

The following recommendations were made by Dr. Christopher DiVittorio, a biologist and restoration specialist at Pinecrest Environmental Consulting. Dr. DiVittorio has published papers on native species restoration in Northern California, worked on restoration of riparian forests in salmonid-bearing streams, and also worked as an agricultural specialist at a University of California Agricultural Research Station for several years.

The natural community of the flat portions of the site were historically oak woodland. These floodplain forests have traditionally been cleared for grazing, as they are not appropriate for farmland including row crops and orchards due to the high proportion of large cobbles. The cobbles and large rocks were deposited during Pleistocene (e.g. 10,000 years ago) when the area was frequently inundated and since then has become overlain with a thin mantle of soil, however this is not prime farmland and in the past contained primarily oak trees.

An appropriate restoration of the habitat along the highway corridor could be provided by installing a combination of native shrubs and trees from a nursery that specializes in locally-sourced genotypes. Appropriate species for this habitat and that can be found commonly at native plant nurseries include common manzanita (*Arctostaphylos manzanita*), hoary manzanita (*Arctostaphylos canescens*), whiteleaf manzanita (*Arctostaphylos viscida*), buck brush (*Ceanothus cuneatus*), deerbrush (*Ceanothus integerrimus*), and tanoak (*Notholithocarpus densiflorus*). Appropriate trees to plant include Coast live oak (*Quercus agrifolia*), Valley oak (*Quercus lobata*), Black oak (*Quercus kelloggii*), Douglas fir (*Pseudotsuga menziesii*), California bay (*Umbellularia californica*), Madroño (*Arbutus menziesii*), and Ponderosa pine (*Pinus ponderosa*).

Installation of these species in a natural configuration along the highway would improve both habitat values for wildlife and contribute to the restoration of the vegetation that would be naturally occurring at the site. Pinecrest is happy to assist with the selection and sourcing of appropriate native plants and can also assist with realistic looking planting diagrams.

# **BIOLOGICAL ASSESSMENT**

**23180 SHADY GROVE ROAD [APN 014-006-16]  
LAKE COUNTY, CALIFORNIA**

**SUBMITTED TO:**

Lake County Planning Consultants  
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Middletown, California 95461

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PROJECT № LAK008



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## TABLE OF CONTENTS

<b>1.0 INTRODUCTION .....</b>	<b>3</b>
1.1 PURPOSE.....	3
1.2 LOCATION .....	3
1.2.1 Site Overview.....	3
1.2.2 Critical Habitat .....	3
1.2.3 Special-Status Species Occurrences .....	4
1.2.4 Landforms & Water Features .....	5
1.2.5 Existing Structures.....	6
1.2.6 Regional Land Uses .....	6
1.3 METHODS.....	7
1.3.1 Records Search & Literature Review.....	7
1.3.2 Field Surveys .....	7
<b>2.0 RESULTS .....</b>	<b>8</b>
2.1 NATURAL COMMUNITIES IN THE EVALUATION AREA .....	8
2.2 NATURAL COMMUNITIES WITHIN THE PROJECT SITE.....	8
2.2.1 Mixed Quercus-Pinus-Arctostaphylos Woodland .....	8
2.2.2 Annual Bromus-Cynosurus Grassland.....	9
2.2.3 Riparian Corridor .....	9
2.3 WILDLIFE.....	9
2.4 SOILS & GEOMORPHOLOGY .....	10
<b>3.0 SUMMARY &amp; CONCLUSIONS .....</b>	<b>11</b>
<b>4.0 REGULATORY FRAMEWORK.....</b>	<b>12</b>
4.1 FEDERAL ENDANGERED SPECIES ACT .....	12
4.2 CALIFORNIA ENDANGERED SPECIES ACT.....	12
4.3 CALIFORNIA ENVIRONMENTAL QUALITY ACT .....	12
4.4 CLEAN WATER ACT.....	13
4.5 CALIFORNIA WATER QUALITY REGULATORY PROGRAMS .....	13
<b>5.0 REFERENCES.....</b>	<b>14</b>

