

**BIOLOGICAL SITE ASSESSMENT –  
BOTANICAL RESOURCES**

**MARINDA HEIGHTS PROJECT  
FAIRFAX, MARIN COUNTY, CALIFORNIA**

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**LSA**

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## 1.0 INTRODUCTION

LSA, Inc. (LSA) has completed a protocol-level rare plant survey, comprised of three rounds of floristic surveys, and has mapped the vegetation on the Marinda Heights project site north of Sir Francis Drake Boulevard in the City of Fairfax, Marin County (see Figures 1 and 2). The purpose of the surveys was to map vegetation types, including sensitive natural communities, and survey for the presence of special-status plant species. This report includes the following: (1) a summary of relevant federal and State regulations pertaining to plant species and vegetation communities; (2) a brief description of the proposed project; (3) a description of the methods used to conduct the survey; (4) a description of existing habitat conditions at the project site; and (5) an analysis of special-status plant species and vegetation potentially present or present in the project vicinity.

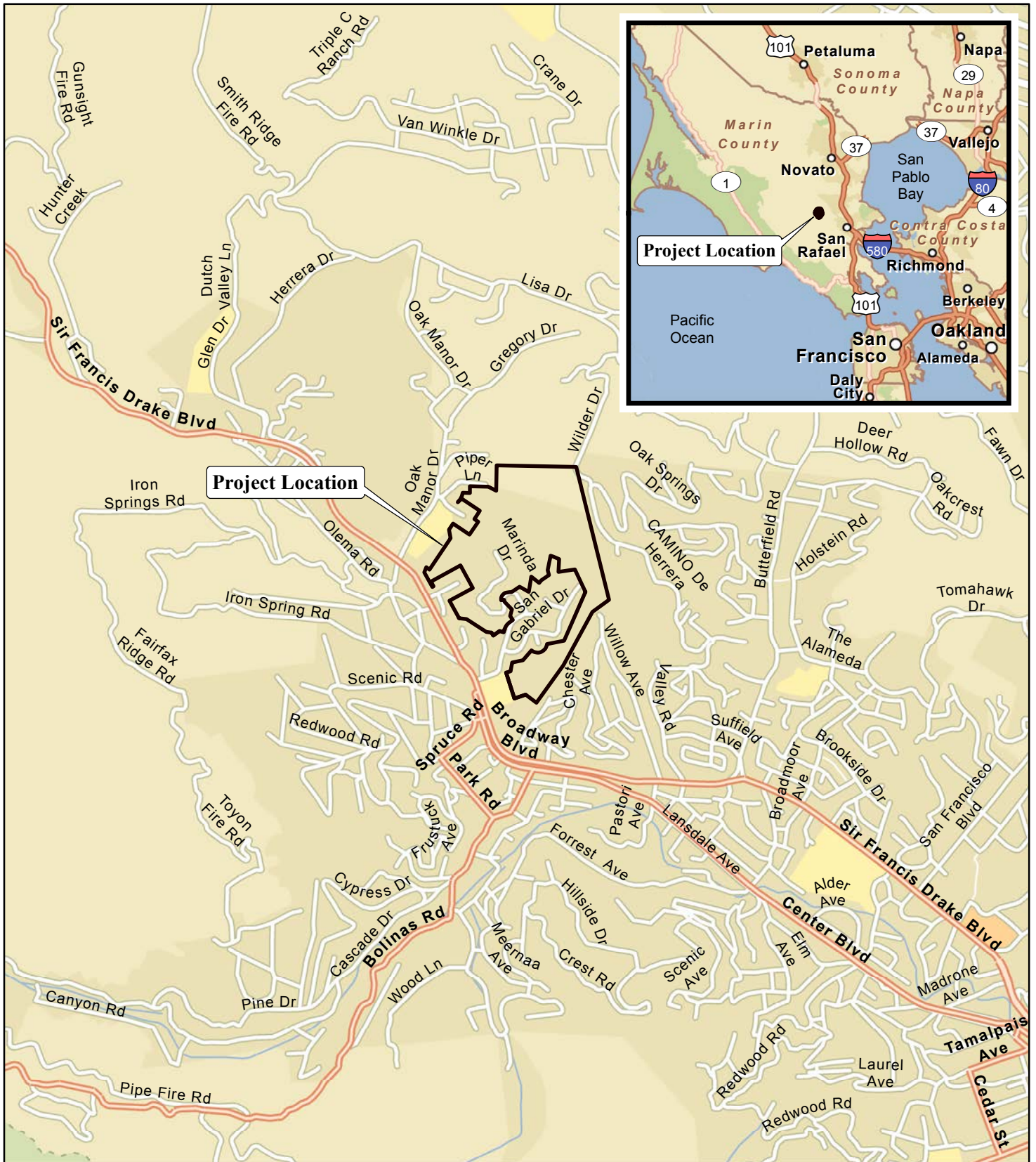
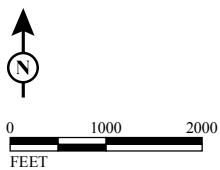


FIGURE 1

LSA



SOURCE: ESRI StreetMap North America (2012).

F:\MRN1601\GIS\Maps\Figure 1\_Regional Project Location Map.mxd (9/12/2016)

Marinda Heights  
Marin County, California  
Regional Project Location Map

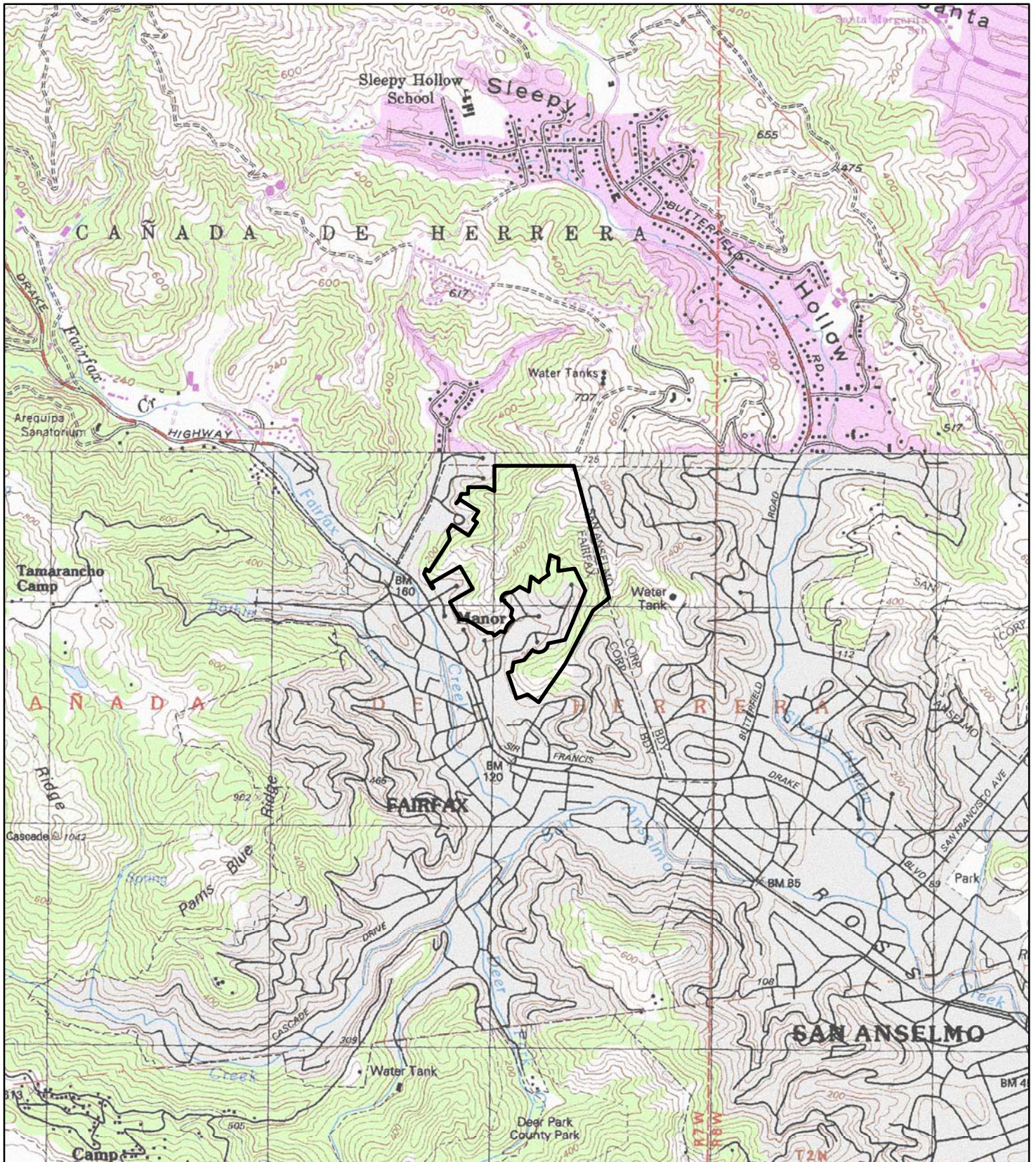


FIGURE 2

LSA

LEGEND

 Project Boundary



0 1000 2000  
FEET

SOURCE: USGS 7.5-minute Topo Quads: *Oakland West, Calif.* (1980) and *Oakland East, Calif.* (1980).

