parcel in an otherwise densely developed area. The Study Area is bordered by high-density residential development to the north, residential development and U.S. Highway 101 to the east, residential and commercial development to the south, and commercial development to the west. Highway 101 to the east represents a clear barrier to CTS movement, and there is over 1000 feet of impervious surface separating the Study Area from the higher quality open space lands to the west. However, the Study Area itself likely contains suitable breeding habitat in the form of a seasonal wetland that ponds for a minimum of 10 continuous weeks most years. Pacific tree frog tadpoles were observed in the wetland at the time of the site visit, but no CTS eggs or larvae were observed.

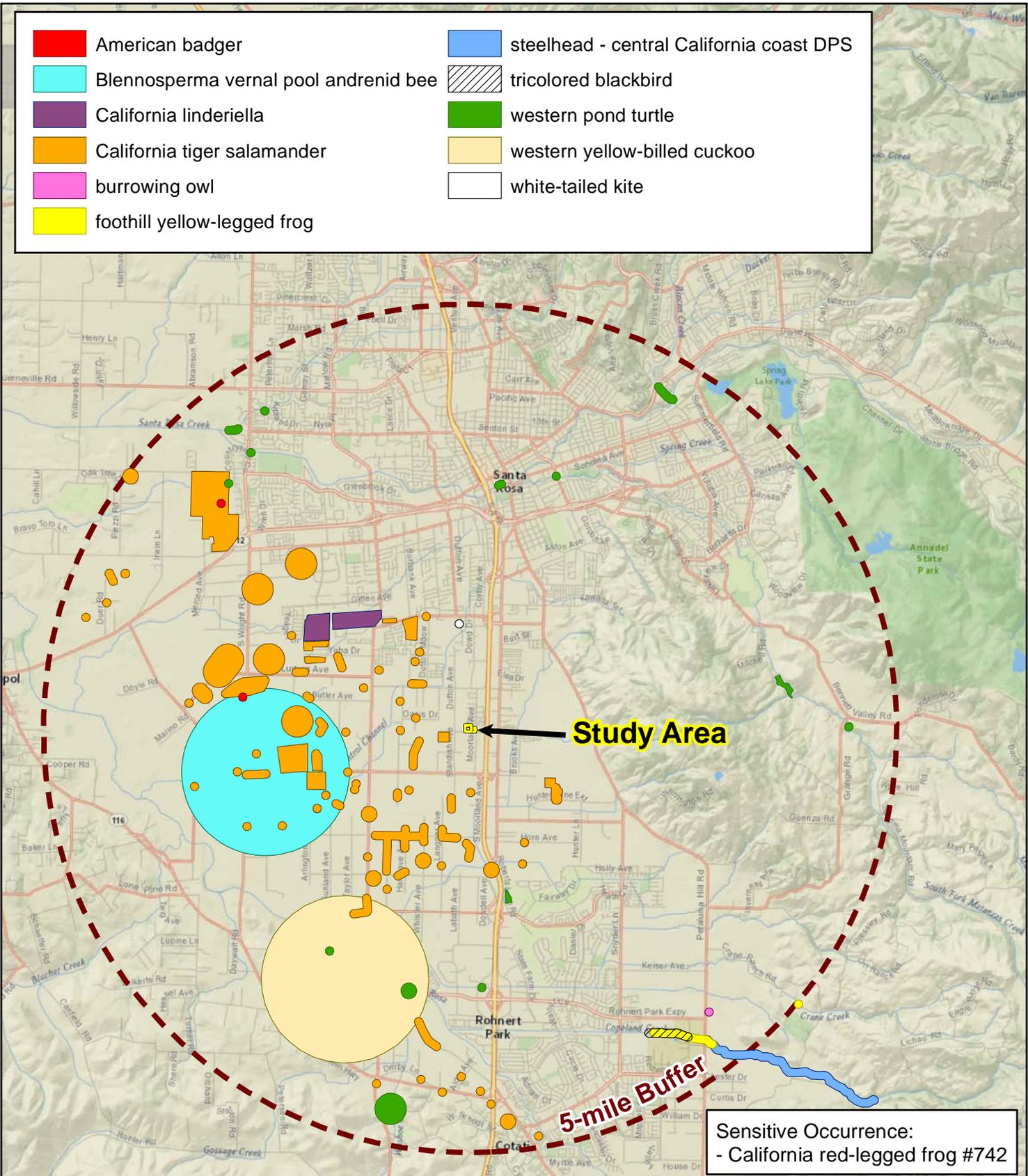


Figure 4. Special Status Wildlife Species within a 5-Mile Radius of the Study Area

Sensitive Occurrence:
- California red-legged frog #742

Moorland Park
Santa Rosa, California



Map Prepared Date: 3/4/2015
Map Prepared By: MROchelle
Base Source: National Geographic
Data Source(s): CNDDB (March 2015)

5.0 SUMMARY AND RECOMMENDATIONS

The following section summarizes the results of this Biological Resources Assessment and presents recommendations for future studies.

5.1 Biological Communities

The majority of the Study Area is dominated by non-native grassland, a non-sensitive biological community. However, one sensitive community, seasonal wetland, was mapped within the Study Area on the western parcel. The mapped wetland boundary loosely corresponds to the boundaries from a previous wetland delineation that was completed in 1995 (Corps File Number 21319N96); however, changes to the supporting hydrology due to adjacent development have contributed to an overall loss of wetland habitat acreage, particularly on the eastern parcel which no longer supports any wetland habitat and is dominated by Harding grass. However, the remaining wetland habitat has apparently become wetter, with an increased depth and duration of ponding.

This seasonal wetland meets the criteria to be considered jurisdictional under Section 404 of the Clean Water Act; however, the delineation should be verified by the Corps via a preliminary jurisdictional determination. Any Impacts to jurisdictional wetland habitat would require a Section 404 nationwide permit from the Corps (the project would likely qualify for nationwide permit #42—Recreation Facilities). Additionally, any project requiring a Section 404 permit also requires a Section 401 water quality certification from the RWQCB.

5.2 Special-Status Plant Species

Eleven special-status plants are considered to have moderate potential to occur within the Study Area. No special-status plants have a high potential to occur within the Study Area. Of the 11 special-status plant species with moderate potential to occur in the Study Area, three of these species are listed as State- and Federally Endangered and are included in the Conservation Strategy. Compliance with the Conservation Strategy requires two consecutive years of protocol-level rare plant surveys to demonstrate absence and/or document the extent of these species if suitable habitats are present. Protocol-level rare plant surveys must include three visits each year during the bloom period of one or more of the species covered in the Conservation Strategy (roughly March to May), as well as reference population checks to verify appropriate survey timing and phenology. Additional survey requirements are listed in Appendix D of the Conservation Strategy (USFWS et al. 2005). These site visits would also be sufficient to detect other potentially occurring special-status plants not included in the Conservation Strategy. In general, the USFWS and CDFW consider survey results valid for two years following their completion. After two years, a second set of surveys may be required. Surveys will be conducted in Spring 2015 and Spring 2016.

5.3 Special-Status Wildlife Species

Three special-status wildlife species are considered to have moderate potential to occur within the Study Area.

White Tailed Kite

The white-tailed kite has a moderate potential to nest adjacent to the Study Area. Additionally, a variety of native bird species protected under the MBTA as well as the California Fish and

Game Code may use the Study Area and adjacent trees and shrubs for nesting. It is recommended that initial ground disturbance and/or the removal of trees and shrubs in or adjacent to the Study Area occur during the non-breeding season (September through January).

California Tiger Salamander

The Study Area is located within 1.3 miles of known CTS breeding sites and CTS is considered to have moderate potential to occur in the Study Area. Due to the time constraints associated with the proposed project, WRA recommends assuming presence of CTS and mitigating for any loss of suitable habitat.

Blennosperma Vernal Pool Andrenid

This species is considered to have moderate potential to occur due to the presence of suitable habitat for Blennosperma. However, if Blennosperma is determined to be absent following the completion of special-status plant surveys, this species would have no potential to occur.

6.0 POTENTIAL IMPACTS AND MITIGATION

6.1 Potentially Significant Impacts

Sensitive Biological Communities

Any permanent loss of seasonal wetland habitat would be a potentially significant impact under CEQA. The seasonal wetland habitat in the Study Area is likely within Corps jurisdiction under Section 404 of the Clean Water Act and under the jurisdiction of the RWQCB under the Porter-Cologne Act. Potential mitigation measures for impacts to Corps and RWQCB jurisdictional wetlands are discussed below in Section 6.2.

Special-Status Plant Species

Impacts to occupied and/or suitable habitat for listed plants would be a potentially significant impact under CEQA. The seasonal wetland in the Study Area is considered suitable habitat for listed plant species. Protocol-level special-status plant surveys are required to determine the extent of impacts to listed plants. Potential mitigation measures for impacts listed plants are discussed below in Section 6.2.

Special-Status Wildlife Species

Impacts to CTS and/or suitable habitat for CTS would be a potentially significant impact under CEQA. The seasonal wetland in the Study Area is considered suitable breeding habitat for CTS and the entire Study Area is considered suitable dispersal habitat. In addition, the white-tailed kite has a moderate potential to nest adjacent to the Study Area, and a variety of native bird species protected under the MBTA as well as the California Fish and Game Code may use the Study Area and adjacent trees and shrubs for nesting. Impacts to nesting birds would be potentially significant under CEQA. Potential mitigation measures for impacts to CTS and nesting birds are discussed below in Section 6.2.

6.2 Mitigation Measures

Sensitive Biological Communities

The Conservation Strategy (USFWS et al. 2005) requires mitigation to compensate for the functions of wetlands proposed to be filled. The minimum wetland replacement ratio is 1:1. Higher replacement ratios are required for high quality wetlands, or as specified by the PBO (USFWS 2007) requirements for listed plants.

Special-Status Plant Species

If seasonal wetland habitat is impacted, the Conservation Strategy PBO (USFWS 2007) requires mitigation to compensate for the loss of suitable habitat for listed plant species, even if listed species are determined to be absent. Mitigation for adverse effects to occupied or suitable habitat for listed plants is calculated based on the extent of impacts to seasonal wetlands in accordance with the Conservation Strategy. The table below summarizes the mitigation requirements.

Table 4. Mitigation Ratios for Listed Plants under the Conservation Strategy

Species	Mitigation Required for Impacts to Seasonal Wetlands	
	If Listed Plants Are Present	If Listed Plants Are Absent
Burke's goldfields OR Sonoma sunshine	3:1 occupied or established habitat (any combination) with success criteria met <u>prior</u> to groundbreaking at project site	1:1 occupied or established habitat (any combination) with success criteria met <u>prior</u> to groundbreaking at project site AND 0.5:1 established habitat with success criteria met <u>prior</u> to groundbreaking at project site
Sebastopol meadowfoam	2:1 occupied or established habitat (any combination) with success criteria met <u>prior</u> to groundbreaking at project site	1:1 occupied or established habitat (any combination) with success criteria met <u>prior</u> to groundbreaking at project site AND 0.5:1 established habitat with success criteria met <u>prior</u> to groundbreaking at project site

Source: Conservation Strategy (USFWS et al. 2005).

Additionally, projects that will impact occupied sites supporting Burke's goldfields and Sonoma sunshine, where surveys have documented 2,000 plants or greater in any year in the past 10 years may not be appended to the PBO and will be evaluated on a case-by-case basis.

Ground disturbance at a project site may begin when the following criteria are deemed completed by the USFWS and CDFW:

- 1) Seed/soil collection and salvage at the project site has been completed at sites that have been determined by the USFWS and CDFW as being occupied by one or more of the listed plants.

2) The applicant has completed one of the following: (a) purchased appropriate plant credits at a USFWS and CDFW approved bank; or (b) conserved occupied and established plant habitat at a location and number of acres approved by the USFWS and CDFW. The conserved land must have a USFWS and CDFW-approved mitigation plan and non-wasting endowment fund. Mitigation site proposed under option b will be evaluated on a case-by-case basis.

Special-Status Wildlife Species

CTS

The PBO requires compensatory mitigation for impacts that may affect CTS. The following ratios for required area of mitigation to area of impact are required:

- 1) Mitigation of 3:1 – For projects that are within 500 feet of a known breeding site.
- 2) Mitigation of 2:1 – For projects that greater than 500 feet and within 2,200 feet of a known breeding site, and for projects beyond 2,200 feet from a known breeding site, but within 500 feet of an adult occurrence.
- 3) Mitigation of 1:1 – For projects that are greater than 2,200 feet and within 1.3 miles of a known breeding site.
- 4) Mitigation of 0.2:1 – For projects that are greater than 1.3 miles from a known breeding site and greater than 500 feet from an adult occurrence, but excluding the “No Effect” areas shown in Enclosure 1 of the PBO (USGWS 2007).

The Study Area is located approximately 3200 feet (0.6 mile) from the nearest known breeding site according to the map provided in the PBO (USFWS 2007) and would fall into the 1:1 mitigation zone. Mitigation requirements apply to the entire Project area, with the exception of any existing hardscape, and mitigation credits must be purchased prior to project implementation.

In addition to the mitigation requirements described above, the following activities will require measures to minimize take of CTS:

1) An activity that impacts a CTS breeding site:

Prior to construction, salamanders will be collected and trans located to an appropriate breeding site as identified by the USGWS and CDFW.