<b>FIGURE 1: REGIONAL LOCATION .....</b>	<b>15</b>
<b>FIGURE 2: 40 FOOT CONTOURS .....</b>	<b>16</b>
<b>FIGURE 3: WATER FEATURES OVERVIEW .....</b>	<b>17</b>
<b>FIGURE 4: PHOTOGRAPH OF WATER FEATURES WEST .....</b>	<b>18</b>
<b>FIGURE 5: PHOTOGRAPH OF WATER FEATURES EAST .....</b>	<b>19</b>
<b>FIGURE 6: PHOTOGRAPH OF ACCESS GATE .....</b>	<b>20</b>
<b>FIGURE 7: PHOTOGRAPH OF DRIVEWAY .....</b>	<b>21</b>
<b>FIGURE 8: PHOTOGRAPH OF RESIDENCE .....</b>	<b>22</b>
<b>FIGURE 9: PHOTOGRAPH OF WELL &amp; WATER STORAGE .....</b>	<b>23</b>
<b>FIGURE 10: PHOTOGRAPH OF TRIPLE CULVERT .....</b>	<b>24</b>
<b>FIGURE 11: PHOTOGRAPH OF BRIDGE .....</b>	<b>25</b>
<b>FIGURE 12: PHOTOGRAPH OF CLASS I ST. HELENA CREEK.....</b>	<b>26</b>
<b>FIGURE 13: PHOTOGRAPH OF UNNAMED CLASS II WATERCOURSE.....</b>	<b>27</b>
<b>FIGURE 14: PHOTOGRAPH OF CLASS III WATERCOURSE .....</b>	<b>28</b>
<b>FIGURE 15: PHOTOGRAPH OF POND A.....</b>	<b>29</b>
<b>FIGURE 16: PHOTOGRAPH OF SWALE.....</b>	<b>30</b>
<b>FIGURE 17: PHOTOGRAPH OF POND B .....</b>	<b>31</b>
<b>FIGURE 18: PHOTOGRAPH POTENTIAL CULTIVATION AREA .....</b>	<b>32</b>
<b>FIGURE 19: PHOTOGRAPH OF POTENTIAL CULTIVATION AREA.....</b>	<b>33</b>
<b>APPENDIX A: SPECIAL-STATUS SPECIES CONSIDERED .....</b>	<b>34</b>
<b>APPENDIX B: SPECIES ENCOUNTERED .....</b>	<b>51</b>
<b>APPENDIX C: CNDDB OCCURRENCES MAP .....</b>	<b>54</b>
<b>APPENDIX D: MAP OF FEDERAL CRITICAL HABITAT .....</b>	<b>55</b>
<b>APPENDIX E: CANNABIS CULTIVATION BEST MANAGEMENT PRACTICES.....</b>	<b>56</b>
E.1 CANNABIS CULTIVATION.....	56
E.2 EROSION & SEDIMENT CONTROL.....	58
E.3 WATER USE & POLLUTION .....	60
E.4 ROAD MAINTENANCE & GENERAL CONSTRUCTION.....	62
E.5 SWALE & VEGETATION MANAGEMENT .....	64
E.6 IRRIGATION & CULTIVATION MANAGEMENT .....	65
<b>APPENDIX F: STREAM CLASSIFICATION CRITERIA.....</b>	<b>68</b>
<b>APPENDIX G: REGIONAL NSO OCCURRENCES.....</b>	<b>69</b>
<b>APPENDIX H: AVOIDANCE &amp; MINIMIZATION MEASURES FOR FYLF &amp; NSO .....</b>	<b>70</b>

## 1.0 INTRODUCTION

### 1.1 PURPOSE

The purpose of this reconnaissance-level Biological Assessment (BA) is to evaluate the existence of special-status species (SSS) and/or habitats, as well as assess the potential for SSS listed in Appendix A to occur on or near the site of commercial cultivation activities, pursuant to applicable regulations from County of Lake and the State of California. This BRA also analyzes the potential for jurisdictional wetlands and other waters of the U.S. to exist onsite, and classifies landforms that may potentially convey sediment to waters of the U.S. including dry creeks, washes, swales, gullies, and other erosional features. Also included is a set of Best Management Practices (BMPs) that are adapted from a variety of sources including State Water Resources Control Board *Cannabis* General Order No. WQ 2019-0001-DWQ and other state and local ordinances.

### 1.2 LOCATION

#### 1.2.1 Site Overview

The project site is located at 22544 Jerusalem Grade in unincorporated Lake County, near the town of Middletown (Figure 1). The parcel is located in Section 15, Township 10 North, Range 7 West, on the USGS Detert Reservoir 7.5 minute quad (Figure 2). The approximate latitude and longitude of the centroid of the parcel is 38.717 (N), -122.614 (W). The parcel is designated Assessor's Parcel Number 014-006-16, is deeded 44.47 acres, is zoned RL, and is under the jurisdiction of the Central Valley (Region 1) Regional Water Quality Control Board (RWQCB), and the Northern Region (District 1) of the California Department of Fish & Wildlife (CDFW). The parcel is accessed via graded dirt driveway that branches to the east off of Shady Grove Road, which itself parallels and is accessed from CA-29 immediately to the west (Figure 1).

#### 1.2.2 Critical Habitat

Federal Critical Habitat (FCH) is designated by the U.S. Fish & Wildlife Service (USFWS) and provides special protections for habitats considered important for long-term population persistence of endangered or threatened species. There is no FCH onsite for any animal or plant species. The nearest FCH is located 1.9 miles to the northwest of the project parcel for Slender Orcutt grass (*Orcuttia tenuis*) near Little High Valley. There is also FCH for Slender Orcutt grass 17 miles to the west associated with Bogg's Lake. The next nearest species with designated FCH is for Northern spotted owl (*Strix occidentalis*; NSO) located 13 miles to the west near Cobb Mountain. There is no other FCH within 10 miles of the project parcel.