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Marinda Heights  
Marin County, California

Project Location Map

## 2.0 REGULATORY CONTEXT

This section provides a summary of federal and State laws, and/or local regulations that apply to the botanical resources that occur on the project site.

### 2.1 APPLICABLE FEDERAL LAWS AND REGULATIONS

#### 2.1.1 Federal Endangered Species Act

The U.S. Fish and Wildlife Service (USFWS) has jurisdiction over species that are formally listed as threatened or endangered under the federal Endangered Species Act (ESA). An endangered plant species is one that is considered in danger of becoming extinct throughout all or a significant portion of its range. A threatened species is one that is likely to become endangered within the foreseeable future.

In addition to endangered and threatened species, which are legally protected under the federal ESA, the USFWS has a list of proposed and candidate species. Proposed species are those for which a proposed rule to list them as endangered or threatened has been published in the Federal Record. A candidate species is one for which the USFWS currently has enough information to support a proposal to list it as a threatened or endangered species. These latter species are not afforded legal protection under the federal ESA. Nonetheless, project-related impacts to federally listed, proposed, and candidate species or their habitats are considered “significant” by the California Environmental Quality Act (CEQA, discussed below).

### 2.2 APPLICABLE STATE LAWS AND REGULATIONS

#### 2.2.1 California Endangered Species Act

The California Department of Fish and Wildlife (CDFW) has jurisdiction over State-listed threatened, rare, and endangered plant species under the California Endangered Species Act (CESA). In addition, its provisions protect species proposed for listing under the State Act.

#### 2.2.2 Native Plant Protection Act

The Native Plant Protection Act (NPPA) of 1977 (California Fish and Game Code §§ 1900-1913) was created with the intent to “preserve, protect, and enhance rare and endangered plants in this State.” The NPPA is administered by CDFW. The California Fish and Game Commission has the authority to designate native plants as “endangered” or “rare” and to protect them from take. CDFW generally regards as rare many plant species included on CRPR 1A, 1B, 2A, and 2B of the California Native Plant Society (CNPS). Inventory of Rare and Endangered Vascular Plants of California. In addition, sometimes CRPR 3 and 4 plants are considered if the population has local significance in the area and is impacted by a project. Section 1913(b) of the California Fish and Game Code includes a specific provision to allow for the incidental removal of endangered or rare plant species, if not

otherwise salvaged by CDFW, within a right-of-way (ROW) to allow a public utility to fulfill its obligation to provide service to the public.

When the CESA was passed in 1984, it expanded on the original NPPA, enhanced legal protection for plants, and created the categories of “threatened” and “endangered” species to parallel the FESA. The CESA converted all rare animals to threatened species under the NPPA, but did not do so for rare plants, which resulted in three listing categories for plants in California: rare, threatened, and endangered. The NPPA remains part of the California Fish and Game Code and mitigation measures for impacts to rare plants are specified in an agreement between CDFW and a project proponent on a project-by-project basis.

### 2.2.3 CEQA

CEQA applies to “projects” that are proposed to be undertaken or those requiring approval by State or local government agencies. Projects are defined actions that have the potential to have physical impact on the environment. Under Section 15380 of CEQA, a species not included on any formal list “shall nevertheless be considered rare or endangered if the species can be shown by a local agency to meet the criteria” for listing. With sufficient documentation, a species could be shown to meet the definition of rare or endangered under CEQA and be considered a “de facto” endangered species.

## 2.3 APPLICABLE LOCAL LAWS AND REGULATIONS

This section highlights ordinances regulating biological resources that may be applicable to the project.

**County of Marin.** The Marin Countywide Plan includes sections that address the identification and protection of biological resources within the county. Specifically, the following policies and associated implementation programs from the Countywide Plan emphasize the conservation and enhancement of special-status species and their habitats, wetlands, riparian areas, and baylands: Policy Bio 1.1-1.9, 2.1-2.9, 3.1-3.2, 4.1-4.20, and 5.1-5.10. In addition, the County of Marin has established a protected tree classification for trees native to Marin that grow in non-agricultural areas under the County’s jurisdiction (Native Tree Preservation and Protection Ordinance No. 3342). Trees are defined at 6 or 10 inches diameter at breast height depending on the species. The County exempts the need for tree-removal permits when the removal has been specifically proposed and authorized as part of the final approval of a discretionary development permit.

The Native Tree Preservation and Protection Ordinance provides mitigation guidelines for tree removal, which includes (1) establishment and maintenance of replacement trees, (2) developing a management plan for oak woodlands, (3) removal of invasive non-native plant species, posting a bond to cover the cost of monitoring for the success of measures described above, and/or (4) payment of money in the amount of \$500.00 per tree removed to be deposited into the Tree Replacement Fund managed by the District for planting and maintenance of trees and other vegetation.

**Town of Fairfax.** The Town of Fairfax General Plan includes sections that address the identification and protection of biological resources within the Town of Fairfax. Specifically, the following policies from the Town of Fairfax General Plan address the conservation and enhancement of open spaces,



special-status species, and their habitats: Policy LU 1.1.1, 1.2.-1.2.4; Policy OS 1.2.1, 1.3.1, 1.4.1, 1.4.2, 1.4.5, 3.1.1, 3.2.2, 3.2.3; and Policy CON 5.2.1, 6.1.1, 6.1.2.

## 3.0 METHODS

### 3.1 DATABASE SEARCH AND LITERATURE REVIEW

Prior to conducting fieldwork, LSA searched the California Natural Diversity Database (CNDDDB) (CDFW 2016) for records of special-status plant species and sensitive habitat occurrences within 5 miles of the project site. LSA also reviewed the USFWS Critical Habitat Portal, current Google Earth (Google 2016) aerial images of the property the list of special-status species in Figure 5-1 of the Marin Countywide Plan, lists of flora and fauna observed on the project site (Dreskin 2008 and Dreskin & Keene 2008), and Environmental Impact Reports (EIR) from the project vicinity (Marin County Open Space District 2005).

### 3.2 VEGETATION MAPPING AND RARE PLANT SURVEYS

LSA botanists Tim Milliken and Sheryl Creer completed a total of three rounds of rare plant surveys in order to maximize the likelihood of detecting rare plant occurrences. The first round was conducted on August 10, 2016; the second and third rounds were conducted on March 28 and May 5, 2017. All special-status plant surveys were floristic in nature and conducted in accordance with survey guidelines published by CNPS (2001), CDFW (2009), and USFWS (1996). All vascular plant species observed were recorded. The rare plant survey area included all proposed locations with ground-disturbing activities plus a 50-foot buffer, and encompassed approximately 21.19 acres.

In addition to the rare plant survey, vegetation types on the entire 100.1-acre property were characterized following nomenclature in the second edition of *A Manual of California Vegetation* (Sawyer et al. 2008), the nomenclature accepted and used by CDFW on its Natural Communities List (CDFW 2010). Several locations within the project footprint that were previously developed and maintained were not included in the rare plant survey. These locations include established hiking trails, the labyrinth/spirit circle area, access roads, and areas previously graded to bedrock. All vegetation communities were classified to the alliance level, and vegetation alliances with at least one association considered to be a sensitive natural community were classified to the association level.

### 3.3 DEFINITIONS

For the purposes of this assessment, special-status plant species are defined as follows:

- Species that are listed, formally proposed, or designated as candidates for listing as threatened or endangered under FESA;
- Species that are listed, or designated as candidates for listing, as rare, threatened, or endangered under CESA;
- Species that meet the definition of rare, threatened, or endangered under Section 15380 of the CEQA guidelines; or
- Species that are considered a taxa of special concern by local agencies.

Sensitive natural communities are defined as follows:

- Vegetation communities listed as sensitive in the CNDDDB; or
- Communities listed in the CDFW<sup>1</sup> Natural Communities List with a rarity rank of S1 (critically imperiled), S2 (imperiled), or S3 (vulnerable).

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<sup>1</sup> Effective January 1, 2013, the California Department of Fish and Game (CDFG) was renamed the California Department of Fish and Wildlife (CDFW). References published under the CDFG name continue to be cited as published.

## 4.0 PROJECT DESCRIPTION

The proposed project involves the construction of ten residential lots on the site with associated infrastructure and landscaping. Residential lots will comprise 5 acres of the approximately 100-acre site, with the remaining acreage devoted to open space.

## 5.0 EXISTING CONDITIONS

### 5.1 SITE LOCATION AND LAND USE

The approximately 100-acre Marinda Heights project site is located in the town of Fairfax, northeast of Sir Francis Drake Boulevard. The site consists of Marin County Parcel Numbers 001-150-12, 001-251-31, and 001-160-09. The site is situated on the Northern boundary of the 7.5 minute USGS San Rafael, California quadrangle, centered at latitude 38.59 degrees North and longitude 122.35 degrees West. Figures 1 and 2 depict the regional vicinity and location of the project site, respectively. The site is accessible via a private road located at the end of Marinda Drive and another at the end of Ridgway Avenue. The properties surrounding the site are developed, with the exception of a property to the north and southeast. All surrounding properties are designated for single-residence land use with one school located to the east of the project site.