2) An activity that impacts California tiger salamander upland habitat:

Prior to construction, fencing will be installed to exclude CTS from entering the project site. Fences with ramps may be required to allow any CTS onsite to move into an adjacent habitat offsite. In these instances translocation may occur and would be determined on a case-by-case basis.

In addition, the following minimization measures are required to be implemented unless otherwise waived by the USFWS:

- a) A Service approved biological monitor will be on site each day during wetland restoration and construction, and during initial site grading of development sites where CTS have been found.
- b) The biological monitor will conduct a training session for all construction workers before work is started on the project.
- c) Before the start of work each day, the biological monitor will check for animals under any equipment such as vehicles and stored pipes. The biological monitor will check all excavated steep-walled holes or trenches greater than one foot deep for any CTS. CTS will be removed by the biological monitor and translocated as described in Enclosure 4 of the PBO (USFWS 2007) or as directed by the USFWS.
- d) An erosion and sediment control plan will be implemented to prevent impacts of wetland restoration and construction on habitat outside the work areas.
- e) Access routes, number and size of staging areas, and work areas, will be limited to the minimum necessary to achieve the project goals. Routes and boundaries of the roadwork will be clearly marked prior to initiating construction/grading.
- f) All foods and food-related trash items will be enclosed in sealed trash containers at the end of each day, and removed from the site every three days.
- g) No pets will be allowed on the project site.
- h) No more than a maximum speed of 15 miles per hour will be permitted.
- i) All equipment will be maintained such that there will be no leaks of automotive fluids such as gasoline, oils, or solvents.
- j) Hazardous materials such as fuels, oils, solvents, etc., will be stored in sealable containers in a designated location that is at least 200 feet from aquatic habitats. All fueling and maintenance of vehicles and other equipment and staging areas will occur at least 200 feet from any aquatic habitat.
- k) Grading and clearing will be conducted between April 15 and October 15, of any given year, depending on the level of rainfall and/or site conditions.
- l) Project areas temporarily disturbed by construction activities will be re-vegetated with locally-occurring native plants.

Nesting Birds

It is recommended that initial ground disturbance and/or the removal of trees and shrubs in or adjacent to the Study Area occur during the non-breeding season (September through January).

7.0 REFERENCES

- Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken (eds.). 2012. *The Jepson Manual: Vascular Plants of California*, second edition. University of California Press, Berkeley, CA.
- California Department of Fish and Game (CDFG). 1994. *A Field Guide to Lake and Streambed Alteration Agreements, Sections 1600-1607, California Fish and Game Code*. Environmental Services Division, Sacramento, CA.
- California Department of Fish and Game (CDFG). 2010. *List of Vegetation Alliances and Associations*. Vegetation Classification and Mapping Program, Sacramento, CA.
- California Department of Fish and Wildlife (CDFW). 2015. *California Natural Diversity Database*. Wildlife and Habitat Data Analysis Branch, Sacramento, CA.
- California Native Plant Society (CNPS). 2015. *Inventory of Rare and Endangered Plants of California*. California Native Plant Society, Sacramento, California. Online at: <http://www.rareplants.cnps.org>; most recently accessed: February 2015.
- Dunk, J.R. 1995. White-tailed Kite (*Elanus leucurus*), *The Birds of North America Online* (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/178>
- Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. Department of the Army, Waterways Experiment Station, Vicksburg, Mississippi 39180-0631.
- Erikson, C.H. and D. Belk. 1999. *Fairy Shrimps of California's Puddles, Ponds and Playas*. Mad River Press, Inc., Eureka, CA.
- Google Earth. 2015. *Google Earth Aerial Images from 1993 - 2015*. Online at: <http://www.google.com/earth/download/ge/agree.html>.
- Holland, R.F.. 1986. *Preliminary Descriptions of the Terrestrial Natural Communities of California*. Prepared for the California Department of Fish and Game, Sacramento, CA.
- Jennings, M.R. 2004. *An Annotated Check List of Amphibians and Reptile Species of California and Adjacent Waters*, third revised edition. California Department of Fish and Game, Sacramento, CA.
- Jepson Flora Project (eds.). 2015. *Jepson eFlora*. Online at: <http://ucjeps.berkeley.edu/IJM.html>; most recently accessed February 2015.
- Keeler-Wolf, K., D. Elam, K. Lewis, and S. Flint. 1998. *California Vernal Pool Assessment Preliminary Report*.
- Lichvar, R.W., M. Butterwick, N.C. Melvin, and W.N. Kirchner. 2014. *The National Wetland Plant List: 2014 Update of Wetland Ratings*. *Phytoneuron* 2014-41: 1-42.

- Natural Resources Conservation Service (NRCS). 2010. Field Indicators of Hydric Soils in the United States, version 7.0. In cooperation with the National Technical Committee for Hydric Soils, Fort Worth, TX.
- NatureServe. 2013. NatureServe Conservation Status. Available online at: <http://explorer.natureserve.org/ranking.htm>; Accessed February 2015.
- Patterson, C. 1995. Wetland Delineation and Botanical Survey of the Parkview Site. 5 pp.
- Sawyer, J., T. Keeler-Wolf and J. Evens. 2009. A Manual of California Vegetation. California Native Plant Society, Berkeley, CA.
- Shuford, W.D., and T. Gardali (eds). 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and CDFG, Sacramento.
- Sonoma County Vegetation and Habitat Mapping Program (SCVMP). 2015. Available online at: <http://sonomavegmap.org/>; Accessed March 2015.
- State Water Resources Control Board (SWRCB). 2013. Preliminary Draft Water Quality Control Policy. 26 pp.
- Stebbins, R. C. 2003. A field guide to western reptiles and amphibians. Third edition.
- Sweet, S. 1998. Vineyard development posing an imminent threat to *Ambystoma californiense* in Santa Barbara County, California. Department of Ecology and Evolutionary Biology, University of California, Santa Barbara. 26 August 1998. Houghton Mifflin Company, Boston, Massachusetts, USA.
- U.S. Army Corps of Engineers (Corps). 2005. Regulatory Guidance Letter No. 05-05. Ordinary High Water Mark Identification. December 7.
- U.S. Army Corps of Engineers (Corps) . 2008a. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0), ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-08-28. Vicksburg, MS: United States Army Engineer Research and Development Center.
- U.S. Army Corps of Engineers (Corps). 2008b. A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States: A Delineation Manual, ed. R.W. Lichvar, and S.M. McColley. ERDC/CRREL TR-08-12. Hanover, NH: United States Army Engineer Research and Development Center.
- U.S. Department of Agriculture (USDA), Soil Conservation Service (SCS) and U.S. Forest Service (USFS). 1977. Soil Survey of Sonoma County, California. In cooperation with the U.C. Agricultural Experiment Station.
- U.S. Department of Agriculture (USDA), National Resource Conservation Service (NRCS). 2015. Santa Rosa Sonoma County Airport Station #23274, WETS analysis. <http://www.wcc.nrcs.usda.gov/climate/clim-reports.html>. Accessed February 2015.

- USFWS et. al. 2005. Final Santa Rosa Plain Conservation Strategy. Sacramento Office of the U.S. Fish and Wildlife Service, California Department of Fish and Game, U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, North Coast Regional Water Quality Control Board, County of Sonoma, Cities of Cotati, Rohnert Park, and Santa Rosa, Laguna de Santa Rosa Foundation. December 1, 2005.
- U.S. Fish and Wildlife Service (USFWS). 2007. Programtic Biological Opinion for U.S. Army Corps of Engineers (Corps) Permitted Projects that May Affect California Tiger Salamander and Three Endangered Plant Species on the Santa Rosa Plain, California (Corps File Number 223420N).
- U.S. Fish and Wildlife Service (USFWS). 2010. Endangered and Threatened Wildlife and Plants; Revised Designation of Critical Habitat for the California Red-Legged Frog; Final Rule. Federal Register 75(51): 12816-12959. March 17.
- U.S. Fish and Wildlife Service (USFWS). 2015a. National Wetlands Inventory. Available online at: <http://www.fws.gov/Wetlands/Data/Mapper.html>; most recently accessed: February 2015.
- U.S. Fish and Wildlife Service (USFWS). 2015b. Species Lists, Sacramento Fish and Wildlife Office. Available online at: <http://www.fws.gov/sacramento>; most recently accessed: February 2015.
- U.S. Geological Survey (USGS). 2012. Santa Rosa 7.5-minute quadrangle.
- Zeiner, D.C., W.F. Laudenslayer, Jr., K.E. Mayer, and M. White. 1990. California's Wildlife, Volume I-III: Amphibians and Reptiles, Birds, Mammals. California Statewide Wildlife Habitat Relationships System, California Department of Fish and Game, Sacramento, CA.

APPENDIX A

LIST OF OBSERVED PLANT AND WILDLIFE SPECIES

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Appendix A. Plant species observed in the Proposed Moorland Park Study Area, February 25, 2015

Family	Scientific name	Common name	Life form	Origin	Rare Status ¹	Wetland Status ²	VP Status ³
Apiaceae	<i>Foeniculum vulgare</i>	fennel	perennial	non-native	--	NL	--
Asteraceae	<i>Helminthotheca [Picris] echinoides</i>	bristly ox-tongue	perennial	non-native	--	FACU	--
Asteraceae	<i>Lactuca serriola</i>	prickly lettuce	annual	non-native	--	FACU	--
Asteraceae	<i>Silybum marianum</i>	milk thistle	perennial	non-native	--	NL	--
Asteraceae	<i>Tragopogon porrifolius</i>	purple salsify	perennial	non-native	--	NL	--
Brassicaceae	<i>Raphanus sativus</i>	wild radish	perennial	non-native	--	NL	--
Cyperaceae	<i>Carex</i> sp.	sedge	perennial	native	--	FACW	--
Fabaceae	<i>Vicia sativa</i> ssp. <i>sativa</i>	pubescent common vetch	annual	non-native	--	FACU	--
Geraniaceae	<i>Geranium molle</i>	woodland geranium	perennial	non-native	--	NL	GEN
Juncaceae	<i>Juncus</i> sp.	rush	perennial	native	--	FACW	--
Lythraceae	<i>Lythrum hyssopifolia</i>	hyssop loosestrife	annual	non-native	--	OBL	VPA?
Malvaceae	<i>Malva nicaeensis</i>	bull mallow	annual	non-native	--	NL	--
Malvaceae	<i>Malva parviflora</i>	cheeseweed mallow	annual	non-native	--	NL	--
Myrsinaceae [Primulaceae]	<i>Anagallis arvensis</i>	scarlet pimpernel	annual	non-native	--	NL	GEN
Poaceae	<i>Festuca [Vulpia] microstachys</i>	Pacific fescue	annual	native	--	NL	--
Poaceae	<i>Festuca perennis [Lolium multiflorum; L. perenne]</i>	Italian rye grass	annual	non-native	--	FAC	GEN
Poaceae	<i>Hordeum marinum</i> ssp. <i>gussoneanum</i>	Mediterranean barley	annual	non-native	--	FAC	GEN
Poaceae	<i>Hordeum murinum</i> ssp. <i>glaucum</i>	blue foxtail	annual	non-native	--	FAC	GEN
Poaceae	<i>Phalaris aquatica</i>	harding grass	perennial	non-native	--	FACU	--
Polygonaceae	<i>Rumex crispus</i>	curly dock	perennial	non-native	--	FAC	GEN
Polygonaceae	<i>Rumex pulcher</i>	fiddle dock	perennial	non-native	--	FAC	GEN
Ranunculaceae	<i>Ranunculus muricatus</i>	spiny buttercup	perennial	non-native	--	FACW	VPA?
Rosaceae	<i>Malus pumila [M. sylvestris]</i>	paradise apple	deciduous	non-native	--	FAC	--
Rubiaceae	<i>Galium aparine</i>	common bedstraw	annual	native	--	FACU	--

All species identified using the *Jepson eFlora* (Jepson Flora Project 2015), and the *Jepson Manual, 2nd Edition* (Baldwin et al. 2012; nomenclature follows the *Jepson eFlora*; older naming conventions are provided in brackets.

¹Rare Status: The CNPS Inventory of Rare and Endangered Plants (CNPS 2015)

- FE: Federal Endangered
- FT: Federal Threatened
- SE: State Endangered
- ST: State Threatened

SR: State Rare

List 1A: Plants presumed extirpated in California and either rare or extinct elsewhere

List 1B: Plants rare, threatened, or endangered in California and elsewhere

List 2A: Plants presumed extirpated in California, but more common elsewhere

List 2B: Plants rare, threatened, or endangered in California, but more common elsewhere

List 3: Plants about which we need more information – a review list

List 4: Plants of limited distribution – a watch list

²Wetland Status: National List of Plant Species that Occur in Wetlands, California – Region 10 (Lichvar 2014)

OBL: Almost always a hydrophyte, rarely in uplands

FACW: Usually a hydrophyte, but occasionally found in uplands

FAC: Commonly either a hydrophyte or non-hydrophyte

FACU: Occasionally a hydrophyte, but usually found in uplands

UPL: Rarely a hydrophyte, almost always in uplands

NL: Rarely a hydrophyte, almost always in uplands

NI: No information; not factored during wetland delineation

³Vernal Pool (VP) Status: California Vernal Pool Assessment Preliminary Report (Keeler-Wolf et al. 1998)

VPI: Species restricted to vernal pools and not known from other habitats

VPA: Species that regularly occur in vernal pools, but also occur in similar wetland habitats

GEN: Species that occur in wetlands and uplands, including vernal pools, vernal pool margins, and grasslands

VPI?: A VPI species in certain region(s) only, and can be either a VPA or GEN in other region(s)

VPA?: A VPA species in certain region(s) only, and is a GEN in other region(s)

VPI/VPA: A VPI in certain region(s) and VPA in other region(s), but not a GEN in any region

APPENDIX B
SITE PHOTOGRAPHS

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Above: General site photograph of the habitat within the western parcel within the Study Area.