### 1.2.3 Special-Status Species Occurrences

Special-status species (SSS) are those species that receive special protections under either local, State, or Federal law and include both State and Federally Endangered and Threatened species of animals and plants, as well as candidate listing species and other species or populations of special concern for which additional information is required. The California Natural Diversity Database (CNDDB) provides information on most known SSS occurrences in the State of California. A description of the habitat requirements and likelihood of occurrence of potential SSS on the project parcel based the CNDDB database, published scientific literature, and the expertise of PEC staff, is provided in Appendix A, with all SSS known from a 5 mile radius around the project parcel highlighted. Additionally, map-based representation of all of the SSS within a 2 mile radius around the project site is provided in Appendix C.

#### *Animals*

There are a total of 19 different special-status animal species known from within 5 miles of the project parcel, most of these associated with Mt. St. Helena. Two of these are indistinct occurrences of Prairie Falcon (*Falco mexicanus*) and American peregrine falcon (*Falco peregrinus anatum*) located somewhere in the USGS Detert Reservoir 7.5 minute quad. The next nearest known occurrence of special-status animal species is Townsend's big-eared bat (*Corynorhinus townsendii*) located immediately to the south of the parcel. The next nearest known occurrences of special-status animal species is Western Pond Turtle (*Emys marmorata*) located approximately 0.8 miles north of the project parcel in Middletown Rancheria. The next nearest occurrence is Pallid bat (*Antrozous pallidus*) located 1.4 miles south near St. Helena Creek. The next nearest occurrence of special-status animal species is Foothill Yellow-Legged Frog (*Rana boylei*; FYLF) located 1.7 miles northwest of the project parcel near Dry Creek Road. A summary of the locations of the other SSS is provided in Appendix A.

#### *Plants*

There are no special-status plant species known from within the project parcel (Appendix C). There are 31 different special-status plant species known from within 5 miles of the project parcel, most of these associated with Mt. St. Helena, and with serpentine habitat to the northeast. The nearest known occurrence of special-status plant species is Konocti manzanita (*Arctostaphylos manzanita* ssp. *elegans*) located 0.1 miles south of the project site along St. Helena Creek. The next nearest known occurrences of special-status plant species are Serpentine cryptantha (*Cryptantha dissita*), Jepson's leptosiphon (*Leptosiphon jepsonii*), Green's narrow-leaved daisy (*Erigeron greenei*), and Two-carpellate Western flax (*Hesperolinon bicarpellatum*) located 1.8 miles north of the project parcel near Middletown. The next nearest known occurrences of special-status plant species are Snow Mountain buckwheat (*Eriogonum nervulosum*) and Freed's jewelflower (*Streptanthus brachiatus* spp. *hoffmanii*) located 2.9 miles southeast of the project parcel near Kroll Creek. A summary of the locations of the remaining species within 5 miles of the parcel is provided in Appendix A.

## 1.2.4 Landforms & Water Features

The parcels encompass the side of a low ridge that forms the north-west slope of Bishop Mountain, immediately to the east of Soda Creek and just north of the bridge over Soda Creek (Figure 2). The maximum elevation of the parcels is 1,334 feet above sea level along the eastern parcel boundary, and the minimum elevation is 1,203 feet above sea level along the center of the northern property line where St. Helena Creek exits the parcel. Most of the parcel is rolling, formerly heavily grazed grassland, with slopes between 2% and 10% in the west, steepening to between 10% and 20% in the east, as measured by Suunto PM5 handheld clinometer.

### *Watercourses*

There are several unnamed and one named watercourse on site, as well as several potential wetlands (Figures 3-5). A Class I perennial reach of St. Helena Creek divides the parcel in two, flowing north through the middle of the property (Figure 12). St. Helena Creek is crossed by a metal span bridge (Figure 11) that appears to be stable and with footings that are not obviously eroding. The riparian corridor surrounding St. Helena Creek is well developed and stable. There is also an unnamed seasonal Class II watercourse flowing north through the western portion of the parcel (Figure 13) that is crossed via triple-barrel corrugated metal culvert crossing (Figure 10) that is not obviously in danger of failing but likely does not meet current design specifications for withstanding 100-year floods. This Class II watercourse exits the parcel to the north and joins with St. Helena Creek after flowing offsite for approximately 500 feet. There are also several Class III watercourses onsite. In the western portion of the site, two small stock ponds (Figures 15 & 17) are connected with a vegetated swale (Figure 16) that eventually empty into an unnamed ephemeral Class III watercourse (Figure 14) that flows east for approximately 150 feet before the confluence with the aforementioned unnamed Class II watercourse. There is some wetland vegetation surrounding the ponds and swale but not around the Class III watercourse.

There is also a series of unnamed ephemeral Class III watercourses in the eastern portion of the site that drain the oak and chaparral hillslopes. These are conveyed over the roadway via gravel ford or rolling dip, located just before a locking metal gate (Figure 3). This Class III watercourse meets up with another Class III watercourse and then flows along the northern property line for approximately 300 feet before the confluence with St. Helena Creek. From the confluence, St. Helena Creek flows north for 3.3 miles before the confluence with Putah Creek, which flows southeast for 24.5 miles before entering Lake Berryessa. From the outlet of Lake Berryessa at Monticello Dam, Putah Creek continues east for 27 miles flowing into the Central Valley and past the City of Davis before emptying into a series of low-lying basins known as the Putah Creek Sinks. From there water flows into the Yolo Bypass and south into the Sacramento River which flows south for approximately 40 miles before emptying into Suisun Bay and the Pacific Ocean.