### 5.2 TOPOGRAPHY AND SOILS

The project site ranges in elevation from approximately 200 feet to 700 feet (61 meters to 213 meters) above mean sea level and is within the Fairfax Creek/San Anselmo Creek watershed. According to the National Hydrography Dataset maintained by the U.S. Geological Survey (USGS) and the National Wetlands Inventory maintained by the USFWS, there are no existing watercourses on the site (EPA, 2016 and USFWS, 2016b).

The soil on the site, as mapped by the NRCS, is predominantly of the association: Tocaloma-Saurin, extremely steep. A smaller portion of the project site is composed of the soil series: Xerorthents-Urban land complex, 0 to 9 percent slopes (UCD & NRCS, 2016). Both of these series are considered to be normally hydric (NRCS, 2015).

### 5.3 VEGETATION COMMUNITIES

The vegetation within the project site consists of woodlands, grasslands, and scrublands. No riparian vegetation is present. The biological resources include several high-quality native vegetation communities with a strong composition of native plant species. Detailed vegetation alliance descriptions are provided in Section 6.1 below.

### 5.4 WILDLIFE

Locally common wildlife species associated with woodlands, scrublands, and grassland vegetation communities occupy the site. Species observed and/or are expected to occur on the site include black-tailed deer (*Odocoileus hemionus*), striped skunk (*Mephitis mephitis*), northern raccoon (*Procyon lotor*), Virginia opossum (*Didelphis virginiana*), western fence lizard (*Sceloporus occidentalis*), red-tailed hawk (*Buteo jamaicensis*), white-crowned sparrow (*Zonotrichia leucophrys*), western scrub-jay (*Aphelocoma coerulescens*), and California towhee (*Pipilo crissalis*).

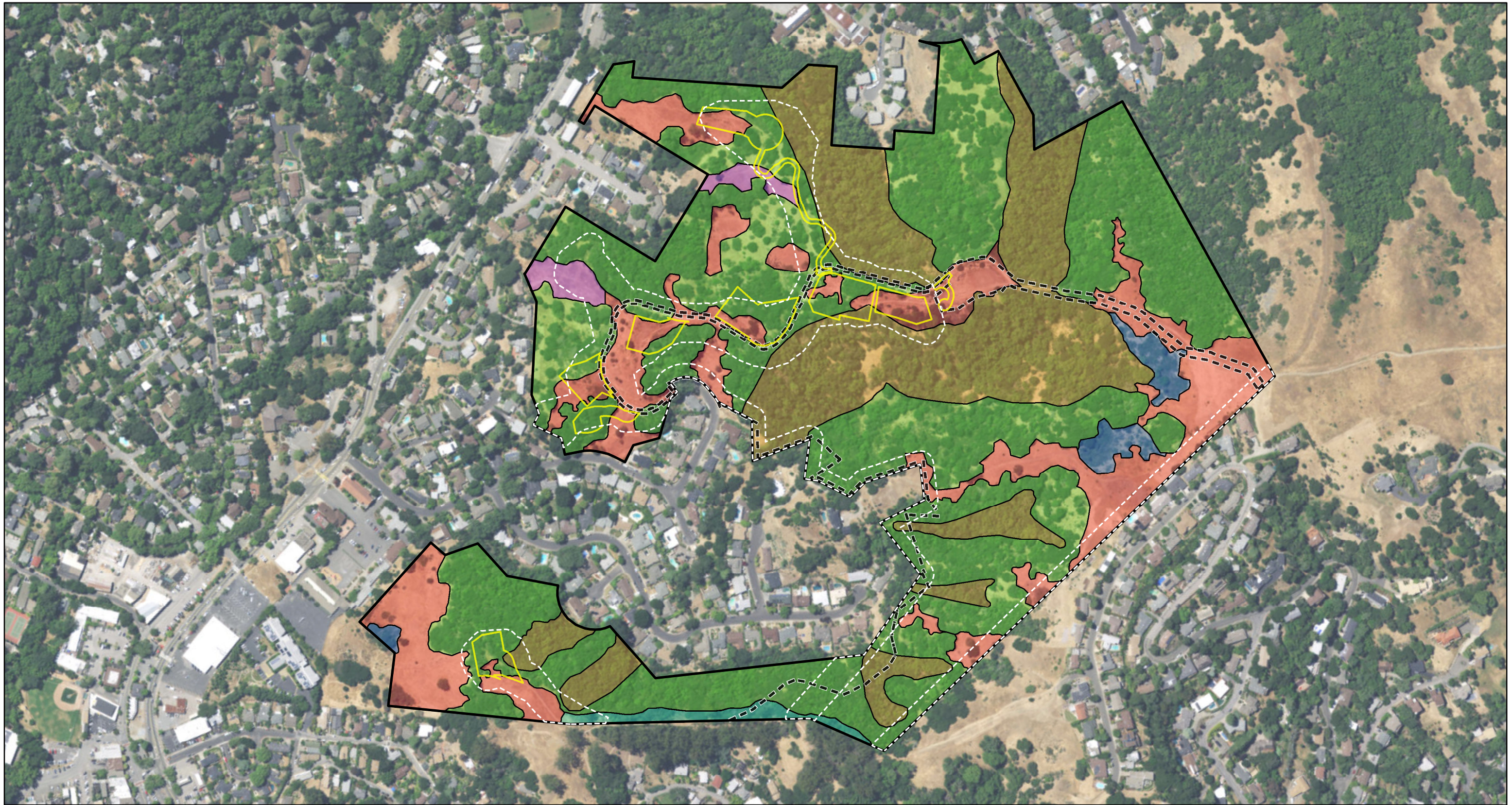
## 6.0 RESULTS

### 6.1 VEGETATION COMMUNITIES

A total of six vegetation communities were identified within the project site as depicted on Figure 3 and quantified in Table A. The vegetation types on the project site include the following CDFW vegetation alliances: California bay forest, coast live oak woodland, eucalyptus groves, chamise chaparral, wild oats grassland, and purple needle grass grassland. All associations within the California bay alliance and purple needle grass grassland are considered sensitive natural communities, so these alliances were not mapped to the association level. Eucalyptus groves and wild oats grassland have no sensitive associations and were also not mapped to the association level. Coast live oak woodland and chamise chaparral both have one or more association that is considered sensitive; therefore, these alliances were identified to the association level. All vegetation alliances and associations (when appropriate) are broken down into acres within the project footprint and acres within the rare plant survey area.

**Table A: Vegetation Communities Observed within the Project Site**

CDFW Vegetation Classification		Acres within Rare Plant Survey Area	Total Acres
Vegetation Alliance	Vegetation Association		
<b>Forests and Woodlands</b>			
*California Bay Forest ( <i>Umbellularia californica</i> Forest)	--	2.73	24.79
Coast Live Oak Woodland ( <i>Quercus agrifolia</i> Woodland)	Coast Live Oak–California Bay/Poison Oak Woodland ( <i>Quercus agrifolia</i> – <i>Umbellularia californica</i> / <i>Toxicodendron diversilobum</i> Woodland)	11.11	52.30
Eucalyptus Groves ( <i>Eucalyptus</i> sp. Semi-Natural Woodland Stands)	--	0.20	1.10
<b>Shrublands</b>			
Chamise Chaparral ( <i>Adenostoma fasciculatum</i> Shrubland)	Chamise/Annual Grass–forb ( <i>Adenostoma fasciculatum</i> /annual grass–forb)	0.00	1.78
<b>Herbaceous Vegetation</b>			
Wild Oats Grassland ( <i>Avena barbata</i> Semi-Natural Herbaceous Stands)	--	6.49	18.81
*Purple Needle Grass Grassland ( <i>Nassella [Stipa] pulchra</i> Herbaceous Alliance)	*Purple Needle grass grassland–Wild Oats–Annual Brome Grassland ( <i>Nassella pulchra</i> – <i>Avena</i> spp.– <i>Bromus</i> spp.)	0.66	1.32
<b>TOTAL</b>		21.19	100.10



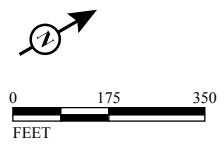
LSA

LEGEND

- Project Boundary - 100.1 ac.
- Survey Area
- Grading Footprint
- Trail (Existing)

Vegetation Cover

- |                         |                               |
|-------------------------|-------------------------------|
| California Bay Forest   | Eucalyptus Grove              |
| Chamise Chaparral Coast | Purple Needle Grass Grassland |
| Live Oak Woodland       | Wild Oats Grassland           |



SOURCE: ESRI Aerial Basemap

F:\MRN1601\GIS\Maps\Figure 3\_Vegetation Cover.mxd (7/20/2017)

FIGURE 3

*Marinda Heights  
Marin County, California  
Vegetation Cover*

### **6.1.1 California Bay Forest (*Umbellularia californica* Forest Alliance)**

California bay forest covers approximately 24.79 acres within the project site and 2.73 acres within the rare plant survey area. The dominant species within this alliance is California bay. This alliance can also include a variety of other tree species in the canopy layer. Within the project site, other tree species found in the California bay forest include coast live oak (*Quercus agrifolia* var. *agrifolia*), Pacific madrone (*Arbutus menziesii*), and big-leaf maple (*Acer macrophyllum*). Common species in the understory are sticky monkey flower (*Mimulus aurantiacus*), coyote brush (*Baccharis pilularis* ssp. *consanguinea*), and chamise (*Adenostoma fasciculatum*). The herbaceous component of the understory varies from sparse to complete cover. Within the project site, large areas of the understory consist of fallen oak leaves. This forest alliance predominantly occurs on steep, north-facing slopes. Wildlife species typically associated with California bay forest include several bird species, such as California towhee, spotted towhee, California thrasher, Bewick's wren, and western scrub-jay. This habitat also provides cover and forage for mammal species, including California ground squirrel and mule deer. Gopher snake and western fence lizard are also commonly found in this habitat. The California bay forest alliance and all of its associations are considered sensitive natural communities by CDFW.