Below: General site photograph of the habitat within the eastern parcel within the Study Area.

Photographs taken February 25, 2015.





Above: A shallow swale was located along the western boundary of the Study Area along the train tracks.

Below: This swale led to a culvert that continued under West Robles Avenue.

Photographs taken February 25, 2015.





Above: Standing water was observed in a disturbed seasonal wetland on the western parcel.

Below: Sample points were taken within the seasonal wetland that confirmed wetland conditions including hydrophytic vegetation, soil saturation to the surface, and standing water.

Photographs taken February 25, 2015.



APPENDIX C

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

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Appendix C. Potential for special-status plant and wildlife species to occur in the Study Area. List compiled from the California Natural Diversity Database (CDFW 2015), U.S. Fish and Wildlife Service Species Lists (2015), and California Native Plant Society Rare and Endangered Plant Inventory (CNPS 2015) searches for the Santa Rosa, Healdsburg, Sebastopol, and Cotati USGS 7.5-minute quadrangles.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Plants				
Sonoma alopecurus <i>Alopecurus aequalis</i> var. <i>sonomensis</i>	FE, Rank 1B.1	Marshes and swamps (freshwater), riparian scrub. Elevation ranges from 20 to 1200 feet (5 to 365 meters). Blooms May-July.	Unlikely. Although the Study Area contains wetland habitat, this species is generally limited to perennial wetlands such as emergent marsh and riparian areas that are not present in the Study Area.	No further actions are recommended for this species.
Napa false indigo <i>Amorpha californica</i> var. <i>napensis</i>	Rank 1B.2	Broadleafed upland forest (openings), chaparral, cismontane woodland. Elevation ranges from 390 to 6560 feet (120 to 2000 meters). Blooms April-July.	No potential. Suitable habitat for this species does not occur in the Study Area.	No further actions are recommended for this species.
bent-flowered fiddleneck <i>Amsinckia lunaris</i>	Rank 1B.2	Coastal bluff scrub, cismontane woodland, valley and foothill grassland. Elevation ranges from 10 to 1640 feet (3 to 500 meters). Blooms March-June.	Unlikely. The Study Area contains grassland habitat that may support this species; however, this species has only one historical documentation from on/near the Santa Rosa Plain (CNDDDB 2015). Additionally, the high degree of infestation by Harding grass (<i>Phalaris aquatica</i>) and disturbance reduce the likelihood that this species would occur.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Sonoma canescent manzanita <i>Arctostaphylos canescens</i> ssp. <i>sonomensis</i>	Rank 1B.2	Chaparral, lower montane coniferous forest/sometimes serpentine. Elevation ranges from 590 to 5500 feet (180 to 1675 meters). Blooms January-June.	No Potential. The Study Area does not contain chaparral or forested habitat necessary to support this species.	No further actions are recommended for this species.
Vine Hill manzanita <i>Arctostaphylos densiflora</i>	SE, Rank 1B.1	Chaparral (acid marine sand). Elevation ranges from 160 to 390 feet (50 to 120 meters). Blooms February-April.	No Potential. The Study Area does not contain acidic marine sands or chaparral habitat necessary to support this species.	No further actions are recommended for this species.
Rincon Ridge manzanita <i>Arctostaphylos stanfordiana</i> ssp. <i>decumbens</i>	Rank 1B.1	Chaparral (rhyolitic), cismontane woodland. Elevation ranges from 250 to 1210 feet (75 to 370 meters). Blooms February-April (May).	No Potential. The Study Area does not contain chaparral or woodland habitat, or volcanic soils necessary to support this species.	No further actions are recommended for this species.
Clara Hunt's milk-vetch <i>Astragalus claranus</i>	FE, ST, Rank 1B.1	Chaparral (openings), cismontane woodland, valley and foothill grassland/serpentine or volcanic, rocky, clay. Elevation ranges from 250 to 900 feet (75 to 275 meters). Blooms March-May.	No Potential. Although the Study Area contains grasslands, the Study Area does not contain woodland habitat or volcanic soils necessary to support this species. This species is known to be highly restricted in its range due to these habitat requirements.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
big-scale balsamroot <i>Balsamorhiza macrolepis</i>	Rank 1B.2	Chaparral, cismontane woodland, valley and foothill grassland/sometimes serpentine. Elevation ranges from 300 to 5100 feet (90 to 1555 meters). Blooms March-June.	No Potential. Although the Study Area contains grassland habitat, this species is restricted to serpentine and/or volcanic substrates not formed in alluvium that are located in the foothills.	No further actions are recommended for this species.
Sonoma sunshine <i>Blennosperma bakeri</i>	FE, SE, Rank 1B.1	Valley and foothill grassland (mesic), vernal pools. Elevation ranges from 30 to 360 feet (10 to 110 meters). Blooms March-May.	Moderate Potential. The Study Area contains seasonal wetland habitat on the Santa Rosa Plain that may support this species. The nearest documented occurrence is approximately 1.5 miles south of the Study Area (CNDDDB 2015).	WRA will conduct surveys for this species between the months of March and May. USFWS (2007) survey protocols require three site visits during this time period for two consecutive years.
narrow-anthered brodiaea <i>Brodiaea leptandra</i>	Rank 1B.2	Broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland/volcanic. Elevation ranges from 360 to 3000 feet (110 to 915 meters). Blooms May-July.	No Potential. The Study Area does not contain forest or chaparral habitat, or volcanic tuff substrate necessary to support this species.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Bolander's reed grass <i>Calamagrostis bolanderi</i>	Rank 4.2	Bogs and fens, broadleafed upland forest, closed-cone coniferous forest, coastal scrub, meadows and seeps (mesic), marshes and swamps (freshwater), north coast coniferous forest/mesic. Elevation ranges from 0 to 1490 feet (0 to 455 meters). Blooms May-August.	No Potential. The Study Area does not contain freshwater perennial marsh habitat or forest/scrub habitat necessary to support this species.	No further actions are recommended for this species.
Thurber's reed grass <i>Calamagrostis crassiglumis</i>	Rank 2B.1	Coastal scrub (mesic), marshes and swamps (freshwater). Elevation ranges from 30 to 200 feet (10 to 60 meters). Blooms May-August.	No Potential. The Study Area does not contain marsh habitat or perennially saturated or inundated soils necessary to support this species.	No further actions are recommended for this species.
pink star-tulip <i>Calochortus uniflorus</i>	Rank 4.2	Coastal prairie, coastal scrub, meadows and seeps, north coast coniferous forest. Elevation ranges from 30 to 3510 feet (10 to 1070 meters). Blooms April-June.	Unlikely. Although the Study Area contains grassland habitat, this species is closely associated with mesic meadows in scrub or forest habitat.	No further actions are recommended for this species.
swamp harebell <i>Campanula californica</i>	Rank 1B.2	Bogs and fens, closed-cone coniferous forest, coastal prairie, meadows and seeps, marshes and swamps (freshwater), north coast coniferous forest/mesic. Elevation ranges from 0 to 1330 feet (1 to 405 meters). Blooms June-October.	No Potential. The Study Area does not contain freshwater marsh habitat necessary to support this species.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
johnny-nip <i>Castilleja ambigua</i> var. <i>ambigua</i>	Rank 4.2	Coastal bluff scrub, coastal prairie, coastal scrub, marshes and swamps, valley and foothill grassland, vernal poolsmargins. Elevation ranges from 0 to 1430 feet (0 to 435 meters). Blooms March-August.	Moderate Potential. The Study Area contains seasonal wetland and grassland margin habitat that may support this species; however, this species is closely associated with coastal sites. Additionally, the high disturbance and infestation of Harding grass (<i>Phalaris aquatica</i>) in much of the Study Area reduces the likelihood for occurrence.	No further actions are recommended for this species.
Pitkin Marsh paintbrush <i>Castilleja uliginosa</i>	SE, Rank 1A	Marshes and swamps (freshwater). Elevation ranges from 790 to 790 feet (240 to 240 meters). Blooms June-July.	No Potential. The Study Area does not contain freshwater marsh habitat necessary to support this species.	No further actions are recommended for this species.
Rincon Ridge ceanothus <i>Ceanothus confusus</i>	Rank 1B.1	Closed-cone coniferous forest, chaparral, cismontane woodland/volcanic or serpentine. Elevation ranges from 250 to 3490 feet (75 to 1065 meters). Blooms February-June.	No Potential. The Study Area does not contain serpentine or volcanic substrate, or chaparral, woodland, or coniferous forest habitat necessary to support this species.	No further actions are recommended for this species.
Calistoga ceanothus <i>Ceanothus divergens</i>	Rank 1B.2	Chaparral (serpentine or volcanic, rocky). Elevation ranges from 560 to 3120 feet (170 to 950 meters). Blooms February-April.	No Potential. The Study Area does not contain serpentine or volcanic substrate, or chaparral or woodland habitat necessary to support this species.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Vine Hill ceanothus <i>Ceanothus foliosus</i> var. <i>vineatus</i>	Rank 1B.1	Chaparral. Elevation ranges from 150 to 1000 feet (45 to 305 meters). Blooms March-May.	No Potential. The Study Area does not contain acidic marine sand substrate, or chaparral habitat necessary to support this species.	No further actions are recommended for this species.
glory brush <i>Ceanothus gloriosus</i> var. <i>exaltatus</i>	Rank 4.3	Chaparral. Elevation ranges from 100 to 2000 feet (30 to 610 meters). Blooms March-June (August).	No Potential. The Study Area does not contain chaparral habitat necessary to support this species.	No further actions are recommended for this species.
Sonoma ceanothus <i>Ceanothus sonomensis</i>	Rank 1B.2	Chaparral (sandy, serpentine or volcanic). Elevation ranges from 710 to 2620 feet (215 to 800 meters). Blooms February-April.	No Potential. The Study Area does not contain serpentine or volcanic substrate, or chaparral habitat necessary to support this species.	No further actions are recommended for this species.
pappose tarplant <i>Centromadia parryi</i> ssp. <i>parryi</i>	Rank 1B.2	Chaparral, coastal prairie, meadows and seeps, marshes and swamps (coastal salt), valley and foothill grassland (vernally mesic)/often alkaline. Elevation ranges from 0 to 1380 feet (0 to 420 meters). Blooms May-November.	Moderate Potential. The Study Area contains seasonal wetland and grassland habitat that may support this species; however, this species is typically located on substrates with a higher alkalinity than those in the Study Area.	WRA will conduct surveys for this species between the months of May and November.
Sonoma spineflower <i>Chorizanthe valida</i>	FE, SE, Rank 1B.1	Coastal prairie (sandy). Elevation ranges from 30 to 1000 feet (10 to 305 meters). Blooms June-August.	No Potential. The Study Area does not contain coastal prairie habitat or sandy substrate necessary to support this species.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Vine Hill clarkia <i>Clarkia imbricata</i>	FE, SE, Rank 1B.1	Chaparral, valley and foothill grassland/acidic sandy loam. Elevation ranges from 160 to 250 feet (50 to 75 meters). Blooms June-August.	No Potential. Although grasslands occur in the Study Area, the Study Area does not contain acidic marine sand substrate necessary to support this species. The range of this species is highly restricted due to these habitat requirements.	No further actions are recommended for this species.
Pennell's bird's-beak <i>Cordylanthus tenuis</i> ssp. <i>capillaris</i>	FE, SR, Rank 1B.2	Closed-cone coniferous forest, chaparral/serpentine. Elevation ranges from 150 to 1000 feet (45 to 305 meters). Blooms June-September.	No Potential. The Study Area does not contain serpentine substrates, chaparral, or forested habitat necessary to support this species.	No further actions are recommended for this species.
Peruvian dodder <i>Cuscuta obtusiflora</i> var. <i>glandulosa</i>	Rank 2B.2	Marshes and swamps (freshwater). Elevation ranges from 50 to 920 feet (15 to 280 meters). Blooms July-October.	No Potential. The Study Area does not contain freshwater marsh habitat necessary to support this species.	No further actions are recommended for this species.
mountain lady's-slipper <i>Cypripedium montanum</i>	Rank 4.2	Broadleafed upland forest, cismontane woodland, lower montane coniferous forest, north coast coniferous forest. Elevation ranges from 610 to 7300 feet (185 to 2225 meters). Blooms March-August.	No Potential. The Study Area does not contain forested habitat necessary to support this species.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
golden larkspur <i>Delphinium luteum</i>	FE, SR, Rank 1B.1	Chaparral, coastal prairie, coastal scrub/rocky. Elevation ranges from 0 to 330 feet (0 to 100 meters). Blooms March-May.	No Potential. The Study Area does not contain chaparral, scrub, or coastal prairie habitat, or rocky terrain necessary to support this species.	No further actions are recommended for this species.
dwarf downingia <i>Downingia pusilla</i>	Rank 2B.2	Valley and foothill grassland (mesic), vernal pools. Elevation ranges from 0 to 1460 feet (1 to 445 meters). Blooms March-May.	Moderate Potential. The Study Area contains seasonal wetland habitat on the Santa Rosa Plain that may support this species. The nearest documented occurrence is approximately 2 miles west of the Study Area (CNDDDB 2015).	WRA will conduct surveys for this species between the months of March and May.