### *Wetlands*

Several areas may contain wetlands subject to Army Corps of Engineers (ACOE) jurisdiction, however a protocol-level wetland delineation was not performed. Some wetland vegetation exists around the westernmost pond (Figure 15) however it is not known whether it meets sufficient criteria for jurisdictional wetland. The vegetated swale downstream of this feature (Figure 16) also exhibits some characteristics of wetlands however the vegetation may not have sufficient cover. There may

also be wetlands fringing some of the Class II and I watercourses discussed above. There were no locations onsite that appeared to be vernal pools or other temporary ponds in the grassland areas of the site, thus these areas appear suitable for cultivation as long as appropriate setbacks are observed off of all watercourses and potential wetlands.

### **1.2.5 Existing Structures**

Access to the parcel is provided off of Shady Grove Road to the south and is controlled via locking manual entry metal gate (Figure 6). The activity area is located at the end of a graded and graveled unpaved driveway (Figure 7) that is in good condition that travels east from the main gate. This driveway also continues past the main residence and follows the southern property line providing access to the remainder of the parcel (Figures 3-5). There are several existing structures onsite associated with the residence and rural agricultural and animal husbandry activities. There is one residence with garage and multiple outbuildings for chickens, tractors, and other farm related activities (Figure 8). After crossing the triple culvert (Figure 10) you reach a groundwater well and several HDPE water storage tanks (Figure 9) adjacent to a large grassland area that would be suitable for cultivation (Figure 18). Further along the road is a metal span bridge (Figure 11) and another potential cultivation area (Figure 19). Most of the parcel is surrounded by barbed wire fence, and there is a utility pole that transmits electricity via aerial lines off of Shady Grove Road. Other than that there are no other built structures onsite.

### **1.2.6 Regional Land Uses**

Land uses in the vicinity of the project parcel are primarily private property including undeveloped brushland, wildlands managed for mixed uses including timber harvest, private grazing land, rural residential parcels, irrigated pastureland, vineyards and orchards, and geothermal developments. Immediately to the north is the community of Middletown. To the west is Mt. St. Helena. To the south is Robert Louis Stevenson State Park. To the east is the area known as Long Valley. Although the project parcel itself has not burned in the last 10 years much of the surrounding terrain has burned in various fires including the Jerusalem Fire in 2015 to the east, and the River Fire in 2018 to the northwest.



## 1.3 METHODS

### 1.3.1 Records Search & Literature Review

Based on a review of the literature and all relevant databases, we compiled a list of special-status plant and animal species that are known to occur within 5 miles of the project site, or that occupy habitats that are known to be present on or near the project site (Appendix A). Sources of information referenced include the California Natural Diversity Database (CNDDDB 2020), U.S. Fish and Wildlife Service Environmental Conservation Online System (USFWS 2020), the California Native Plants Society (CNPS) Inventory of Rare and Endangered Vascular Plants of California (CNPS 2019), and the knowledge of PEC staff familiar with the species and habitats of Lake County. Additional information on sensitive habitats including wetlands was obtained from the USFWS National Wetlands Inventory (NWI 2019), and County of Lake Geographic Information System Portal (Lake Co. 2020). Plant species included here are State or Federally Endangered or Threatened, and/or considered Rare by CDFW, and/or are recognized as special-status species by the CNPS or CDFW. Animal species included here are designated as State or Federally Endangered or Threatened, and/or California Species of Special Concern, and/or Fully Protected species by the CDFW. In addition, nests of most native bird species, regardless of their regulatory status, are protected from take or harassment under the Migratory Bird Treaty Act (MBTA) and California Fish and Wildlife Code.

### 1.3.2 Field Surveys

A wildlife and botanical survey was conducted at the site on January 20, 2020. The weather was clear and dry. The temperature was cool for this time of year, approximately 52 degF in the morning, increasing to 65 degF in the afternoon, with relative humidity around 57% as measured by Kestrel handheld weather station. Approximately 2" of rain fell in the preceding two months, thus most of the habitat was green and some annual species were already flowering. Starting with the western entrance to the parcel and working eastward, the entire project site was surveyed on foot by Dr. Christopher T. DiVittorio, recording the location and identity of all plant and animal species encountered. Plant voucher specimens were taken of any species that were not identifiable in the field, and that were not likely to be special-status. The vast majority of species were identifiable at the time of the survey, although some had to be identified based on dry flowering parts. Photographs and voucher specimens were taken of any plants that were identified solely based on vegetative characters. The field survey was conducted by dividing the outdoor portions of the parcel into zones and cataloging all of the species found in each zone. Each zone was surveyed by walking in parallel lines until the whole zone was covered. Notes were also taken in each zone documenting the general site characteristics and current land uses, as well as any surface erosional features that may require remediation. Botanical specimens were taken back to the laboratory for identification if identification was not possible in the field. If species were not flowering at the time of the survey and morphological characteristics indicated that the species may be special-status, notes were made for a follow-up visit. Birds and nests were identified by call and with binoculars. Vocalizations, scat, tracks, feathers, burrows, nests, and molts were used for identification of animals present onsite. Any onsite aquatic habitats were observed for a minimum of ten minutes without movement in order to observe animals that may hide when approached.