### **6.1.2 Coast Live Oak–California Bay/Poison Oak Woodland (*Quercus agrifolia*–*Umbellularia californica*/*Toxicodendron diversilobum* Woodland Association)**

The coast live oak–California bay/poison oak woodland alliance covers 52.30 acres within the project site and 11.11 acres within the rare plant survey area, and is the most dominant vegetation type within the project site. This alliance is dominated by coast live oak with a variety of co-dominant or co-occurring species (e.g. big-leaf maple, madrone, etc.), with the composition of these species varying depending upon the specific vegetation association. Within the project site, California bay is the next most dominant tree species after coast live oak, but represents less than 20% of the relative cover in the tree canopy, and poison oak is the dominant species in the sparse shrub layer, when present. Chamise chaparral borders the coast live oak woodlands where it transitions to grassland. Other tree species that occur in smaller numbers in this alliance include California bay and California buckeye (*Aesculus californica*). Coast live oak woodlands provide habitat for a variety of wildlife species, such as quail, wild turkey, squirrels, and southern mule deer. This vegetation association is not listed as a sensitive natural community by CDFW.

### **6.1.3 Eucalyptus Groves (*Eucalyptus* Semi-Natural Woodland Stands)**

This alliance covers 1.1 acres within the project site and 0.20 acre within the rare plant survey area. Eucalyptus groves are usually dominated by several species of eucalyptus, which are native to Australia and are considered an invasive species because of their rapid growth rate and broad cover. These trees were historically planted as windbreaks and for aesthetic/horticultural purposes around houses and other developed areas. Many eucalyptus species have become naturalized, including in riparian areas. The understory within well-established groves of eucalyptus is usually very sparse due



to the closed canopy and the allelopathic<sup>2</sup> nature of the leaf litter. Within the project site, there is one stand of blue gum (*Eucalyptus globulus*) mixed with Monterey cypress (*Hesperocyparis macrocarpa*). This stand is located at the southeastern portion of the project, along Ridgeway, and was most likely planted as a screen and windbreak for the residential area immediately downslope and southeast of the grove. The understory is sparse with scattered French broom (*Genista monspessulana*) throughout. As a wildlife habitat, these woodlands provide nesting sites for a variety of raptors. During winter migrations, a variety of warblers may be found feeding on the insects that are attracted to eucalyptus flowers. The sparse understory, however, offers limited wildlife habitat. This vegetation alliance is not listed as a sensitive natural community by CDFW.

#### **6.1.4 Chamise Chaparral/Annual Grass–Forb (*Adenostoma fasciculatum* Annual Grass-Forb Shrubland Association)**

This alliance covers 1.8 acres within the project site. Co-occurring shrubs can include a variety of species. Within the project site, these species include California sagebrush (*Artemisia californica*) common manzanita (*Arctostaphylos manzanita* subsp. *manzanita*), toyon (*Heteromeles arbutifolia*), California honeysuckle (*Lonicera hispidula*), sticky monkey flower, and poison oak. This community is often associated with soils that are shallow and dry, and often on xeric slopes and ridges. Within the project site, there is a small amount of chamise chaparral on the fringes of coast live oak woodland that transitions to annual grassland. Wildlife species typically associated with this alliance are similar to those found in California bay forest. This vegetation association is not listed as a sensitive natural community by CDFW.

#### **6.1.5 Wild Oats Grassland (*Avena barbata* Semi-Natural Herbaceous Stands)**

Wild oats grassland occurs throughout the project site, and covers 18.81 acres, with 6.49 acres within the rare plant survey area. This type of grassland is concentrated around previously established trails and disturbed areas and at the edges of the chaparral and woodlands. An area of the grasslands in the northeast portion of the project site has been mowed, most likely for fire safety for the adjacent residential area. These grasslands support a dominance of non-native species including wild oats, rattlesnake grass (*Briza maxima*), ripgut-brome (*Bromus diandrus*), and hedgehog dogtail (*Cynosurus echinatus*). The on-site grassland is too patchy and small in total area to attract wildlife species typical of grasslands that are more extensive; however, chaparral species, such as California quail and spotted towhee, often forage on the ground in grassland along chaparral edges. Wild oats grassland is not listed as a sensitive natural community by CDFW.

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<sup>2</sup> Allelopathy is a biological phenomenon that is characteristic of some plants. An allelopathic plant produces chemicals that can have a negative or positive result on neighboring organisms, including other plants.

### **6.1.6 Purple Needle Grass grassland–Slender Wild Oat–California Brome Grassland (*Nassella [Stipa] pulchra*–*Avena barbata*–*Bromus carinatus* var. *carinatus* Grassland Association)**

A small amount of purple needle grass grassland occurs in two locations in the northeastern portion of the project site. This type of grassland covers 1.32 acres within the project site, with 0.66 acre in the rare plant survey area. Purple needlegrass (*Nassella[Stipa] pulchra*) comprises 10% relative cover in the herbaceous layer. However, California brome (*Bromus carinatus* var. *carinatus*) and non-native slender wild oat co-dominate this association, with approximately 70% relative cover. Other non-native invasive grass species observed include rattlesnake grass and ripgut-brome. All associations within this alliance are considered sensitive natural communities by CDFW. As per CDFW guidance on addressing high priority vegetation types, this community does not represent a high quality stand of its type due to the presence of invasive species (e.g., slender wild oat) and excessive human disturbance.

## **6.2 SPECIAL-STATUS PLANT SPECIES**

Based on the results of the literature review, LSA developed a list of 31 special-status species that occur or may occur in the project area (Figure 4A-4D). Of these 31 species, 17 were determined to have no potential to occur due to a lack of suitable habitat within the project site (e.g., serpentine seeps, coastal prairie, etc.). The remaining 14 species have been recorded within 5 miles of the project area and could potentially occur within the project site based on the presence of suitable habitat (Table B). No special-status plant species were detected during any of the rare plant surveys, and none are expected to occur within the project site. A complete list of all plant species observed during the first round of field surveys is included in Table C, and CNDDDB species occurrences within 5 miles of the project site are depicted in Figures 4A, 4B, 4C, and 4D.

## **6.3 INVASIVE SPECIES**

There are several non-native plant species within the project site, including fifteen that are listed in the high or moderate categories on the California Invasive Plant Council's California Invasive Plant Inventory Database (Cal-IPC 2016). These species are listed in Table C.