serpentine daisy <i>Erigeron serpentinus</i>	Rank 1B.3	Chaparral (serpentine, seeps). Elevation ranges from 200 to 2200 feet (60 to 670 meters). Blooms May- August.	No Potential. The Study Area does not contain serpentine substrate or chaparral habitat necessary to support this species.	No further actions are recommended for this species.
slender cottongrass <i>Eriophorum gracile</i>	Rank 4.3	Bogs and fens, meadows and seeps, upper montane coniferous forest/acidic. Elevation ranges from 4200 to 9510 feet (1280 to 2900 meters). Blooms May- September.	No Potential. The Study Area does not support perennial wetland or meadow habitat within coniferous forest necessary to support this species.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
fragrant fritillary <i>Fritillaria liliacea</i>	Rank 1B.2	Cismontane woodland, coastal prairie, coastal scrub, valley and foothill grassland/often serpentine. Elevation ranges from 10 to 1350 feet (3 to 410 meters). Blooms February-April.	Unlikely. The Study Area contains grassland and inclusions of clay substrate that may support this species; however, this species is typically located in foothill positions within Sonoma County and has never been observed in the Santa Rosa Plain.	WRA will conduct surveys for this species between the months of February and April.
congested-headed hayfield tarplant <i>Hemizonia congesta</i> ssp. <i>congesta</i>	Rank 1B.2	Valley and foothill grassland/sometimes roadsides. Elevation ranges from 70 to 1840 feet (20 to 560 meters). Blooms April-November.	Moderate Potential. The Study Area contains grassland habitat that may support this species.	WRA will conduct surveys for this species between the months of April and November.
hogwallow starfish <i>Hesperervax caulescens</i>	Rank 4.2	Valley and foothill grassland (mesic, clay), vernal pools (shallow). Elevation ranges from 0 to 1660 feet (0 to 505 meters). Blooms March-June.	Moderate Potential. The Study Area contains clay soils and seasonal wetlands that may provide suitable habitat for this species.	WRA will conduct surveys for this species between the months of March and June.
thin-lobed horkelia <i>Horkelia tenuiloba</i>	Rank 1B.2	Broadleafed upland forest, chaparral, valley and foothill grassland/mesic openings, sandy. Elevation ranges from 160 to 1640 feet (50 to 500 meters). Blooms May-July (August).	No Potential. Although the Study Area contains grassland and a seasonal wetland, the Study Area does not contain forest or scrub habitat, or acidic sandy substrate necessary to support this species.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
harlequin lotus <i>Hosackia gracilis</i>	Rank 4.2	Broadleafed 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/wetlands, roadsides. Elevation ranges from 0 to 2300 feet (0 to 700 meters). Blooms March-July.	Unlikely. Although the Study Area contains grasslands, this species is typically associated with coastal sites or mesic meadows with perennial wetland grasses within a forest or woodland foothill setting.	No further actions are recommended for this species.
Burke's goldfields <i>Lasthenia burkei</i>	FE, SE, Rank 1B.1	Meadows and seeps (mesic), vernal pools. Elevation ranges from 50 to 1970 feet (15 to 600 meters). Blooms April-June.	Moderate Potential. The Study Area contains seasonal wetland habitat on the Santa Rosa Plain that may support this species. Additionally, the nearest documented occurrence is approximately 1.2 miles east of the Study Area (CNDDDB 2015).	WRA will conduct surveys for this species between the months of March and May. USFWS (2007) survey protocols require three site visits during this time period for two consecutive years.
Baker's goldfields <i>Lasthenia californica</i> ssp. <i>bakeri</i>	Rank 1B.2	Closed-cone coniferous forest (openings), coastal scrub, meadows and seeps, marshes and swamps. Elevation ranges from 200 to 1710 feet (60 to 520 meters). Blooms April-October.	No Potential. The Study Area does not contain perennial wetland or mesic meadows within Bishop pine / shore pine forest or coastal scrub habitat necessary to support this species.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
legenere <i>Legenere limosa</i>	Rank 1B.1	Vernal pools. Elevation ranges from 0 to 2890 feet (1 to 880 meters). Blooms April-June.	Unlikely. The Study Area contains seasonal wetland habitat, but this species is known almost exclusively from vernal pools. There are few documented occurrence from the Santa Rosa Plain, which is the western extent of its range.	No further actions are recommended for this species.
Jepson's leptosiphon <i>Leptosiphon jepsonii</i>	Rank 1B.2	Chaparral, cismontane woodland/usually volcanic. Elevation ranges from 330 to 1640 feet (100 to 500 meters). Blooms March-May.	No Potential. The Study Area does not contain chaparral, woodland, or foothill grassland underlain by volcanic or serpentine substrate necessary to support this species.	No further actions are recommended for this species.
Pitkin Marsh lily <i>Lilium pardalinum</i> ssp. <i>pitkinense</i>	FE, SE, Rank 1B.1	Cismontane woodland, meadows and seeps, marshes and swamps (freshwater)/mesic, sandy. Elevation ranges from 110 to 210 feet (35 to 65 meters). Blooms June-July.	No Potential. The Study Area does not contain marsh or perennial riparian wetland habitat, or acidic sandy, perennially saturated substrate necessary to support this species.	No further actions are recommended for this species.
Sebastopol meadowfoam <i>Limnanthes vinculans</i>	FE, SE, Rank 1B.1	Meadows and seeps, valley and foothill grassland, vernal pools/vernally mesic. Elevation ranges from 50 to 1000 feet (15 to 305 meters). Blooms April-May.	Moderate Potential. The Study Area contains seasonal wetland habitat on the Santa Rosa Plain that may support this species. The nearest documented occurrence is approximately 1.2 miles south of the Study Area (CNDDDB 2015).	WRA will conduct surveys for this species between the months of March and May. USFWS (2007) survey protocols require three site visits during this time period for two consecutive years.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
marsh microseris <i>Microseris paludosa</i>	Rank 1B.2	Closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland. Elevation ranges from 20 to 980 feet (5 to 300 meters). Blooms April-June (July).	No Potential. Although grassland habitat occurs in the Study Area, it is highly disturbed with evidence of groundwork and fill. Additionally, the Study Area contains high infestation of non-native grasses including Harding grass (<i>Phalaris aquatica</i>) and would not provide suitable habitat for this species.	No further actions are recommended for this species.
green monardella <i>Monardella viridis</i>	Rank 4.3	Broadleafed upland forest, chaparral, cismontane woodland. Elevation ranges from 330 to 3310 feet (100 to 1010 meters). Blooms June-September.	No Potential. The Study Area does not contain forest, woodland, or chaparral habitat necessary to support this species.	No further actions are recommended for this species.
Baker's navarretia <i>Navarretia leucocephala</i> ssp. <i>bakeri</i>	Rank 1B.1	Cismontane woodland, lower montane coniferous forest, meadows and seeps, valley and foothill grassland, vernal pools/mesic. Elevation ranges from 20 to 5710 feet (5 to 1740 meters). Blooms April-July.	Moderate potential. The Study Area contains grassland and a seasonal wetland that may provide suitable habitat for this species. The nearest documented occurrence is approximately 3 miles west of the Study Area (CNDDDB 2015).	WRA will conduct surveys for this species between the months of April and July.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
many-flowered navarretia <i>Navarretia leucocephala</i> ssp. <i>plieantha</i>	FE, SE, Rank 1B.2	Vernal pools (volcanic ash flow). Elevation ranges from 100 to 3120 feet (30 to 950 meters). Blooms May-June.	Unlikely. Although a seasonal wetland was observed in the Study Area, the substrate is not comprised of volcanic ash flow. The wetland habitat in the Study Area is unlikely to support this species.	No further actions are recommended for this species.
Gairdner's yampah <i>Perideridia gairdneri</i> ssp. <i>gairdneri</i>	Rank 4.2	Broadleafed upland forest, chaparral, coastal prairie, valley and foothill grassland, vernal pools/vernally mesic. Elevation ranges from 0 to 2000 feet (0 to 610 meters). Blooms June-October.	Unlikely. Although grasslands and a wetland occur in the Study Area, this species is known to occur on adobe flats, which do not occur in the Study Area.	No further actions are recommended for this species.
North Coast semaphore grass <i>Pleuropogon hooverianus</i>	ST, Rank 1B.1	Broadleafed upland forest, meadows and seeps, north coast coniferous forest/open areas, mesic. Elevation ranges from 30 to 2200 feet (10 to 671 meters). Blooms April-June.	Unlikely. Although a seasonal wetland was observed in the Study Area, the communities associated with this species were not observed in the Study Area.	No further actions are recommended for this species.
nodding semaphore grass <i>Pleuropogon refractus</i>	Rank 4.2	Lower montane coniferous forest, meadows and seeps, north coast coniferous forest, riparian forest/mesic. Elevation ranges from 0 to 5250 feet (0 to 1600 meters). Blooms (March), April-August.	Unlikely. Although a seasonal wetland was observed in the Study Area, this species most often occurs in wetland features along streams and often occurs on granite, neither of which occur in the Study Area.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Lobb's aquatic buttercup <i>Ranunculus lobbii</i>	Rank 4.2	Cismontane woodland, north coast coniferous forest, valley and foothill grassland, vernal pools/mesic. Elevation ranges from 50 to 1540 feet (15 to 470 meters). Blooms February-May.	Moderate Potential. The Study Area contains grassland and wetland habitats that may provide suitable habitat for this species.	WRA will conduct surveys for this species between the months of February and May.
white beaked-rush <i>Rhynchospora alba</i>	Rank 2B.2	Bogs and fens, meadows and seeps, marshes and swamps (freshwater). Elevation ranges from 200 to 6690 feet (60 to 2040 meters). Blooms July-August.	No Potential. Although a wetland occurs in the Study Area, it appears to be seasonal and would not supply a suitable amount of inundation for this species. This species is known from perennial wetlands at higher elevations than in the Study Area.	No further actions are recommended for this species.
California beaked-rush <i>Rhynchospora californica</i>	Rank 1B.1	Bogs and fens, lower montane coniferous forest, meadows and seeps (seeps), marshes and swamps (freshwater). Elevation ranges from 150 to 3310 feet (45 to 1010 meters). Blooms May-July.	No Potential. Although a wetland occurs in the Study Area, it appears to be seasonal and would not supply a suitable amount of inundation for this species. This species is known from perennial wetlands from higher elevations than in the Study Area.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
brownish beaked-rush <i>Rhynchospora capitellata</i>	Rank 2B.2	Lower montane coniferous forest, meadows and seeps, marshes and swamps, upper montane coniferous forest/mesic. Elevation ranges from 150 to 6560 feet (45 to 2000 meters). Blooms July-August.	No Potential. Although a wetland occurs in the Study Area, it appears to be seasonal and would not supply a suitable amount of inundation for this species. This species is known from perennial wetlands from higher elevations than in the Study Area.	No further actions are recommended for this species.
round-headed beaked-rush <i>Rhynchospora globularis</i>	Rank 2B.1	Marshes and swamps (freshwater). Elevation ranges from 150 to 200 feet (45 to 60 meters). Blooms July-August.	No Potential. Although a wetland occurs in the Study Area, it appears to be seasonal and would not supply a suitable amount of inundation for this species. This species is known from perennial wetlands from higher elevations than in the Study Area.	No further actions are recommended for this species.
two-fork clover <i>Trifolium amoenum</i>	FE, Rank 1B.1	Coastal bluff scrub, valley and foothill grassland (sometimes serpentine). Elevation ranges from 20 to 1360 feet (5 to 415 meters). Blooms April-June.	Unlikely. Although this species is known from grasslands, it typically occurs in coastal habitats, sometimes containing serpentine. Additionally, the high level of disturbance and infestation by non-native grasses would preclude the establishment of this species within the Study Area.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
saline clover <i>Trifolium hydrophilum</i>	Rank 1B.2	Marshes and swamps, valley and foothill grassland (mesic, alkaline), vernal pools. Elevation ranges from 0 to 980 feet (0 to 300 meters). Blooms April-June.	Moderate Potential. This species has a moderate potential for occurrence due to the presence of a seasonal wetland in the Study Area. However, this species is typically known from soils that are more alkaline than the soils in the Study Area, which lowers its potential for occurrence. The nearest documented occurrence is approximately 1.5 miles northwest of the Study Area (CNDDDB 2015).	No further actions are recommended for this species.
coastal triquetrella <i>Triquetrella californica</i>	Rank 1B.2	Coastal bluff scrub, coastal scrub/soil. Elevation ranges from 30 to 330 feet (10 to 100 meters).	No Potential. Coastal bluff scrub and coastal soils to not occur in the Study Area.	No further actions are recommended for this species.
oval-leaved viburnum <i>Viburnum ellipticum</i>	Rank 2B.3	Chaparral, cismontane woodland, lower montane coniferous forest. Elevation ranges from 710 to 4590 feet (215 to 1400 meters). Blooms May-June.	No potential. The habitat for this species does not occur in the Study Area.	No further actions are recommended for this species.
Mammals				