## 2.0 RESULTS

### 2.1 NATURAL COMMUNITIES IN THE EVALUATION AREA

Using field surveys, a review of published literature, and the knowledge of PEC staff, all of the natural communities present on and around the project site were assessed. Regionally, the dominant vegetation type is unburned mixed oak and conifer forest with frequent outcrops of chaparral on south facing slopes, and grassland and riparian corridor in valley bottoms. Conifers get increasingly dense towards the west, while towards the east are increasing number of serpentine outcrops and volcanic formations including basalt vernal pools (Figure 4).

### 2.2 NATURAL COMMUNITIES WITHIN THE PROJECT SITE

The entirety of the parcel consists of mixed oak and conifer woodland interspersed with patches of chaparral, and with several large well-drained grassland clearings between several classified watercourses. Some larger oak trees including Valley oaks exist and are heritage tree size and should not be removed. The specific community descriptions below are organized based on the zones that were surveyed, and the floristic results presented in Appendix B. Overall, the north parcel consists of approximately 50% oak savannah, 40% annual grassland, 7% watercourse and riparian, and 3% developed.

#### 2.2.1 Mixed *Quercus-Pinus-Arctostaphylos* Woodland

Oak savannah is distinguishable from grassland in that oak trees are generally closer than 100 feet apart, although the canopy is discontinuous. Most of the eastern portion of the site, and patches of the rest of the site, are considered oak savannah, and are modified here by high proportions of conifers and chaparral shrubs. Woody species in these habitats include Valley oak (*Quercus lobata*) to 40" DBH, Ponderosa pine (*Pinus ponderosa*) to 24" DBH, Douglas fir (*Pseudotsuga menziesii*) to 24" DBH, Black walnut (*Juglans hindsii*) to 20" DBH, Blue oak (*Quercus douglasii*) to 12" DBH, Gray pine (*Pinus sabiniana*) to 12" DBH, Madroño (*Arbutus menziesii*) to 12" DBH, and Black oak (*Quercus kelloggii*) to 10" DBH. Herbaceous species found these areas include coffeeberry (*Rhamnus californica*), poison oak (*Toxicodendron diversilobium*), buck brush (*Ceanothus cuneatus*), deerbrush (*Ceanothus integerrimus*), whiteleaf manzanita (*Arctostaphylos viscida*), common manzanita (*Arctostaphylos manzanita*), Yerba Santa (*Eriodictyon californicum*), coyote brush (*Baccharis pilularis*), and French broom (*Genista monspessulana*), gumweed (*Madia gracilis*), tufted hairgrass (*Deschampsia cespitosa*), common bedstraw (*Galium aparine*), harvest brodiaea (*Brodiaea elegans*), Douglas' iris (*Iris douglasii*), blue dicks (*Dichelostemma capitata*), and soap plant (*Chlorogalum pomeridianum*).

### 2.2.2 Annual *Bromus-Cynosurus* Grassland

The well-drained grassland portions of the parcel are dominated by non-native annual species including yellow star thistle (*Centaurea solstitialis*), bull thistle (*Cirsium vulgare*), Italian thistle (*Carduus pycnocephalus*), bull thistle (*Cirsium vulgare*), rattlesnake grass (*Briza major*), prickly lettuce (*Lactuca serriola*), soft chess (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), wild oats (*Avena barbata*), medusahead (*Elymus caput-medusae*), Zorro fescue (*Festuca myuros*), foxtail barley (*Hordeum murinum*), dogstail grass (*Cynosurus echinatus*), little rattlesnake grass (*Briza minor*), hairgrass (*Aira caryophylla*), Harding grass (*Phalaris aquatica*), turkey mullein (*Croton setiger*), Klamathweed (*Hypericum perforatum*), Western verbena (*Verbena lasiostachys*), big heron bill (*Erodium botrys*), spring vetch (*Vicia sativa*), field parsley (*Torilis arvensis*), common yarrow (*Achillea millefolium*), smooth cat's ear (*Hypochaeris glabra*), imbricate phacelia (*Phacelia imbricata*), Fuller's teasel (*Dipsacus fullonum*), chickweed (*Stellaria media*), sheep sorrel (*Rumex acetocella*), wild geranium (*Geranium molle*), rose clover (*Trifolium hirtum*), and sweet clover (*Melilotus albus*). Native herbaceous species observed onsite include narrow tarplant (*Holocarpha virgata*), blue wildrye (*Elymus glaucus*), harvest brodiaea (*Brodiaea elegans*), annual lupine (*Lupinus bicolor*), Western buttercup (*Ranunculus occidentalis*), common yarrow (*Achillea millefolium*), ladies' tobacco (*Gnaphalium californicum*), bird's foot trefoil (*Acmispon americanus*), and mugwort (*Artemisia douglasiana*).