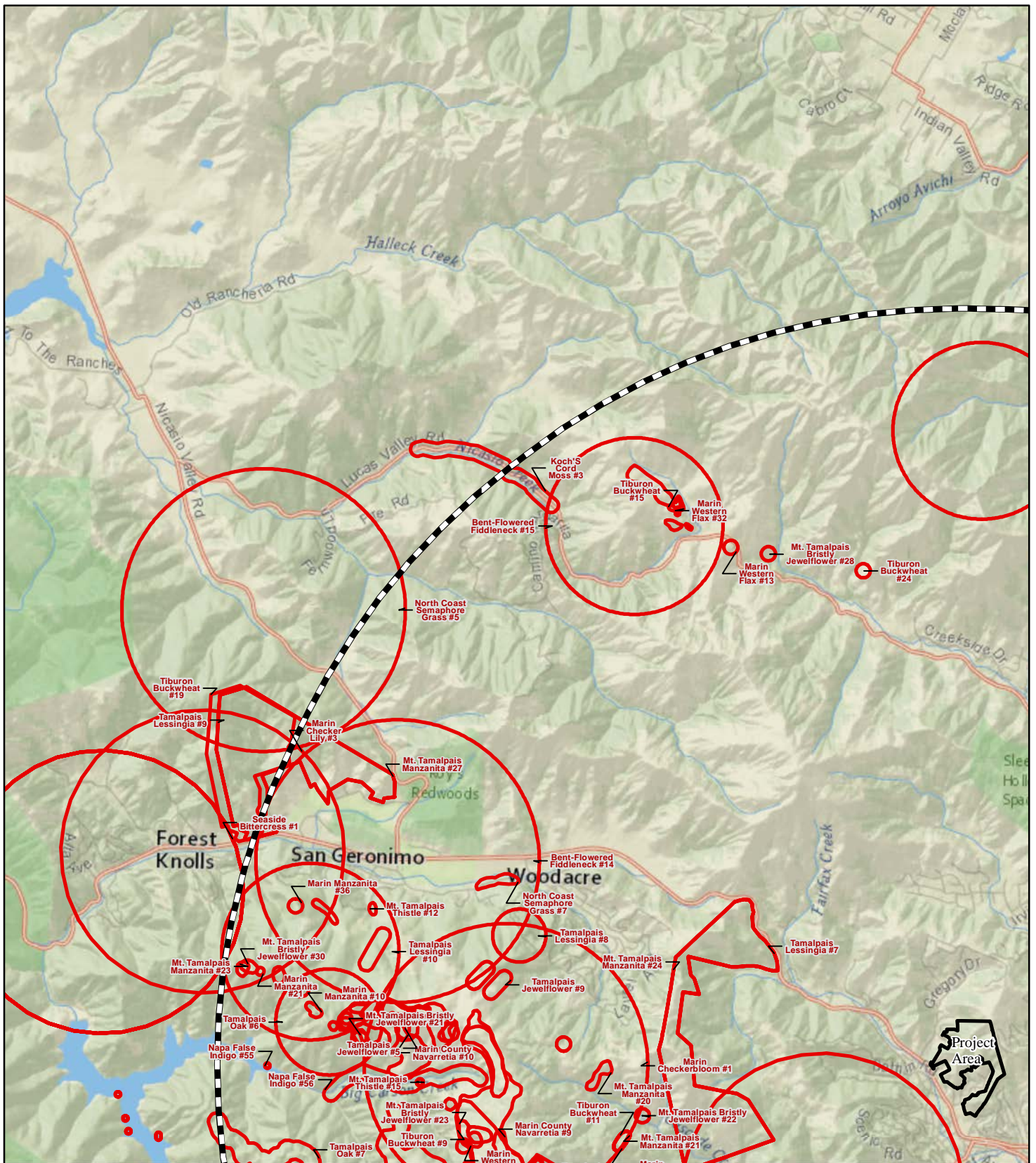


FIGURE 4A

LSA

Legend

Project Area

5-mile Buffer of Project Area

CNDDDB Occurrences - Plants

CNDDDB Sensitive Vegetation Communities

Northern Coastal Salt Marsh

Serpentine Bunchgrass



0 3834.978070175 7669.95614035  
FEET

SOURCE: CDFW CNDDB (07/31/2016).

Marinda Heights  
Marin County, California  
CNDDB Species Occurrences and Sensitive Vegetation Communities within Five Miles

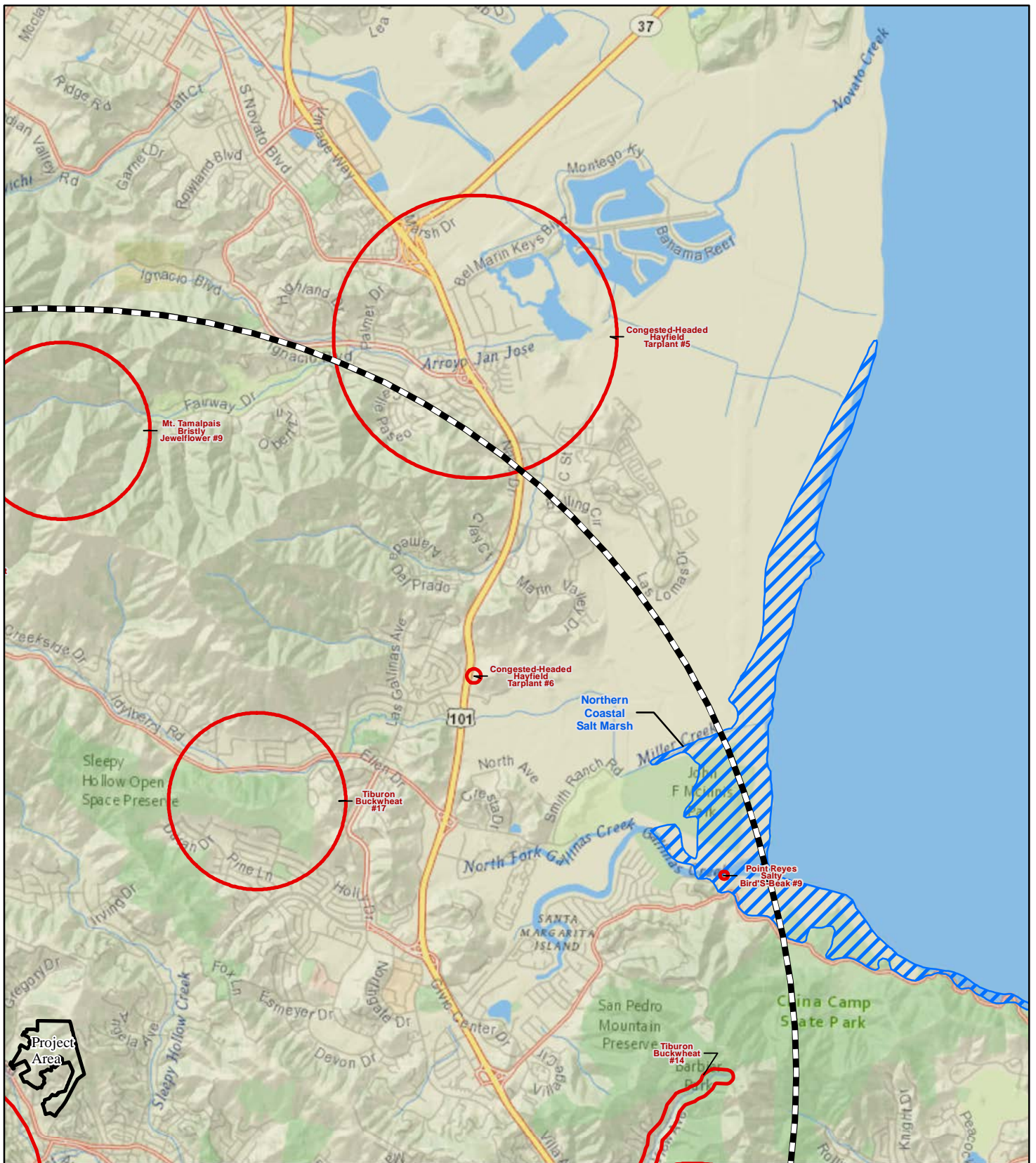
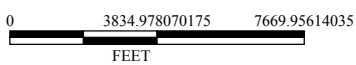


FIGURE 4B

LSA

Legend

- Project Area
- 5-mile Buffer of Project Area
- CNDDDB Occurrences - Plants
- CNDDDB Sensitive Vegetation Communities
- Northern Coastal Salt Marsh
- Serpentine Bunchgrass



SOURCE: CDFW CNDDB (07/31/2016).

F:\MRN1601\GIS\Maps\CNDDB\Plants\Figure 4\_CNDDB Species Occurrences and Sensitive Vegetation Communities within Five Miles.mxd (9/29/2016)