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
pallid bat <i>Antrozous pallidus</i>	SSC	Found in deserts, grasslands, shrublands, woodlands, and forests. Forages along river channels. Roost sites include buildings and other man-made structures, rocky outcrops, and caves within sandstone outcroppings.	Unlikely. The Study Area does not contain rock piles, man-made structures or similar substrates that are suitable for roosting by this species. May forage over the Study Area.	No further actions are recommended for this species.
Townsend's western big-eared bat <i>Corynorhinus townsendii townsendii</i>	SSC	Primarily found in rural settings in a wide variety of habitats including oak woodlands and mixed coniferous-deciduous forest. Day roosts highly associated with caves and mines. Very sensitive to human disturbance.	Unlikely. The Study Area does not contain caves, buildings or analogous substrates that are suitable for roosting by this species.	No further actions are recommended for this species.
hoary bat <i>Lasiurus cinereus</i>	WBWG: Medium Priority	Prefers open 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 Study Area only contains short shrubs and does not contain large trees that provide suitable roosting habitat for this species. May forage over the Study Area.	No further actions are recommended for this species.
American badger <i>Taxidea taxus</i>	SSC	Found in many habitat types where burrowing mammals occur; most common in grassland communities.	Unlikely. The Study Area has been routinely disked, precluding the presence of most burrowing animals. Surrounding development further decreases the likelihood of occurrence of this species.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Birds				
tricolored blackbird <i>Agelaius tricolor</i>	SE, BCC	Usually nests over or near freshwater in dense cattails, tules, or thickets of willow, blackberry, wild rose or other tall herbs.	Unlikely. The Study Area does not contain dense cattails or tules which are typical for nesting by the species..	No further actions are recommended for this species.
western burrowing owl <i>Athene cunicularia hypugea</i>	SSC, BCC	Frequents open grasslands and shrublands with perches and burrows. Preys upon insects, small mammals, reptiles, birds, and carrion. Nests and roosts in old burrows of small mammals.	Unlikely. No suitable burrows or ground squirrels were observed within or adjacent to the Study Area during the site visit. The lack of burrows or potential for suitable burrow creation likely precludes this species from occurring.	No further actions are recommended for this species.
western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	FT, SE, BCC	Nests in riparian jungles of willow often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape. Species requires an average of 17 hectares per pair for foraging and nesting.	Unlikely. The Study Area lacks suitable riparian habitat for this species.	No further actions are recommended for this species.
white-tailed kite <i>Elanus leucurus</i>	CFP	Yearlong resident of coastal and valley lowlands, including agricultural areas. Preys on small diurnal mammals and occasional birds, insects, reptiles, and amphibians.	Moderate Potential. Suitable nesting habitat is available in the trees and large shrubs in the Study Area. Much of the grassland in the Study Area contains suitable foraging habitat.	Pre-construction breeding bird surveys are recommended prior to any activities conducted between February 1 and August 31.
Reptiles and Amphibians				

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
western pond turtle <i>Actinemys marmorata</i>	SSC	Occurs in perennial ponds, lakes, rivers and streams with suitable basking habitat (mud banks, mats of floating vegetation, partially submerged logs) and submerged shelter.	Unlikely. The Study Area does not contain suitable perennial aquatic habitat.	No further actions are recommended for this species.
California tiger salamander <i>Ambystoma californiense</i>	FE, ST	Inhabits annual grassland habitat and mammal burrows. Seasonal ponds and vernal pools crucial to breeding.	Moderate Potential. The Study Area contains a seasonal wetland that likely provides suitable breeding habitat and there are numerous documented occurrences of this species on the Santa Rosa Plain, including one occurrence 1500 feet west of the Study Area. However, the habitat quality has been greatly reduced due to surrounding development.	WRA recommends assuming presence of this species and mitigating for any impacts to suitable habitat in accordance with the Conservation Strategy (USFWS et al. 2005). The project should also incorporate the avoidance and minimization measures described in the Conservation Strategy (USFWS et al. 2005).
foothill yellow-legged frog <i>Rana boylei</i>	SSC	Found in or near rocky streams in a variety of habitats. Feeds on both aquatic and terrestrial invertebrates.	Unlikely. The Study Area does not contain suitable stream habitat for this species.	No further actions are recommended for this species.
California red-legged frog <i>Rana draytonii</i>	FT, SSC	Associated with quiet perennial to intermittent ponds, stream pools, and wetlands. Prefers shorelines with extensive vegetation. Documented to disperse through upland habitats after rains.	Unlikely. Due to the limited number of sightings in the area (CNDDDB 2105), the lack of burrows for estivation and the developed nature of the surrounding area, the Study Area is unlikely to support the species.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Fish				
Russian River tule perch <i>Hysterocarpus traski pomo</i>	SSC	Requires clear, flowing water and abundant cover with deep (>1 m) pool habitat. Intolerant of polluted or brackish water. Confined to the Russian River and tributaries.	No Potential. The Study Area does not contain suitable stream or river habitat for this species.	No further actions are recommended for this species.
Navarro roach <i>Lavinia symmetricus navarroensis</i>	SSC	Habitat generalists. Found in warm intermittent streams as well as cold, well-aerated streams.	No Potential. The Study Area does not contain suitable stream or river habitat for this species.	No further actions are recommended for this species.
coho salmon - Central California Coast ESU <i>Oncorhynchus kisutch</i>	FE, SE	State listing is limited to Coho south of San Francisco Bay. The Federal listing is limited to naturally spawning populations in streams between Punta Gorda, Humboldt County and the San Lorenzo River, Santa Cruz County. Spawn in coastal streams from 4-14°C. Prefer beds of loose, silt-free, coarse gravel and cover nearby for adults.	No Potential. The Study Area does not contain suitable stream or river habitat for this species.	No further actions are recommended for this species.
steelhead - Central California Coast ESU <i>Oncorhynchus mykiss irideus</i>	FT	From Russian River south to Soquel Creek and Pajaro River. Also San Francisco and San Pablo Bay Basins.	No Potential. The Study Area does not contain suitable stream or river habitat for this species.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Invertebrates				
Blennosperma vernal pool andrenid bee <i>Andrena blennospermatis</i>		Vernal pools. This bee is oligolectic on vernal pool blennosperma.	Moderate Potential. The Study Area contains seasonal wetland habitat on the Santa Rosa Plain that may support Blennosperma.	WRA will conduct protocol-level rare plant surveys would detect the host plant if present.
California linderiella <i>Linderiella occidentalis</i>	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 total dissolved solids.	Unlikely. The Study Area has been regularly maintained by disking and does not contain unplowed grasslands with suitable alluvial soils.	No further actions are recommended for this species.
California freshwater shrimp <i>Syncaris pacifica</i>	FE, SE	Endemic to Marin, Napa, and Sonoma Counties. Found in shallow pools away from streamflow in low gradient streams where riparian cover is moderate to heavy.	Unlikely. The Study Area does not contain stream habitat which is required by the species.	No further actions are recommended for this species.

*** Key to status codes:**

BCC	U.S. Fish & Wildlife Service (USFWS) Birds of Conservation Concern
CFP	CDFW Fully Protected Animal
FE	Federal Endangered
FT	Federal Threatened
SE	State Endangered
SSC	California Department of Fish and Wildlife (CDFW) Species of Special Concern
SSI	California Department of Fish and Wildlife (CDFW) Special Status Invertebrate
ST	State Threatened

SR	State Rare
Rank 1B	CNPS Rank 1B: Plants rare, threatened or endangered in California and elsewhere
Rank 2B	CNPS Rank 2B: Plants rare, threatened, or endangered in California, but more common elsewhere
Rank 4	CNPS Rank 4: Plants of limited distribution (a watch list)
WBWG	Western Bat Working Group Priority Species

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 D
WETLAND DELINEATION DATA FORMS

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Wetland Determination Data Form - Arid West Region

Project/Site Proposed Moorland Park Site City Santa Rosa County Sonoma County Sampling Date 2/25/2015
 Applicant/Owner Sonoma County Regional Parks Department State CA Sampling Point SP01
 Investigator(s) L. Kerr, C. Gurney Section, Township, Range Sec2, T6N, R8W
 Landform (hillslope, terrace, etc.) None Local Relief (concave, convex, none) mildly concave Slope(%) 0-1
 Subregion(LRR) LRR C (Medit. CA) Lat: 38.39489 Long: -122.72011 Datum: WGS 84
 Soil Map Unit Name Wright loam, shallow, wet, 0 to 2 percent slopes NWI classification None

Are climatic/hydrologic conditions on-site typical for this time of year? Yes No (If no, explain in remarks)
 Are any of the following significantly disturbed? Vegetation Soil Hydrology Are "Normal Circumstances" present? Yes No
 Are any of the following naturally problematic? Vegetation Soil Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Remarks: The sample point was taken within a mildly concave area with shallow tire ruts. The sample point contains some FAC species, but does not contain evidence of hydric soils, and wetland hydrology indicators are very weak. Wetland hydrology indicators were only observed in small, disturbed areas like shallow tire ruts, and were not consistent across the entire topographic feature. Soils were dark, but no redoximorphic features or other indicators of hydric soils were observed. Therefore the area was determined not to be a wetland.	

VEGETATION (use scientific names)

TREE STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status		
1. _____	_____	_____	_____	_____	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC? <u>1</u> (A) Total number of dominant species across all strata? <u>2</u> (B) % of dominant species that are OBL, FACW, or FAC? <u>50%</u> (A/B)	
2. _____	_____	_____	_____	_____		
3. _____	_____	_____	_____	_____		
4. _____	_____	_____	_____	_____		
Tree Stratum Total Cover: _____						
SAPLING/SHRUB STRATUM Plot Size: _____						
1. _____	_____	_____	_____	_____	Prevalence Index Worksheet Total % cover of: _____ Multiply by: _____ OBL species _____ x1 _____ FACW species _____ x2 _____ FAC species <u>50</u> x3 <u>150</u> FACU species <u>55</u> x4 <u>220</u> UPL species _____ x5 _____ Column Totals <u>105</u> (A) <u>370</u> (B) Prevalence Index = B/A = <u>3.52</u>	
2. _____	_____	_____	_____	_____		
3. _____	_____	_____	_____	_____		
4. _____	_____	_____	_____	_____		
Sapling/Shrub Stratum Total Cover: _____						
HERB STRATUM Plot Size: <u>4'x4'</u>						
1. <i>Festuca perennis</i> [<i>Lolium multiflorum</i> ; <i>L. perenne</i>]*	_____	45	Y	FAC	Hydrophytic Vegetation Indicators <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is <= 3.0 ¹ <input type="checkbox"/> Morphological adaptations (provide supporting data in remarks) <input type="checkbox"/> Problematic hydrophytic vegetation ¹ (explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
2. <i>Vicia sativa</i>	_____	25	Y	FACU		
3. <i>Helminthotheca</i> [<i>Picris</i>] <i>echioides</i>	_____	15	N	FACU		
4. <i>Festuca myuros</i>	_____	15	N	FACU		
5. <i>Rumex pulcher</i>	_____	5	N	FAC		
6. _____	_____	_____	_____	_____		
7. _____	_____	_____	_____	_____		
8. _____	_____	_____	_____	_____		
Herb Stratum Total Cover: <u>105</u>					Hydrophytic Vegetation Present ? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
WOODY VINE STRATUM Plot Size: _____						
1. _____	_____	_____	_____	_____		
2. _____	_____	_____	_____	_____	Woody Vines Total Cover: _____	
% Bare ground in herb stratum <u>0</u>		% cover of biotic crust <u>0.01</u>				

Remarks: Although some FAC species were present, the sample point did not meet the criteria for hydrophytic vegetation.

SOIL

Sampling Point SP01

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ¹		
0-18	7.5YR 2.5/1	100					Clay Loam	No signs of redox

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5)(LRR C) <input type="checkbox"/> 1cm Muck (A9)(LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> 1cm Muck (A9) (LRR C) <input type="checkbox"/> 2cm Muck (A10)(LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (explain in remarks)
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³Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: _____ Depth (inches): _____	Hydric Soil Present ? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
--	--

Remarks: The sample point contained dark soils, but no signs of redox or other indicators of hydric soils were observed.

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1)(Nonriverine) <input type="checkbox"/> Sediment Deposits (B2)(Nonriverine) <input type="checkbox"/> Drift Deposits (B3)(Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input checked="" type="checkbox"/> Biotic Crust (B12) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in PLoWed Soils (C6) <input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Water Marks (B1)(Riverine) <input type="checkbox"/> Sediment Deposits (B2)(Riverine) <input type="checkbox"/> Drift Deposits (B3)(Riverine) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5)	

Field Observations: Surface water present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____ Water table present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____ Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present ? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: Small pockets of dried algae were seen within tire ruts and other disturbances near the sample point, but this appeared to be the result of small, isolated puddles related to disturbance within this topographic feature, not wetland conditions. This wetland hydrology indicator was not strong across the entire topographic feature.