### 2.2.3 Riparian Corridor

In addition to many of the species mentioned above, areas around the Class I reach of St. Helena Creek and the reach of unnamed Class II watercourse inside the parcel contain developed riparian corridor that contains hydrophytic species such as Valley oak (*Quercus lobata*) to 40" DBH, California bay (*Umbellularia californica*) to 15" DBH, Bigleaf maple (*Acer macrophyllum*) to 10" DBH, white alder (*Alnus rhombifolia*) to 8" DBH, and Arroyo willow (*Salix lasiolepis*). Herbaceous plants include Scotch broom (*Cytisus scoparius*), Himalayan blackberry (*Rubus armeniacus*), common horsetail (*Equisetum arvense*), torrent sedge (*Carex nudata*), bog rush (*Juncus patens*), pennyroyal (*Mentha pulegium*), nut sedge (*Cyperus eragrostis*), curly dock (*Rumex crispus*), nit grass (*Gastridium phleoides*), English plantain (*Plantago lanceolata*), black mustard (*Brassica nigra*), miner's lettuce (*Claytonia perfoliata*), common bedstraw (*Galium aparine*), bulge hedge nettle (*Stachys ajugoides*), common ladyfern (*Athyrium filix-femina*), velvet grass (*Holcus lanatus*), and colonial bent grass (*Agrostis capillaris*). Species associated with the pond included filamentous green algae (*Cladophora* spp.) and narrow-leaf cattail (*Typha angustifolia*).

## 2.3 WILDLIFE

Wildlife activity was low due to the time of year and the weather. Nonetheless, numerous wildlife species were observed both directly and indirectly. Wildlife observed onsite include California ground squirrel (*Otospermophilus beecheyi*), scat of black-tailed jackrabbit (*Lepus californicus*), crow (*Corvus brachyrhynchos*), black-eyed junco (*Junco hyemalis*), California towhee (*Melospiza*

*crissalis*), Stellar's jay (*Cyanocitta stelleri*), tracks of Mule deer (*Odocoileus hemionus*), excavation mounds of Botta's pocket gopher (*Thomomys bottae*), song sparrow (*Melospiza melodia*), calls of Pacific tree frog (*Pseudacris regalia*), water striders (*Gerridae*), turkey vulture (*Cathartes aura*), acorn woodpecker (*Melanerpes formicivorus*), black billed magpie (*Pica hudsonia*), and what was likely red-tailed hawk (*Buteo jamaicensis*).

## 2.4 SOILS & GEOMORPHOLOGY

The parent materials are typical of inner Coast Range mountains of the Lake County subtype, with highly dissected valleys cut into soft Franciscan sediments, with abundant volcanic extrusive and intrusive formations (USGS 1985). Local formations on the eastern portion of the site are mapped as well-drained Millsholm-Bressa loams (#177), 30% to 50% slopes, with lesser proportions of Etsel (4%), Hopland (4%), and Mayacama (2%) soils. This is classified as not prime farmland, with no flooding frequency, and 0% of hydric soils. The central portion of the project site is mapped as well-drained Kelsey fine sandy loam (#147), with lesser proportions of Riverwash (3%), and xerofluvent (2%) fractions. This area is considered prime farmland if irrigated, has a rare flooding frequency, and has typically 5% hydric soils. The western portion of the project site is mapped as well-drained Jafa loam (#144), 2% to 5% slopes, with lesser proportions of Speaker (10%), and unnamed (10%) soil types. This soil is considered prime farmland if irrigated, has no flooding frequency, and hydric soil frequency of 10%. An adjacent soil type in this region of the parcel that is centered over the ponds and swale is classified as Still loam (#233) with lesser proportions of Cole (2%) and Kelsey (2%) soils. This soil is considered prime farmland if irrigated, has rare flood frequency, and has typical proportion of hydric soils of 2%. There are no alkalai or vernal pool soil types onsite, although the parent material does contain some serpentine there are no serpentine outcrops onsite although some of the soil parent materials onsite are weathered from serpentinite.

### 3.0 SUMMARY & CONCLUSIONS

No special-status plant species were observed during the surveys performed at the site in January 2020. No impacts are predicted for any of the State or Federal special-status plant species in Appendix A based on lack of actual sightings, and lack of suitable habitat in the proposed cultivation activity areas. Activities are largely proposed to be limited to existing disturbed areas and will observe all required setbacks from jurisdictional watercourses. There are no vernal pools or serpentine outcrops that possess a high likelihood of containing special-status plant species in the proposed cultivation areas. The nearest special-status plant species to the project site is Konocti manzanita (*Arctostaphylos manzanita* ssp. *elegans*), and this species was not observed onsite. Only open grassland areas with low likelihood of harboring rare plant species should be considered for cultivation. Additionally, some areas around riparian zones (all classes) contain large mature Valley oak trees, and these are protected and no oak trees larger than 24" should be removed.