*Marinda Heights*  
*Marin County, California*

**CNDDB Species Occurrences and Sensitive Vegetation Communities within Five Miles**

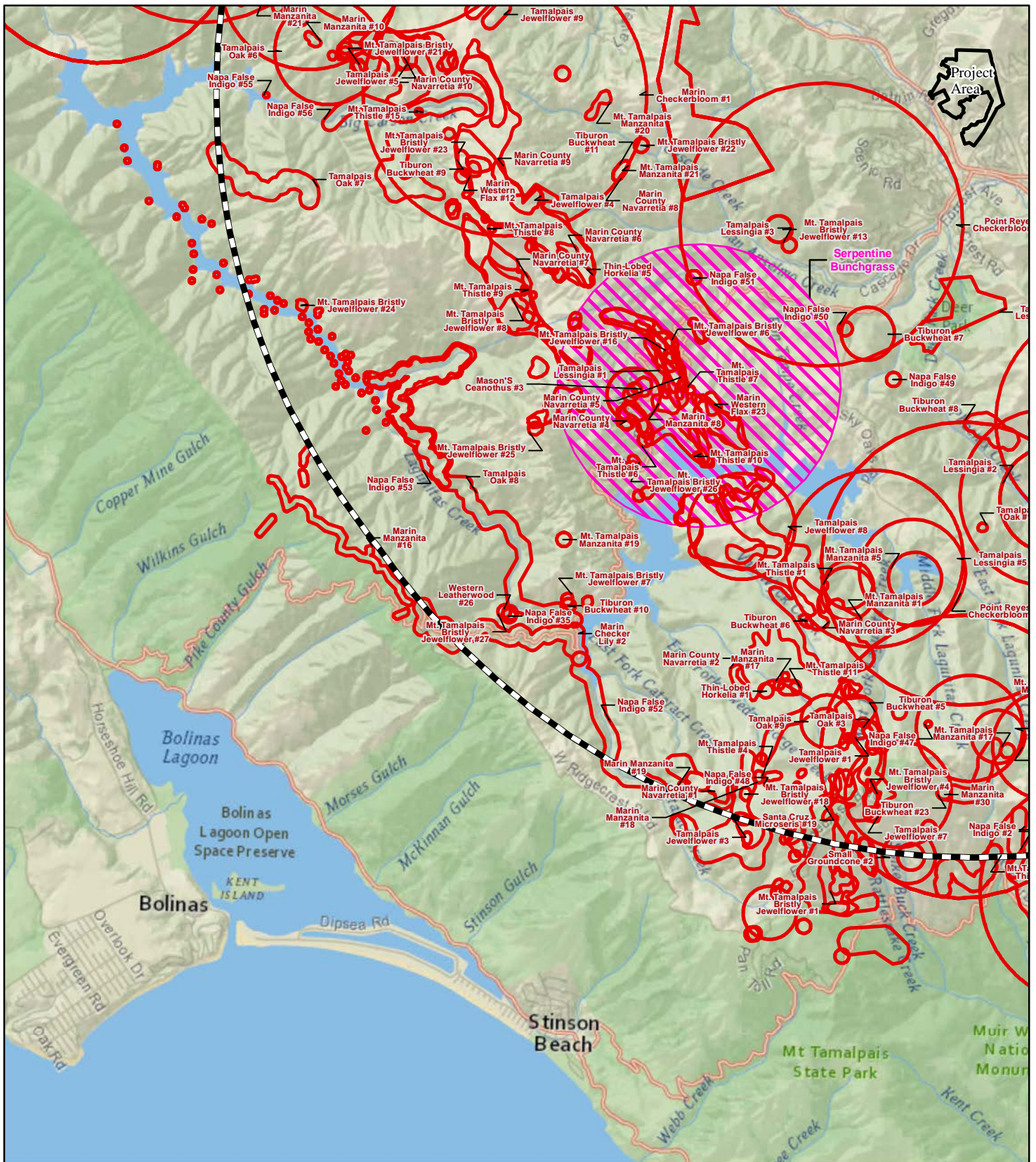






FIGURE 4C

LSA


Legend

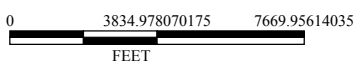
-  Project Area
-  5-mile Buffer of Project Area

 CNDDDB Occurrences - Plants

 CNDDDB Sensitive Vegetation Communities

 Northern Coastal Salt Marsh

 Serpentine Bunchgrass



SOURCE: CDFW CNDDB (07/31/2016).

Marinda Heights  
Marin County, California  
CNDDB Species Occurrences and Sensitive Vegetation Communities within Five Miles

F:\MRN1601\GIS\Maps\CNDDB\Plants\Figure 4\_ CNDDB Species Occurrences and Sensitive Vegetation Communities within Five Miles.mxd (9/29/2016)

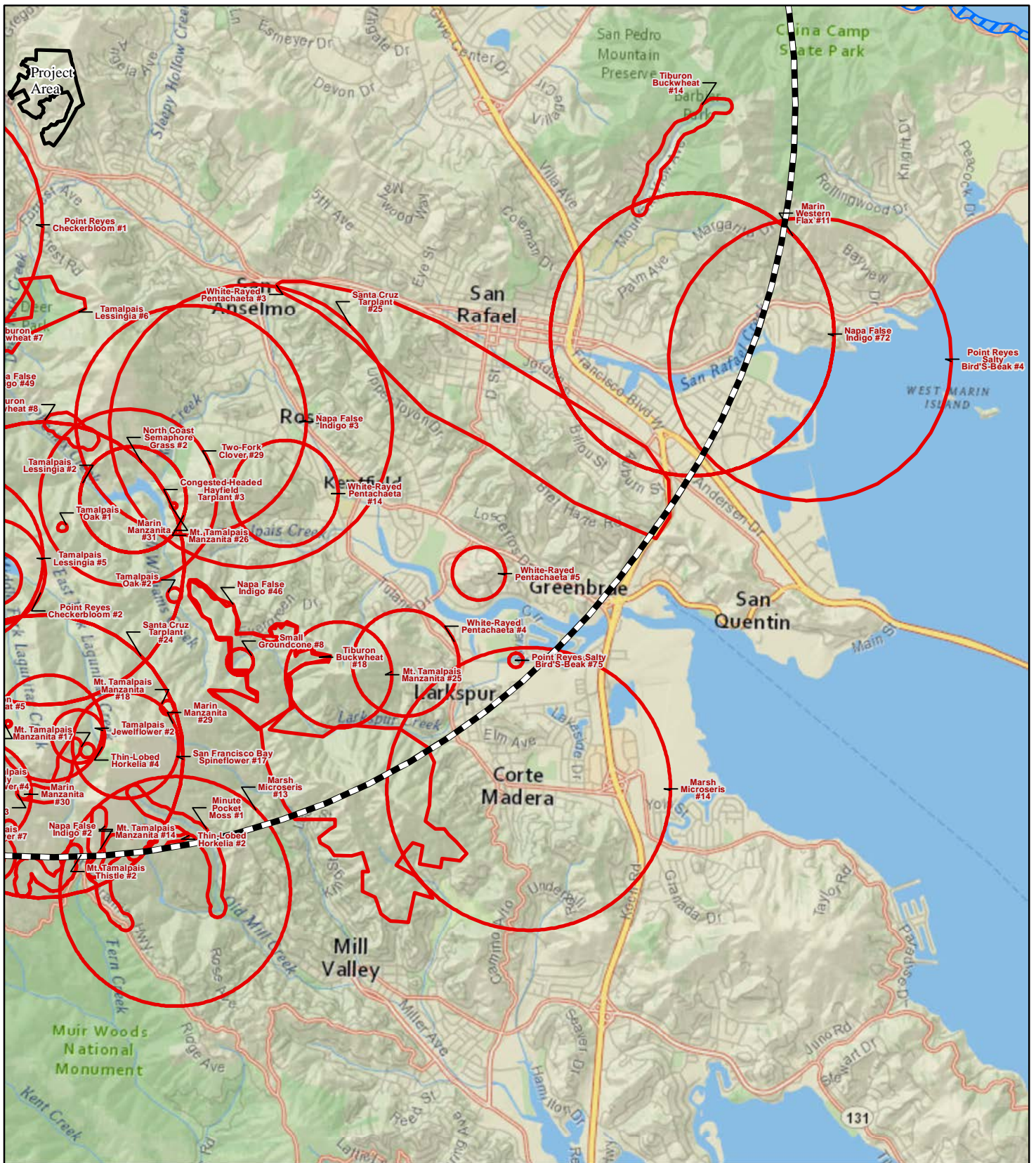





FIGURE 4D

LSA


Legend

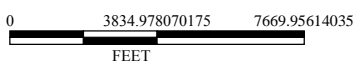
-  Project Area
-  5-mile Buffer of Project Area

 CNDDDB Occurrences - Plants

 CNDDDB Sensitive Vegetation Communities

 Northern Coastal Salt Marsh

 Serpentine Bunchgrass



SOURCE: CDFW CNDDB (07/31/2016).

F:\MRN1601\GIS\Maps\CNDDB\Plants\Figure 4\_ CNDDB Species Occurrences and Sensitive Vegetation Communities within Five Miles.mxd (9/29/2016)

Marinda Heights  
Marin County, California  
CNDDDB Species Occurrences and Sensitive Vegetation Communities within Five Miles

**Table B: Special-Status Plant Species Evaluated**

Species Name	Listing Status (Federal/ State/ CRPR) <sup>1</sup>	Habitat Requirements	Potential for Occurrence within Project Site
<b>Bryophytes</b>			
<i>Entosthodon kochii</i> Koch's cord-moss	--/--/1B.3	This species grows in soil in cismontane woodland from 591 to 3,280 feet in elevation.	Potential habitat occurs in coast live oak woodlands within the project site. There is one documented CNDDDB occurrence of Koch's cord-moss within 5 miles of the project site. The closet occurrence is approximately 4.6 miles away and is undated. This species was not observed during rare plant surveys. <b>Not observed/Not expected to occur.</b>
<b>Angiosperms – Dicots</b>			
Asteraceae (Compositae) – Sunflower Family			
<i>Hemizonia congesta</i> ssp. <i>congesta</i> Pale yellow hayfield tarplant	--/--/1B.2	This annual herb occurs in valley and foothill grassland, sometimes on roadsides, from 66 to 1,837 feet in elevation. The blooming period for this species is April-November.	Potential habitat occurs in the grasslands within the project site. There are three documented CNDDDB occurrences of pale yellow hayfield tarplant within 5 miles of the project site. The closet occurrence was documented in 1947 and is approximately 1.9 miles away. One common subspecies of <i>Hemizonia congesta</i> , <i>H. congesta</i> ssp. <i>lutescens</i> , was observed during surveys. However, the rare subspecies was not observed during appropriately-timed rare plant surveys. <b>Not observed/Not expected to occur.</b>

<sup>1</sup> Explanation of federal and State listing codes:

**Federal**

FE = Federally Endangered  
FT = Federally Threatened

**State**

SE = State Endangered  
ST = State Threatened

**California Rare Plant Rank**

1B = Rare or Endangered in California and elsewhere

**California Rare Plant Threat Codes:**

.1 = Seriously Endangered in California  
.2 = Fairly Endangered in California  
.3 = Not very Endangered in California