Wetland Determination Data Form - Arid West Region

Project/Site Proposed Moorland Park Site City Santa Rosa County Sonoma County Sampling Date 2/25/2015
 Applicant/Owner Sonoma County Regional Parks Department State CA Sampling Point SP02
 Investigator(s) L. Kerr, C. Gurney Section, Township, Range Sec2, T6N, R8W
 Landform (hillslope, terrace, etc.) None Local Relief (concave, convex, none) None Slope(%) 0-1
 Subregion(LRR) LRR C (Medit. CA) Lat: 38.39473 Long: -122.72000 Datum: WGS 84
 Soil Map Unit Name Wright loam, shallow, wet, 0 to 2 percent slopes NWI classification None

Are climatic/hydrologic conditions on-site typical for this time of year? Yes No (If no, explain in remarks)
 Are any of the following significantly disturbed? Vegetation Soil Hydrology Are "Normal Circumstances" present? Yes No
 Are any of the following naturally problematic? Vegetation Soil Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Remarks: The sample point was taken in an area with higher densities of FAC species adjacent to a ponded area with much lower densities of FACU and UPL species. Further investigation showed that the soils were saturated to the surface of the soil sample and standing water was observed at 11 inches. Since no significant rainfall events occurred within 14 days of the field visit, it can be inferred that the area was saturated/inundated for more than 14 days. Although soils were dark and wetland hydrology was obvious, they still did not contain redoximorphic features. Therefore, based on other obvious wetland conditions including hydrophytic vegetation and obvious wetland hydrology, the area was determined to have problematic hydric soils.	

VEGETATION (use scientific names)

TREE STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1.	_____	_____	_____	_____	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC? <u>1</u> (A) Total number of dominant species across all strata? <u>1</u> (B) % of dominant species that are OBL, FACW, or FAC? <u>100%</u> (A/B)
2.	_____	_____	_____	_____	
3.	_____	_____	_____	_____	
4.	_____	_____	_____	_____	
Tree Stratum Total Cover: _____					
SAPLING/SHRUB STRATUM	Plot Size:				
1.	_____	_____	_____	_____	Prevalence Index Worksheet Total % cover of: _____ Multiply by: _____ OBL species _____ x1 _____ FACW species _____ x2 _____ FAC species _____ x3 _____ FACU species _____ x4 _____ UPL species _____ x5 _____ Column Totals _____ (A) _____ (B) Prevalence Index = B/A = _____
2.	_____	_____	_____	_____	
3.	_____	_____	_____	_____	
4.	_____	_____	_____	_____	
Sapling/Shrub Stratum Total Cover: _____					
HERB STRATUM	Plot Size:				
1.	<u>4'x4'</u>	_____	_____	_____	Hydrophytic Vegetation Indicators <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is <= 3.0 ¹ <input type="checkbox"/> Morphological adaptations (provide supporting data in remarks) <input type="checkbox"/> Problematic hydrophytic vegetation ¹ (explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2.	_____	45	Y	OBL	
3.	_____	15	N	FACW	
4.	_____	10	N	FAC	
5.	_____	10	N	FAC	
6.	_____	3	N	UPL	
7.	_____	2	N	FACU	
8.	_____	2	N	FACU	
Herb Stratum Total Cover: <u>87</u>					
WOODY VINE STRATUM	Plot Size:				
1.	_____	_____	_____	_____	Hydrophytic Vegetation Present ? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
2.	_____	_____	_____	_____	
Woody Vines Total Cover: _____					
% Bare ground in herb stratum <u>0</u>		% cover of biotic crust <u>0</u>			

Remarks: The sample point contained much higher densities of OBL species. The sample point passes the dominance test and meets the criteria for hydrophytic vegetation.

SOIL

Sampling Point SP02

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ¹		
0-14	7.5YR 2.5/1	100					Clay	No signs of redox

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5)(LRR C) <input type="checkbox"/> 1cm Muck (A9)(LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> 1cm Muck (A9) (LRR C) <input type="checkbox"/> 2cm Muck (A10)(LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input checked="" type="checkbox"/> Other (explain in remarks)
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³Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: _____ Depth (inches): _____	Hydric Soil Present ? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
--	--

Remarks: Due to the presence of wetland vegetation, as well as the presence of strong wetland hydrology indicators including saturation and inundation, the sample point was determined to have problematic hydric soils.

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1)(Nonriverine) <input type="checkbox"/> Sediment Deposits (B2)(Nonriverine) <input type="checkbox"/> Drift Deposits (B3)(Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Biotic Crust (B12) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in PLoWed Soils (C6) <input type="checkbox"/> Other (Explain in Remarks)
	<input type="checkbox"/> Water Marks (B1)(Riverine) <input type="checkbox"/> Sediment Deposits (B2)(Riverine) <input type="checkbox"/> Drift Deposits (B3)(Riverine) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations: Surface water present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): <u>downslope</u> Water table present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): <u>11"</u> Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): <u>at surface</u> (includes capillary fringe)	Wetland Hydrology Present ? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: The sample point contained saturation to the surface of the soil pit and a shallow water table with standing water observed at 11 inches. Inundation was seen in a large, disturbed area downslope of the sample point.

Wetland Determination Data Form - Arid West Region

Project/Site Proposed Moorland Park Site City Santa Rosa County Sonoma County Sampling Date 2/25/2015
 Applicant/Owner Sonoma County Regional Parks Department State CA Sampling Point SP03
 Investigator(s) L. Kerr, C. Gurney Section, Township, Range Sec2, T6N, R8W
 Landform (hillslope, terrace, etc.) None Local Relief (concave, convex, none) mildly convex Slope(%) 0-1
 Subregion(LRR) LRR C (Medit. CA) Lat: 38.39453 Long: -122.71975 Datum: WGS 84
 Soil Map Unit Name Wright loam, shallow, wet, 0 to 2 percent slopes NWI classification None

Are climatic/hydrologic conditions on-site typical for this time of year? Yes No (If no, explain in remarks)
 Are any of the following significantly disturbed? Vegetation Soil Hydrology Are "Normal Circumstances" present? Yes No
 Are any of the following naturally problematic? Vegetation Soil Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Remarks: The sample point was taken in an obvious upland area adjacent to a mapped wetland feature. The sample point contained a very different soil texture than the wetland (see SP02) with evidence of gravel fill, likely a result of being used as a staging area during the development of an adjacent suburban housing complex. The area was dominated by obvious upland species including wild oats, field vetch, and harding grass.	

VEGETATION (use scientific names)

TREE STRATUM	Plot Size:	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	_____	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC? <u>0</u> (A) Total number of dominant species across all strata? <u>1</u> (B) % of dominant species that are OBL, FACW, or FAC? <u>0%</u> (A/B)
2. _____	_____	_____	_____	_____	
3. _____	_____	_____	_____	_____	
4. _____	_____	_____	_____	_____	
Tree Stratum Total Cover: _____					
SAPLING/SHRUB STRATUM	Plot Size:				
1. _____	_____	_____	_____	_____	Prevalence Index Worksheet Total % cover of: _____ Multiply by: _____ OBL species _____ x1 _____ FACW species _____ x2 _____ FAC species _____ x3 _____ FACU species <u>65</u> x4 <u>260</u> UPL species <u>35</u> x5 <u>175</u> Column Totals <u>100</u> (A) <u>435</u> (B) Prevalence Index = B/A = <u>4.35</u>
2. _____	_____	_____	_____	_____	
3. _____	_____	_____	_____	_____	
4. _____	_____	_____	_____	_____	
Sapling/Shrub Stratum Total Cover: _____					
HERB STRATUM	Plot Size:				
1. <i>Vicia sativa</i>	<u>5'x5'</u>	<u>60</u>	<u>Y</u>	<u>FACU</u>	Hydrophytic Vegetation Indicators <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is <= 3.0 ¹ <input type="checkbox"/> Morphological adaptations (provide supporting data in remarks) <input type="checkbox"/> Problematic hydrophytic vegetation ¹ (explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <i>Avena barbata</i>		<u>35</u>	<u>N</u>	<u>NL</u>	
3. <i>Phalaris aquatica</i>		<u>5</u>	<u>N</u>	<u>FACU</u>	
4. _____		_____	_____	_____	
5. _____		_____	_____	_____	
6. _____		_____	_____	_____	
7. _____		_____	_____	_____	
8. _____		_____	_____	_____	
Herb Stratum Total Cover: <u>100</u>					
WOODY VINE STRATUM	Plot Size:				
1. _____	_____	_____	_____	_____	Hydrophytic Vegetation Present ? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
2. _____	_____	_____	_____	_____	
Woody Vines Total Cover: _____					
% Bare ground in herb stratum <u>0</u>		% cover of biotic crust <u>0</u>			

Remarks: The sample point is dominated by obvious upland species with no wetland species present. The sample point does not meet the criteria for hydrophytic vegetation. Grasses were vegetative at the time of the field surveys, but Harding grass and wild oats were easily identified by non-floristic characteristics including ligules, size, and growth form. Additional identification was based on remnant inflorescences from the previous growing period.

SOIL

Sampling Point SP03

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ¹		
0-14	7.5YR3/1	100					gravelly clay loam	No signs of redox
								gravel fill present

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5)(LRR C) <input type="checkbox"/> 1cm Muck (A9)(LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> 1cm Muck (A9) (LRR C) <input type="checkbox"/> 2cm Muck (A10)(LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (explain in remarks)
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³Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: _____ Depth (inches): _____	Hydric Soil Present ? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
--	--

Remarks: The sample point contains soils with a much different texture than the adjacent wetland. The soil appears to be disturbed and contains evidence of gravel fill, likely a result of being used as a staging area during the development of an adjacent suburban housing complex.

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1)(Nonriverine) <input type="checkbox"/> Sediment Deposits (B2)(Nonriverine) <input type="checkbox"/> Drift Deposits (B3)(Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Biotic Crust (B12) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in PLoWed Soils (C6) <input type="checkbox"/> Other (Explain in Remarks)
	<input type="checkbox"/> Water Marks (B1)(Riverine) <input type="checkbox"/> Sediment Deposits (B2)(Riverine) <input type="checkbox"/> Drift Deposits (B3)(Riverine) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations: Surface water present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____ Water table present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____ Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present ? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.

Remarks: The sample point did not contain any indicators of wetland hydrology.

Wetland Determination Data Form - Arid West Region

Project/Site Proposed Moorland Park Site City Santa Rosa County Sonoma County Sampling Date 2/25/2015
 Applicant/Owner Sonoma County Regional Parks Department State CA Sampling Point SP04
 Investigator(s) L. Kerr, C. Gurney Section, Township, Range Sec2, T6N, R8W
 Landform (hillslope, terrace, etc.) None Local Relief (concave, convex, none) mildly concave Slope(%) 0-1
 Subregion(LRR) LRR C (Medit. CA) Lat: 38.39469 Long: -122.72082 Datum: _____
 Soil Map Unit Name Wright loam, shallow, wet, 0 to 2 percent slopes NWI classification None

Are climatic/hydrologic conditions on-site typical for this time of year? Yes No (If no, explain in remarks)
 Are any of the following significantly disturbed? Vegetation Soil Hydrology Are "Normal Circumstances" present? Yes No
 Are any of the following naturally problematic? Vegetation Soil Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Remarks: The sample point was taken within a mildly concave swale located along the railroad tracks along the western boundary of the Study Area. The swale was vegetated at the time of the field surveys and dominated with upland and FACU species. The swale ran north-south along the Study Area and drains into a culvert that runs under West Robles Avenue. Small patches of dried algae were observed, but the dominant upland species and lack of hydric soils indicate that this algae is the result of small puddles due to disturbance and mild variance in topography, not the result of wetland condition.	

VEGETATION (use scientific names)

TREE STRATUM	Plot Size: _____	Absolute % cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	_____	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC? <u>1</u> (A) Total number of dominant species across all strata? <u>3</u> (B) % of dominant species that are OBL, FACW, or FAC? <u>33%</u> (A/B)
2. _____	_____	_____	_____	_____	
3. _____	_____	_____	_____	_____	
4. _____	_____	_____	_____	_____	
Tree Stratum Total Cover: _____					
SAPLING/SHRUB STRATUM Plot Size: _____					
1. _____	_____	_____	_____	_____	Prevalence Index Worksheet Total % cover of: _____ Multiply by: _____ OBL species _____ x1 _____ FACW species _____ x2 _____ FAC species <u>30</u> x3 <u>90</u> FACU species <u>70</u> x4 <u>280</u> UPL species <u>3</u> x5 <u>15</u> Column Totals <u>103</u> (A) <u>385</u> (B) Prevalence Index = B/A = <u>3.73</u>
2. _____	_____	_____	_____	_____	
3. _____	_____	_____	_____	_____	
4. _____	_____	_____	_____	_____	
Sapling/Shrub Stratum Total Cover: _____					
HERB STRATUM Plot Size: <u>5'x5'</u>					
1. <u>Vicia Sativa</u>	_____	<u>40</u>	<u>Y</u>	<u>FACU</u>	Hydrophytic Vegetation Indicators <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is <= 3.0 ¹ <input type="checkbox"/> Morphological adaptations (provide supporting data in remarks) <input type="checkbox"/> Problematic hydrophytic vegetation ¹ (explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Festuca perennis [Lolium multiflorum; L. perenne]</u>	_____	<u>30</u>	<u>Y</u>	<u>FAC</u>	
3. <u>Phalaris aquatica</u>	_____	<u>30</u>	<u>Y</u>	<u>FACU</u>	
4. <u>Geranium molle</u>	_____	<u>2</u>	<u>N</u>	<u>NL</u>	
5. <u>Lactuca serriola</u>	_____	<u>1</u>	<u>N</u>	<u>NL</u>	
6. <u>Avena barbata</u>	_____	<u>0.01</u>	<u>N</u>	<u>NL</u>	
7. _____	_____	_____	_____	_____	
8. _____	_____	_____	_____	_____	
Herb Stratum Total Cover: <u>103</u>					
WOODY VINE STRATUM Plot Size: _____					
1. _____	_____	_____	_____	_____	Hydrophytic Vegetation Present ? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
2. _____	_____	_____	_____	_____	
Woody Vines Total Cover: _____					
% Bare ground in herb stratum <u>0</u>		% cover of biotic crust <u>0.01</u>			

Remarks: The sample point is dominated by FACU and FAC species, with many FACU and UPL forb species occurring in lower densities. The sample point does not meet the criteria for hydrophytic vegetation. Grasses were vegetative at the time of the field surveys, but harding grass and wild oats were easily identified by non-floristic characteristics including ligules, size, and growth form. Additional identification was based on remnant inflorescences from the previous growing period.