No special-status animal species were observed during the surveys performed at the site in January 2020, however there is suitable estivation and/or breeding habitat onsite for Foothill yellow-legged frog (FYLF) and other amphibians in the unnamed Class II watercourse as well as the Class I reach of St. Helena Creek. There are also some stock ponds that may provide habitat. The nearest occurrence of FYLF is 1.7 miles to the north of the site thus within migration distance, thus the avoidance and minimization measures for amphibians provided in Appendix H should be followed at all times. The avoidance measures in there and also the prohibition against removing large oak trees should also be sufficient to prevent any impacts to raptor species that are known from the area (Appendix C). None of the other species considered in Appendix C were observed onsite or have high likelihood to exist in the grassland portions of the site where cultivation would be located.

No impacts are predicted for sediment discharge to watercourses or wetlands due to the location of proposed cultivation areas outside of required setbacks from watercourses and wetlands. The bridge over the Class I watercourse, and the triple culvert over the Class II watercourse, may need to be registered with CDFW, and consultation with a hydrologist is recommended to determine whether these features are properly sized for a 100-year flood. The driveway is not currently eroding however the outlet to the second pond does not have any protection and is in danger of headcutting and thus some emergency erosion prevention measures should be installed here in consultation with a hydrologist. Native woody species should be planted around the perimeter of these ponds and anywhere else there is bare soil there should be native grasses sown. Additional erosion control measures described in Appendix D should be implemented, and we encourage the use of native vegetation along road cuts and anywhere soil stabilization is required in the future.

## **4.0 REGULATORY FRAMEWORK**

### **4.1 FEDERAL ENDANGERED SPECIES ACT**

The U.S. Fish and Wildlife Service (USFWS) has jurisdiction over federally-listed threatened and endangered species under the federal Endangered Species Act (FESA). The USFWS also maintains a list of 'proposed' species and candidate species that are not legally protected under the FESA, but are often included in their review of a project as they may become listed in the near future. The FESA protects listed animal species from harm or "take" which is broadly defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct. Take can also include habitat modification or degradation that results in death or injury to a listed species. An activity can be defined as a "take" even if it is unintentional or accidental. Listed plant species are provided less protection than listed wildlife species. Listed plant species are legally protected from take under FESA if they occur on federal lands. Pursuant to the requirements of the FESA, a federal agency reviewing a proposed project within its jurisdiction must determine whether any federally-listed threatened or endangered species (plants and animals) may be present in the project area and determine whether the proposed project may affect such species. Any activities that could result in the take of a federally-listed species will require formal consultation with the USFWS.

### **4.2 CALIFORNIA ENDANGERED SPECIES ACT**

The California Endangered Species Act (CESA) protects any plant or animal listed or proposed for listing as rare (plants only), threatened, or endangered. In accordance with the CESA, the California Department of Fish and Wildlife (CDFW) has jurisdiction over state-listed species (California Fish and Wildlife Code 2070). Take of state-listed species requires a permit from CDFW, which is granted only under strictly limited circumstances. Additionally, the CDFW maintains lists of "species of special concern" that are defined as animal species that appear to be vulnerable to extinction because of declining populations, limited ranges, and/or continuing threats. Pursuant to the requirements of CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any state-listed or proposed endangered or threatened species may be present in the project area and determine whether the proposed project may result in a significant impact on such species.

### **4.3 CALIFORNIA ENVIRONMENTAL QUALITY ACT**

Section 15380(b) of the California Environmental Quality Act (CEQA) Guidelines provides that a species not listed on the federal or state list of protected species may be considered rare or endangered if the species can be shown to meet certain specified criteria. These criteria have been modeled after the definitions in FESA and CESA and the section of the California Fish and Wildlife Code dealing with rare or endangered plants or animals. This section was included in the guidelines primarily to deal with situations in which a public agency is reviewing a project that may have a significant effect on a species that has not yet been listed by either the USFWS or CDFW. Thus, CEQA provides an agency with the ability to protect a species from a project's potential impacts, if it finds that the species meets the criteria of a threatened or endangered species.

#### **4.4 CLEAN WATER ACT**

Under Section 404 of the federal Clean Water Act, the U.S. Army Corps of Engineers (Corps) is responsible for regulating the discharge of fill material into waters of the United States. Waters of the U.S. and their lateral limits are defined in 33 CFR Part 328.3 (a) and include streams that are tributary to navigable waters and their adjacent wetlands. Wetlands that are not adjacent to waters of the U.S. are termed "isolated wetlands" and, depending on the circumstances, may also be subject to Corps jurisdiction. In general, a Corps permit must be obtained before placing fill in wetlands or other waters of the U.S. The type of permit depends on the acreage involved and the purpose of the proposed fill. Minor amounts of fill are sometimes covered by Nationwide Permits, which were established to streamline the permit process for projects with "minimal" impacts on wetlands or other waters of the U.S. An Individual Permit is required for projects that result in more than a minimal impact on jurisdictional areas. The Individual Permit process requires evidence that fill of jurisdictional areas has been minimized to the extent "practicable" and provides an opportunity for public review of the project.