Species Name	Listing Status (Federal/ State/ CRPR) <sup>1</sup>	Habitat Requirements	Potential for Occurrence within Project Site
<i>Holocarpha macradenia</i> Santa Cruz tarplant	FT/SE/1B.1	This annual herb occurs on sandy or sandy-clay soils in coastal scrub, coastal prairie, and valley and foothill grassland, from 32 to 722 feet in elevation. The blooming period for this species is June–October.	Potential habitat occurs in grassland. There are two documented CNDDDB occurrences of Santa Cruz Tarplant within 5 miles of the project site. However, both of these occurrences are presumed extirpated. This species was not observed during appropriately-timed rare plant surveys. <b>Not observed/Not expected to occur.</b>
<i>Lessingia micradenia</i> var. <i>micradenia</i> Tamalpais lessingia	--/--/1B.2	This annual herb occurs on roadsides and in chaparral and valley and foothill grassland, typically in serpentine soils from 328 to 1,640 feet in elevation. The blooming period for this species is June–October.	Potential habitat occurs in grassland and chamise chaparral. However, there are no serpentine soils on site. There are nine documented CNDDDB occurrences of Tamalpais lessingia within 5 miles of the project site. The closest occurrence was documented in 2013 and is approximately 1 mile away. This species was not observed during appropriately-timed rare plant surveys. <b>Not observed/Not expected to occur.</b>
<i>Microseris paludosa</i> Marsh silverpuffs	--/--/1B.2	This perennial herb occurs in closed-cone coniferous forest, cismontane woodland, coastal scrub, and valley and foothill grassland, from sea level to 1,600 feet in elevation. The blooming period for this species is April–July.	Potential habitat occurs in coast live oak woodland and grassland. There are two documented CNDDDB occurrences of marsh silverpuffs within 5 miles of the project site. The closest occurrence was last documented in 1944 and is approximately 4.5 miles away. This species was not observed during appropriately-timed rare plant surveys. <b>Not observed/Not expected to occur.</b>
<i>Pentachaeta bellidiflora</i> White-rayed pentachaeta	--/--/1B.1	This annual herb occurs in cismontane woodland and valley and foothill grassland, often in serpentine soils, from 115 to 2,034 feet in elevation. The blooming period for this species is March–May.	Potential habitat occurs in grassland and coast live oak woodland. There are four documented CNDDDB occurrences of white-rayed pentachaeta within 5 miles of the project site, three of which are presumed extirpated. The one extant occurrence was last documented in 1912 and is approximately 2.5 miles away. This species was not observed during appropriately-timed rare plant surveys. <b>Not observed/Not expected to occur.</b>



Species Name	Listing Status (Federal/ State/ CRPR) <sup>1</sup>	Habitat Requirements	Potential for Occurrence within Project Site
<i>Stebbinsoseris decipiens</i> Santa Cruz silverpuffs	--/--/1B.2	This annual herb occurs in open areas in broadleaved upland forest, closed-cone coniferous forest, chaparral, coastal prairie, coastal scrub, and valley and foothill grassland, between sea level and 1,600 feet in elevation. The blooming period for this species is April-May.	Potential habitat occurs in grassland, chamise chaparral, and coast live oak woodland. There is one documented CNDDDB occurrence of Santa Cruz silverpuffs within 5 miles of the project site. This occurrence was last documented in 2002 and is approximately 4.5 miles away. This species was not observed during appropriately-timed rare plant surveys. <b>Not observed/Not expected to occur.</b>
Boraginaceae – Borage Family			
<i>Amsinckia lunaris</i> Bent-flowered fiddleneck	--/--/1B.2	This annual herb occurs in coastal bluff scrub, cismontane woodland, and valley and foothill grassland below 1,650 feet in elevation. The blooming period for this species is March-June.	Potential habitat occurs in grassland and coast live oak woodland. There are two documented CNDDDB occurrences of bent-flowered fiddleneck within 5 miles of the project site. The closest occurrence was last documented in 1927 and is approximately 3.0 miles away. This species was not observed during appropriately-timed rare plant surveys. <b>Not observed/Not expected to occur.</b>
Ericaceae – Heath Family			
<i>Arctostaphylos virgata</i> Marin manzanita	--/--/1B.2	This perennial evergreen shrub occurs in broad-leaved upland forest, closed-cone coniferous forest, chaparral, and north coast coniferous forest on sandstone or granitic soils. Its known range is 197 to 2,297 feet in elevation. The blooming period for this species is January-March.	Potential habitat occurs in grassland and chamise chaparral. There are 11 documented CNDDDB occurrences of Marin manzanita within 5 miles of the project site. The closest occurrence was last documented in 2005 and is approximately 2.7 miles away. Manzanita species are typically large, always evergreen shrubs that are easily detectable and identifiable year-round. One individual manzanita was observed during the surveys, <i>Arctostaphylos manzanita</i> subsp. <i>manzanita</i> , common manzanita. No other manzanitas were observed during rare plant surveys. <b>Not observed/Not expected to occur.</b>

Species Name	Listing Status (Federal/ State/ CRPR) <sup>1</sup>	Habitat Requirements	Potential for Occurrence within Project Site
Fabaceae (Leguminosae) – Legume Family			
<i>Amorpha californica napensis</i> Napa false indigo	--/--/1B.2	This perennial deciduous shrub occurs in openings in broadleaved upland forest, chaparral, and cismontane woodland from 492 to 6,562 feet in elevation. The blooming period for this species is April-July.	Potential habitat occurs in California bay forest, coast live oak woodland, and chamise chaparral. There are 15 documented CNDDDB occurrences of Napa false indigo within 5 miles of the project site. The closest occurrence was last documented in 1924 and is approximately 1.4 miles away. This species was not observed during appropriately-timed rare plant surveys. <b>Not observed/Not expected to occur.</b>
<i>Trifolium amoenum</i> Showy Indian clover	FE/--/1B.1	This annual herb occurs in coastal bluff scrub and valley and foothill grassland, sometimes in serpentine soils, from 16 to 1,362 feet in elevation. The blooming period for this species is April-June.	Potential habitat occurs in grasslands within the project site. There is one documented CNDDDB occurrence of showy Indian clover within 5 miles of the project site. This occurrence was last documented in 1933 and is approximately 1.9 miles away. This species was not observed during appropriately-timed rare plant surveys. <b>Not observed/Not expected to occur.</b>
Rosaceae –Rose Family			
<i>Horkelia tenuiloba</i> Thin-lobed horkelia	--/--/1B.2	This perennial herb occurs in mesic openings in sandy soils in chaparral, broadleaved upland forest, and valley and foothill grassland from 164 to 1,640 feet in elevation. The blooming period for this species is May-August.	Potential habitat occurs in chamise chaparral, coast live oak woodland, and grassland within the project site. There are four documented occurrences of thin-lobed horkelia in CNDDDB within 5 miles of the project site. The closest occurrence was last documented in 1990 and is approximately 2.7 miles away. This species was not observed during appropriately-timed rare plant surveys. <b>Not observed/Not expected to occur.</b>
Thymelaeaceae –Daphne Family			
<i>Dirca occidentalis</i> Western leatherwood	--/--/1B.2	This perennial deciduous shrub occurs in broadleaved upland forest, closed cone upland forest, chaparral, north coast coniferous forest, riparian forest, riparian woodland, and cismontane woodland, from 150 to 1,394 feet in elevation. The blooming period for this species is January-April.	Potential habitat occurs in California bay forest, chamise chaparral, and coast live oak woodland. There are two documented CNDDDB occurrences of western leatherwood within 5 miles of the project site. The closest occurrence was last documented in 1990 and is approximately 4.5 miles away. This species was not observed during appropriately-timed rare plant surveys. <b>Not observed/Not expected to occur.</b>

Species Name	Listing Status (Federal/ State/ CRPR) <sup>1</sup>	Habitat Requirements	Potential for Occurrence within Project Site
<b>Angiosperms – Monocots</b>			
Poaceae –Grass Family			
<i>Pleuropogon hooverianus</i> North coast semaphore grass	--/ST/1B.1	This perennial rhizomatous herb occurs in open and mesic areas in broadleaved upland forest, meadows and seeps, and north coast coniferous forest from 33 to 2,201 feet in elevation. The blooming period for this species is April-August.	Potential habitat occurs in California bay forest within the project site. There are four documented CNDDDB occurrences of North Coast semaphore grass within 5 miles of the project site. The closest occurrence was last documented in 2013 and is approximately 3.2 miles away. This species was not observed during appropriately-timed rare plant surveys. <b>Not observed/Not expected to occur.</b>