SOIL

Sampling Point SP04

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ¹		
0-14	7.5YR 3/1	100					gravelly clay loam	No signs of redox
								gravel fill present

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5)(LRR C) <input type="checkbox"/> 1cm Muck (A9)(LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> 1cm Muck (A9) (LRR C) <input type="checkbox"/> 2cm Muck (A10)(LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (explain in remarks)
---	---	---

³Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: _____ Depth (inches): _____	Hydric Soil Present ? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
--	--

Remarks: The sample point contains much different texture than the adjacent wetland. The soil appears to be disturbed and contains evidence of gravel fill, likely a result of disturbance during the construction of the adjacent train tracks and suburban housing development.

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1)(Nonriverine) <input type="checkbox"/> Sediment Deposits (B2)(Nonriverine) <input type="checkbox"/> Drift Deposits (B3)(Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Water Marks (B1)(Riverine) <input type="checkbox"/> Sediment Deposits (B2)(Riverine) <input type="checkbox"/> Drift Deposits (B3)(Riverine) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations: Surface water present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____ Water table present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____ Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present ? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
---	--

Describe recorded data (stream gauge, monitoring well, aerial photos, etc.) if available.

Remarks: Soils were slightly moist but did not contain evidence of inundation, saturation, or standing water. Small pockets of dried algae were seen within tire ruts and other disturbances along the ditch feature, but this appeared to be the result of small, isolated puddles related to disturbance within this topographic feature, not wetland conditions. This wetland hydrology indicator was not strong across the entire topographic feature.

APPENDIX E

1995 WETLAND DELINEATION REPORT

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Charles A. Patterson
Plant Ecologist
1806 Ivanhoe, Lafayette, CA 94549
(510) 938 - 5263

April 20, 1995

Ms. Jane Hicks
U.S. Army Corps of Engineers, Regulatory Branch, Room 803
211 Main Street
San Francisco, CA 94105

Re: Wetland delineation and botanical surveys of the Parkview site

Corps File No. 21319N96

Dear Jane:

Please accept the enclosed wetland map (Attachment 1) of the Parkview site (see Figures 1 and 2) at Moorland Avenue at West Robles (northwest quadrant). The wetland map reflects our recent site visit and shows the areas we determined to be subject to Corps jurisdiction. The following sections summarize my findings from the surveys conducted here:

Methods

I have completed two full years of spring botanical surveys (plus a third, 1995, in progress) and a series of wetland investigations of the above referenced site in southwest Santa Rosa. I examined this site on April 15 and 29, May 11 and 27, and June 9, 1993, on March 30, April 26, and May 17, 1994, and also in January and April, 1995, searching for any sensitive species or habitats, documenting general site conditions, and documenting any evidence of wetlands that might be subject to the jurisdiction of the U.S. Army Corps of Engineers (CE). Supplemental site visits to observe site hydrology and look for wetland evidence were made on October 12 and November 16, 1994. The botanical surveys were conducted over the appropriate time period to catch the three primary plant species of concern (*Lasthenia burkei*, *Limnanthes vinculans*, and *Blennosperma bakeri*) in their peak phenological conditions. These species were, in fact, noted to be in flower and/or generally recognizable form at a number of nearby sites during much of this overall time span.

Specific areas were determined to be jurisdictional and mapped as "wetlands" on the basis of there being (1) an overall hydric soil across the entire site, (2) the presence of at least Facultative-Wet plants such as *Rumex*, *Lythrum*, or the Obligate *Pleuropogon* in addition to the abundant Facultative grasses (*Lolium*, *Hordeum*, *Vulpia*), and (3) some evidence of prolonged saturation or ponding (silt-cemented thatch/debris, algal matting, surface film formation). Ultimately, however, most of the areas mapped as wetland on this site are shown in accordance with the presence and distribution of at least some semaphore grass (*Pleuropogon californicus*). This species is an Obligate wetland plant and responds locally to the slight increase in hydrological influence associated with the subtle undulations and low places on this site.

Field data sheets are provided in Appendix A. The numbered and lettered sample points identify the fully recorded stations, while unnumbered points represent brief sample locations that were not recorded and where clear evidence of nonwetland conditions was found (i.e., 100 percent upland vegetation and/or no hydrological evidence).

Rare plant surveys have also been conducted for this site, including site visits in 1993, 1994, and 1995, as indicated above. These surveys were floristic in character, identifying all plants

encountered, and were also timed to correspond to the known blooming periods of the three primary plant species of concern for this region, Sebastopol meadowfoam (*Limnanthes vincularis*), Burke's goldfields (*Lasthenia burkei*), and Baker's blennosperma (*Blennosperma bakeri*).

Delineation Results

The study area contains approximately 0.9 acre of very shallow, broken and degraded swale habitats in several somewhat discontinuous and ill-defined areas, plus a man-made ditch along the south (West Robles) boundary. Local (onsite and offsite) alterations in the topography and hydrology (including fill and ditches on adjacent properties) have significantly changed the natural landscape and its ecological values, leaving only small remnant pieces of swale through the orchard and around the old homesite. The swale and ditch that represent potentially jurisdictional wetlands are relatively minor and the swale in particular is very subtle, and neither represent wetlands of high intrinsic value. They are rather, simply subtle low places that exhibit just enough evidence to possibly qualify as jurisdictional. Figure 3 is the wetland delineation map shown at 100-scale, while Figure 4 shows the wetlands on the air photo base. Figure 5 shows the sample points and gives representative widths of the various features. Attachment 1 is a large scale map of the site's topography and wetlands.

The wetland features include three somewhat different types of wetland habitats, including (1) a disturbed drainage swale that runs southward through the old homesite area, (2) an extended area of shallow intermittent inundation in the middle of the old orchard, and (3) a broad expanse of low level ground at the southern edge of the site. This last area receives much of the overall site's runoff, which eventually slows in the process of draining from the site (to the ditch along West Robles Avenue), leaving an area of prolonged saturation and a predominance of Facultative-Wet (*Rumex*, *Lythrum*, *Juncus*) and Obligate (*Pleuropogon*) vegetation. All of these features are relatively shallow surface depressions on clay where seasonal water persists, either as saturated soil or a very shallow (and intermittent) surface pool.

The site has been historically used for various land uses, including a fruit orchard and a homesite (with outbuildings, landscaping, and typical garden and yard uses). Some historic fill has been placed onsite around the homesite, and the orchard has been cultivated and at least partially leveled. The site is bounded to the east by Moorland Avenue, to the south by West Robles, and to the west by a railroad line. To the north is a parcel which is to be developed for housing in the near future.

Soils

The site is underlain entirely by Wright loam, wet, 0-2 percent slopes (see Figure 6), a soil with a natural propensity toward seasonal ponding. Locally, however, it generally has enough relief that almost all rainfall intercepted leaves the site relatively soon via surface sheet flow. The nearly level area in the southwestern part, however, has slightly slower surface drainage and the soil here appears to have a slightly higher clay content. Because of the soil's naturally dark color (largely 10YR 2/1), there is little or no mottling evident, although there is evidence of iron staining (10YR 4/6) in the lower places. The soil over virtually the entire site has been physically altered, primarily through historic cultivation and orchard operation, plus typical homesite activities.

Vegetation

The study area consists of nearly level land that is predominantly old abandoned orchard. The eastern part had a residence and associated outbuildings, gardens, fences, work and storage areas. The grassland which forms an understory to the remaining orchard trees has been completely converted to a non-native annual type and has been disked regularly for fire hazard control. There is almost no natural vegetation left on the site.

The vegetation reflects the long history of cultivation and intensive human use, and the dominant

groundcover is typical non-native annual grassland composed of introduced grasses (*Avena*, *Bromus*, *Lolium*, *Hordeum*), weeds (*Brassica*, *Geranium*, *Erodium*, *Medicago*, *Vicia*, *Convolvulus*, *Hypochoeris*), and a few scattered native wildflowers (*Lupinus*, *Eschscholzia*, *Sisyrinchium*). Native grasses are not at all abundant, with just a few scattered individuals of California oatgrass (*Danthonia californica*), purple needlegrass (*Stipa pulchra*), and meadow barley (*Hordeum brachyantherum*) in addition to the patches of semaphore grass in the wetland habitats. There are numerous old fruit trees and a few scattered young oak seedlings on the site. There were also several willows and other ornamental trees planted around the old residence site.

Hydrology

The study area contains no discernible creeks or other significant hydrological features, and there are no vernal pools or other aquatic (ponded) habitats. There are two shallow drainage swales that drain the site to the south, but these features are very shallow and in places lack in differentiation from the surrounding grassland/orchard. They are dominated by Facultative vegetation (predominantly *Lolium* and *Hordeum*), and the one to the east may have been accentuated during recent demolition of the home and its surrounding yards. There are portions of broad swale topography in the western part (in the orchard), but these areas are not wholly contiguous from north to south, and there was essentially no evidence of wetland vegetation or hydrology in 1992 (C. Patterson, unpubl. field observations, 1992). Examination of the site in 1993 during wetter conditions revealed that portions of the orchard were saturated or shallowly ponded, but reexamination in late spring of 1994 failed to find any significant vegetation differentiation.

Even wetter hydrology this year (1994/95) has revealed several almost flat areas which exhibit minor algal matting and cemented silt, plus an emergence of semaphore grass as a dominant plant. This year's hydrology, however, is substantially wetter than average (approximately 150 percent of normal), and areas that may currently show some minor evidence of temporary hydrology are not necessarily mapped as wetlands unless the vegetation indicates at least some Facultative-Wet or Obligate species. Areas of such marginal hydrology that only support Facultative plants (e.g., *Lolium*) are not mapped as wetlands. Various parts of the remnant swale through the orchard have been altered (incidentally filled or leveled over the years by ongoing rural residential uses) and portions are covered with piles of debris (prunings, building demolition, soil, wood, etc.). Based on the current conditions and altered micro-topography, this swale is not mapped as a continuous drainage feature. The other swale through the old homesite is more well defined, but has also been completely invaded by non-native vegetation, and has been altered by direct physical disturbances and the long term use of the old homesite (irrigation, gardening, debris deposition).

There is a small man-made ditch that runs east-west along the site's southern edge which drains most of the site. This ditch and the entire southwestern corner of the site receives much of the sheet flow from the orchard, but because of the very slight gradient, drainage out to the adjacent ditch is very slow. Common semaphore grass is the dominant plant in much of this area.

Sensitive Biotic Elements

The site was surveyed in detail to determine whether or not any of the three primary plant species of concern for this region were present, specifically Burke's goldfields (*Lasthenia burkei*), Sebastopol meadowfoam (*Limnanthes vinculans*), and Baker's blennosperma (*Blennosperma bakeri*). I examined the site on April 15 and 29, May 11 and 27, and June 9, 1993, and again on March 30, April 26, and May 17, 1994, searching for any sensitive species or habitats, documenting general site conditions, and looking for any evidence of wetland habitats that might be subject to the jurisdiction of the U.S. Army Corps of Engineers. Supplemental visits have also been made in January and April, 1995. The site surveys were conducted over the appropriate time periods in each year in order to catch the three primary plant species of concern at their peak phenological conditions. Based on data that I collected for other project investigations, all three of the primary sensitive species were recognizable at other sites on the Santa Rosa Plain between the March and May 1993 site visits (a relatively wet year). Specifically,

Sebastopol meadowfoam was observed in flower and/or with early season leaves still recognizable at the old Santa Rosa Air Center (April 2, May 11), Todd Road elbow (April 20), Broadmoor Acres (May 14), and Northpoint Village (April 19, May 14, 1993);

Baker's blennosperma was observed in flower and fruit at Alton Lane (April 2 and 19), Fulton Road at Piner Road (southwest quadrant; April 14), at the Todd Road elbow (April 20), and at several sites off Francisco Road ('Cia', 'Francisco Joint Ventures'; March 26, April 6) in northwest Santa Rosa.

Burke's goldfields was observed in flower at Alton Lane (April 30, May 20), Abramson Road (April 30), several sites off Francisco Road ('Morrison Homes', 'Francisco Joint Ventures'; April 29), and at the 'Hall' property off Sanders Road in Windsor (April 30, May 13).

Supplemental site surveys were conducted in 1994 (March 30, April 26, and May 17), also during the primary time period of identification for these species. The following reference site information is provided for 1994:

Sebastopol meadowfoam was observed in flower at the old Santa Rosa Air Center on April 11 and 20, at Broadmoor Acres (south) on April 12, at Northpoint Village (near the end of flowering) on May 19, and just beginning to flower at the 'Cramer' site on Hall Road on April 7.