**Table C: Plant Species Observed within the Project Site**

**Lichens**

*Ramalina* sp. Ramalina

**Ferns and Allies**

Dennstaedtiaceae - Bracken Family

*Pteridium aquilinum* var. *pubescens* Bracken fern

Dryopteridaceae - Wood Fern Family

*Dryopteris arguta* Wood fern

Pteridaceae - Brake Family

*Adiantum jordanii* California maidenhair fern

*Pentagramma triangularis* Goldback fern

Woodsiaceae - Woodsia Family

*Athyrium filix-femina* var. *cyclosorum* Western lady fern

**Gymnosperms**

Cupressaceae - Cypress Family

*Hesperocyparis macrocarpa* Monterey cypress

Pinaceae - Pine Family

\**Pinus halepensis* Aleppo pine

\**Pinus pinea* Italian stone pine

*Pinus radiata* Monterey pine

*Pseudotsuga menziesii* var. *menziesii* Douglas-fir

**Angiosperms - Dicots**

Anacardiaceae - Cashew or Sumac Family

*Toxicodendron diversilobum* Western poison-oak

Apiaceae (Umbelliferae) - Carrot Family

\**Foeniculum vulgare* Sweet fennel

*Heracleum maximum* American cow-parsnip

*Lomatium dasycarpum* subsp. *dasycarpum* Lace parsnip

*Osmorhiza* sp. Sweet cicely

*Perideridia kelloggii* Kellogg's yampah

*Sanicula bipinnatifida* Purple sanicle

*Sanicula crassicaulis* Gamble weed

\**Torilis arvensis* Knot hedge-parsley

Aristolochiaceae - Pipevine Family

*Aristolochia californica* California pipevine

Asteraceae (Compositae) - Sunflower Family

*Achillea millefolium* Common yarrow

*Artemisia californica* California sagebrush

*Artemisia douglasiana* Douglas' mugwort

*Baccharis pilularis* subsp. *consanguinea* Coyote brush

\**Carduus pycnocephalus* subsp. *pycnocephalus* Italian thistle

\**Centaurea solstitialis* Yellow starthistle

*Eurybia radulina* Broad-leaf aster

*Grindelia camporum* Great Valley gumplant

*Hemizonia congesta* subsp. *lutescens* Tarweed

*Heterotheca sessiliflora* subsp. *bolanderi* Bolander's goldenaster

<i>*<sup>†</sup>Hirschfeldia incana</i>	Short-podded mustard
<i>*Hypochaeris radicata</i>	Rough cat's-ear
<i>*Lactuca serriola</i>	Prickly lettuce
<i>*Logfia gallica</i>	Narrowleaf cottonrose
<i>Madia gracilis</i>	Slender tarweed
<i>*Matricaria discoidea</i>	Pineapple-weed
<i>Micropus californicus</i> var. <i>californicus</i>	Cottontop
<i>Pseudognaphalium californicum</i>	California everlasting
<i>*Soliva sessilis</i>	Field burrweed
<i>Wyethia</i> sp.	Mule's ears
<b>Boraginaceae - Borage Family</b>	
<i>Amsinckia intermedia</i>	Common fiddleneck
<i>Cynoglossum</i> sp.	
<i>Plagiobothrys nothofulvus</i>	Rusty popcornflower
<b>Brassicaceae (Cruciferae) - Mustard Family</b>	
<i>Cardamine californica</i>	Milk maids
<i>*Hirschfeldia incana</i>	Short-podded mustard
<b>Caprifoliaceae - Honeysuckle Family</b>	
<i>Lonicera hispidula</i>	California honeysuckle
<b>Caryophyllaceae - Pink Family</b>	
<i>*Cerastium glomeratum</i>	Sticky mouse-ear chickweed
<i>*Silene gallica</i>	Small-flower catchfly
<b>Crassulaceae - Stonecrop Family</b>	
<i>Crassula connata</i>	Sand pygmy-weed
<i>Dudleya</i> sp.	Dudleya
<b>Ericaceae - Heath Family</b>	
<i>Arbutus menziesii</i>	Madrone
<i>Arctostaphylos manzanita</i> subsp. <i>manzanita</i>	Common manzanita
<b>Euphorbiaceae - Spurge Family</b>	
<i>Croton setigerus</i>	Turkey mullein
<b>Fabaceae (Leguminosae) - Legume Family</b>	
<i>*Acacia dealbata</i>	Silver wattle
<i>*Acacia melanoxylon</i>	Blackwood acacia
<i>Acmispon americanus</i> var. <i>americanus</i>	Spanish lotus
<i>Acmispon brachycarpus</i>	Woolly trefoil
<i>Acmispon glaber</i>	
<i>Astragalus gambelianus</i>	Gambel's milkvetch
<i>*Genista monspessulana</i>	French broom
<i>Lathyrus vestitus</i>	
<i>Lupinus bicolor</i>	Miniature lupine
<i>Lupinus nanus</i>	Sky lupine
<i>Lupinus succulentus</i>	Arroyo lupine
<i>*Medicago lupulina</i>	Black medick
<i>Trifolium depauperatum</i> var. <i>amplectens</i>	Pale sack clover
<i>*Trifolium hirtum</i>	Rose clover
<i>*Trifolium subterraneum</i>	Subterranean clover
<i>Trifolium willdenovii</i>	Tomcat clover
<i>*Vicia benghalensis</i>	Purple vetch
<i>*Vicia sativa</i>	Common vetch
<b>Fagaceae - Oak Family</b>	
<i>Quercus agrifolia</i> var. <i>agrifolia</i>	Coast live oak
<i>Quercus garryana</i> var. <i>garryana</i>	Garry oak
<i>Quercus kelloggii</i>	California black oak
<i>Quercus lobata</i>	Valley oak
<b>Gentianaceae - Gentian Family</b>	

<i>Cicendia quadrangularis</i>	Oregon timwort
Geraniaceae - Geranium Family	
* <i>Erodium botrys</i>	Broad-leaf filaree
* <i>Erodium cicutarium</i>	Red-stem filaree
* <i>Geranium dissectum</i>	Cut-leaf geranium
* <i>Geranium molle</i>	Dove's-foot geranium
Lamiaceae (Labiatae) - Mint Family	
<i>Monardella villosa</i>	Coyote mint
<i>Stachys rigida</i> var. <i>quercetorum</i>	Rough hedgenettle
Lauraceae - Laurel Family	
<i>Umbellularia californica</i>	California bay
Montiaceae - Miner's Lettuce Family	
<i>Claytonia perfoliata</i> subsp. <i>perfoliata</i>	Miner's lettuce
Myrsinaceae - Myrsine Family	
* <i>Lysimachia arvensis</i>	Scarlet pimpernel
Myrtaceae - Myrtle Family	
* <i>Eucalyptus globulus</i>	Blue gum
Onagraceae - Evening Primrose Family	
<i>Clarkia purpurea</i> subsp. <i>quadrivulnera</i>	Four spot
<i>Taraxia ovata</i>	Sun cup
Orobanchaceae - Broomrape Family	
* <i>Bellardia trixago</i>	Mediterranean linseed
<i>Castilleja attenuata</i>	Valley tassels
<i>Castilleja exserta</i> subsp. <i>exserta</i>	Purple owl's-clover
<i>Cordylanthus pilosus</i> ssp. <i>pilosus</i>	Bird's-beak
Oxalidaceae - Oxalis Family	
* <i>Oxalis micrantha</i>	Dwarf wood-sorrel
* <i>Oxalis pes-caprae</i>	Bermuda buttercup
Papaveraceae - Poppy Family	
<i>Eschscholzia californica</i>	California poppy
Phrymaceae - Lopseed Family	
<i>Mimulus aurantiacus</i>	sticky monkeyflower
Plantaginaceae - Plantain Family	
<i>Plantago erecta</i>	California plantain
* <i>Plantago lanceolata</i>	English plantain
Polygonaceae - Buckwheat Family	
<i>Eriogonum nudum</i>	Naked wild buckwheat
Ranunculaceae - Buttercup Family	
<i>Ranunculus californicus</i>	California buttercup
Rosaceae - Rose Family	
<i>Adenostoma fasciculatum</i>	Chamise
* <i>Cotoneaster franchetii</i>	Franchet's cotoneaster
* <i>Crataegus monogyna</i>	English hawthorn
<i>Heteromeles arbutifolia</i>	Toyon
Rubiaceae - Madder Family	
<i>Galium aparine</i>	Goose grass
<i>Galium porrigens</i> var. <i>porrigens</i>	Climbing bedstraw
Sapindaceae - Soapberry Family	

*Acer macrophyllum* Big-leaf maple  
*Aesculus californica* California buckeye

**Angiosperms -Monocots**

Agavaceae - Agave Family  
*Chlorogalum pomeridianum* var. *pomeridianum* Soap plant

Alliaceae - Onion Family  
*\*Allium triquetrum* Three-cornered leek

Amaryllidaceae - Amaryllis Family  
*\*Amaryllis belladonna* Naked ladies

Araceae - Arum Family  
*\*Zantedeschia aethiopica* Calla-lily

Iridaceae - Iris Family  
*Iris macrosiphon* Ground iris  
*Sisyrinchium bellum* Western blue-eyed grass

Juncaceae - Rush Family  
*Juncus bufonius* Toad rush

Poaceae (Gramineae) - Grass Family  
*\*Aira caryophylla* Silver European hairgrass  
*\*<sup>‡</sup>Avena barbata* Slender wild oat  
*\*Brachypodium distachyon* Purple falsebrome  
*\*Briza maxima* Rattlesnake grass  
*\*Briza minor* Small quaking grass  
*Bromus carinatus* var. *carinatus* California brome  
*\*<sup>‡</sup>Bromus diandrus* Ripgut grass  
*\*Bromus hordeaceus* Soft chess  
*\*<sup>‡</sup>Cynosurus echinatus* Hedgehog dogtail  
*\*Ehrharta erecta* Panic veldt grass  
*Elymus glaucus* Blue wildrye  
*\*Festuca myuros* Rattail sixweeks grass  
*Hordeum brachyantherum* subsp. *brachyantherum* Northern barley  
*Koeleria macrantha* Junegrass  
*Melica* sp. Melicgrass  
*Stipa pulchra* Purple needlegrass

Themidaceae - Brodiaea Family  
*Dichelostemma congestum* Forktoothed ookow  
*Triteleia laxa* Ithuriel's spear

<sup>‡</sup>non-native species, <sup>‡</sup>noxious weed

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