Baker's blennosperma was observed in flower and fruit at Alton Lane on April 1 (and near the end of flowering and seed-set on April 28), at several sites off Francisco Road in northwest Santa Rosa on April 5, and at the Todd Road elbow (still partially in flower) on April 26.

Burke's goldfields was observed in flower at the 'Crane' site (at Piner and Marlow roads) on April 21 and May 17, at Alton Lane on April 28 and May 19, and at the 'Randell' property on Hall Road on April 21 and May 3.

Other sensitive species that could be present (e.g., *Perideridia gairdneri* ssp. *gairdneri*, *Trifolium amoenum*, *Ranunculus lobbii*, *Downingia humilis*, etc.) were also searched for during these surveys and would have been recognizable during at least some portion of these time periods. No sensitive species have been reported from this location by the California Native Plant Society (CNPS) or the California Natural Diversity Data Base (CNDDB 1989, 1990), although Sebastopol meadowfoam and Baker's blennosperma have both been historically reported from the general southwest Santa Rosa area in the past.

Spring field surveys conducted over the course of the past two spring seasons failed to discover any sensitive plant or animal species, and confirmed that there is no especially suitable habitat for same. There is potentially a small amount of technically qualifying seasonal wetland (intermittently saturated swale and ditch), but there are no habitats present that would be regarded as particularly well suited for any of the regionally known sensitive species. The swale habitat that is present is extremely shallow and dominated by dense stands of annual grasses. Because of the non-aquatic character of the site's habitats, the property has no suitable habitat for the California tiger salamander or fairy shrimp. Late winter and spring examinations failed to find any suitable habitat for these or any other significant aquatic species. No Pacific tree frog (*Hyla*) larvae were observed on any part of the site.

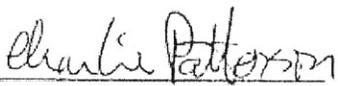
The habitats present in the study area are generally not well developed (nor undisturbed) enough to represent good habitat for any of the sensitive species. In fact, virtually all of the common seasonal

wetland species (e.g., *Downingia*, *Lasthenia*, *Plagiobothrys*, *Gratiola*, *Limnanthes*, etc.) known from this region are conspicuously absent from the onsite swale and ditch habitats. The overall grassland is relatively dense and completely composed of non-natives, and extensive dead grass thatch has accumulated beneath the old orchard trees.

As potential habitat for sensitive plants, the site's shallow swales are extremely marginal at best, and in drier years (such as 1992) exhibited almost no evidence of even saturated soil within large areas. Based on my experience with the species of concern in this region, and having examined the site from late spring 1992 through the springs of 1993 and 1994, the "wetlands" present here do not represent suitable habitat for the species of concern.

I hope this letter report provides the information you need to complete the jurisdictional determination for this site. Please feel free to call if you have any questions.

Sincerely,


Charles A. Patterson

Charles A. Patterson

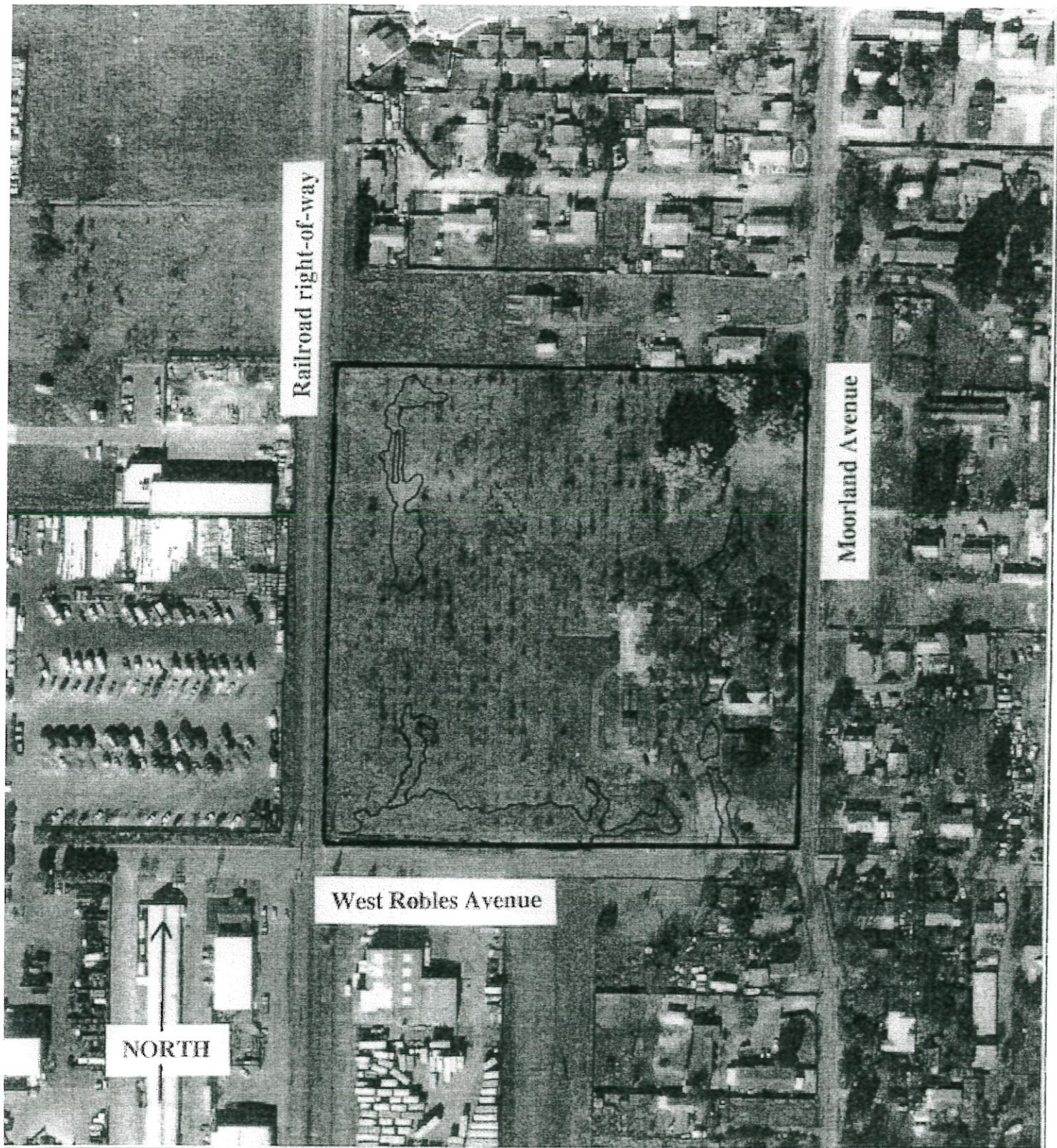


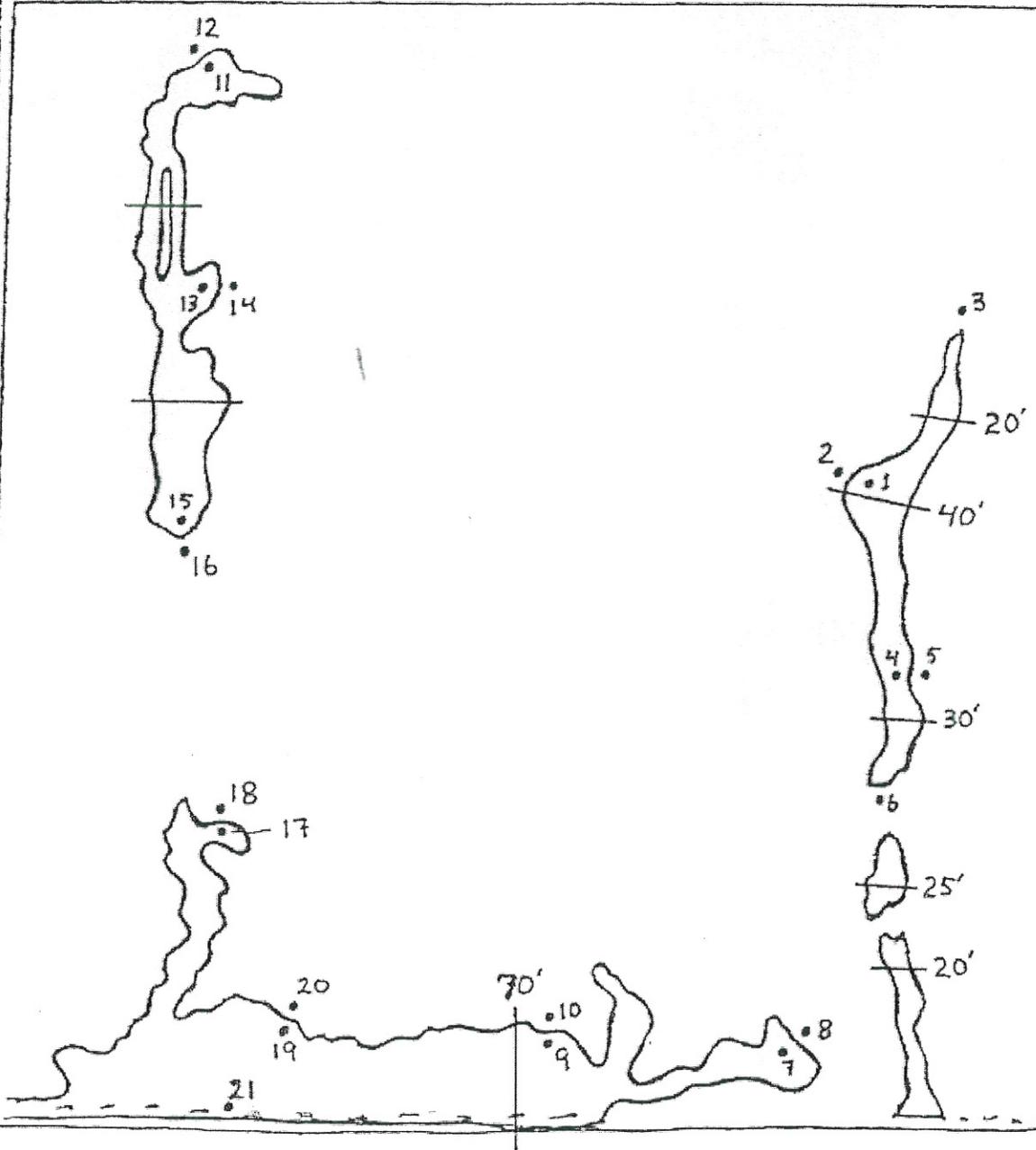
FIGURE 4

Wetlands () on air photo base

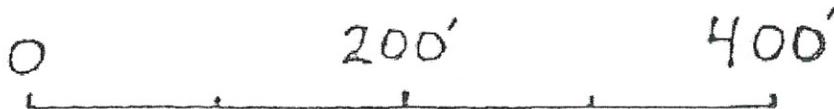
Sonoma County A.P. No. 134-112-02	SITE ADDRESS: 3365 Moorland Ave., southwest Santa Rosa	APPLICANT: Sutter Investments, P.O. Box 2, Santa Rosa, CA 95402	Prepared by: <i>C. Patterson</i> 4/95
	Basemap: Blueline air photo provided by City; 1991 Scale: 1 inch = 200 feet		

PARKVIEW SUBDIVISION

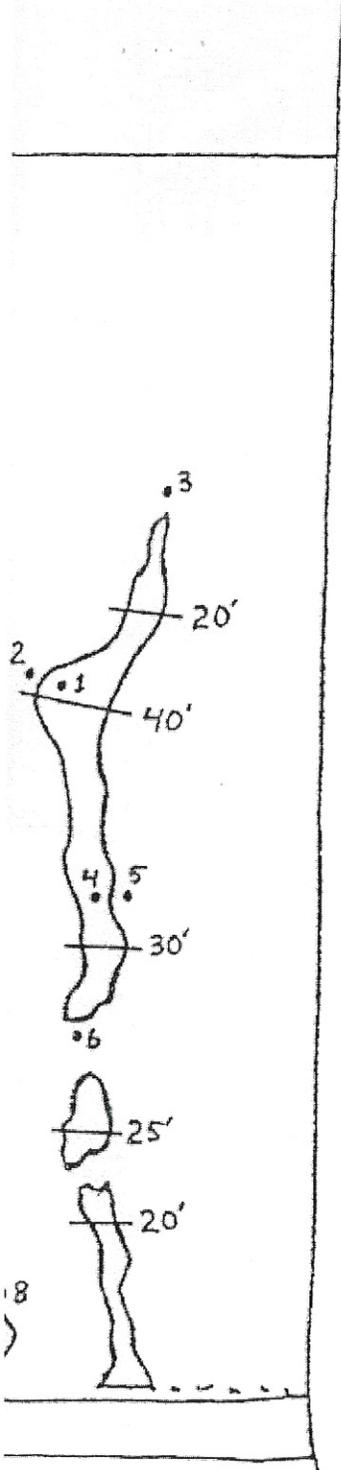
Railroad right-of-way



West Robles Avenue



Sonoma
County
No.
134-112



Moorland Avenue



Figure 5

Sample locations and selected wetland widths

Sonoma County A.P. No. 134-112-02	SITE ADDRESS: 3365 Moorland Ave., southwest Santa Rosa	APPLICANT: Sutter Investments, P.O. Box 2, Santa Rosa, CA 95402	Prepared by: C. Patterson 4/95
SOURCES: C. Patterson, unpubl. field data; Scale: 1 inch = approx. 100 feet			

PARKVIEW SUBDIVISION