#### **4.5 CALIFORNIA WATER QUALITY REGULATORY PROGRAMS**

Pursuant to Section 401 of the federal Clean Water Act and the state's Porter-Cologne Act, projects that are regulated by the Corps must obtain water quality certification from the Regional Water Quality Control Board (RWQCB). This certification ensures that the project will uphold state water quality standards. The RWQCB sometimes asserts jurisdiction over wetlands that the Corps does not (e.g. certain isolated wetlands) and may impose mitigation requirements even if the Corps does not. The CDFW also exerts jurisdiction over the bed and banks of watercourses and water bodies according to provisions of Section 1601 to 1603 of the Fish and Wildlife Code. The Fish and Wildlife Code requires a Stream Alteration Agreement for the fill or removal of material within the bed and banks of a watercourse or water body.

## 5.0 REFERENCES

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**FIGURE 1: REGIONAL LOCATION**

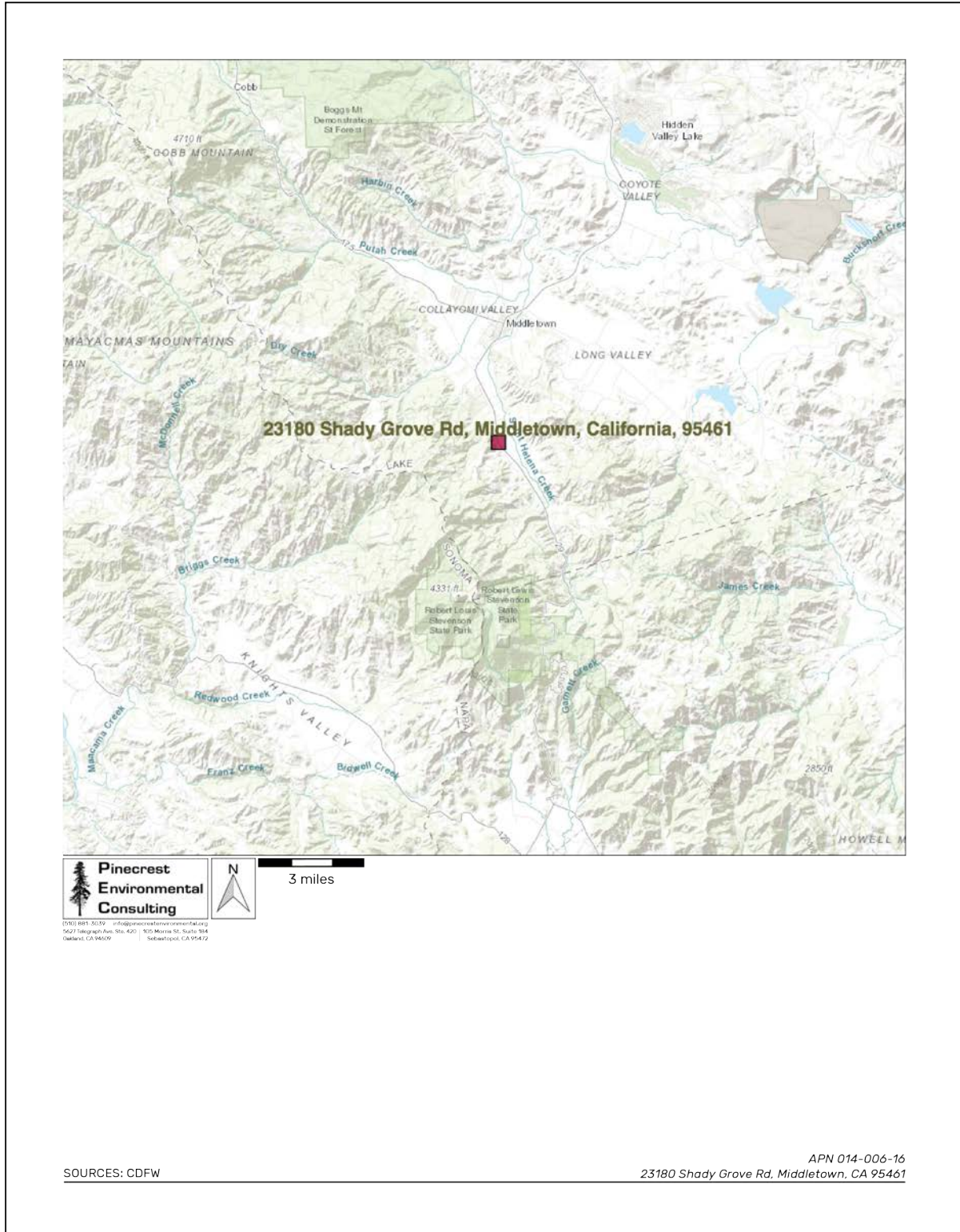
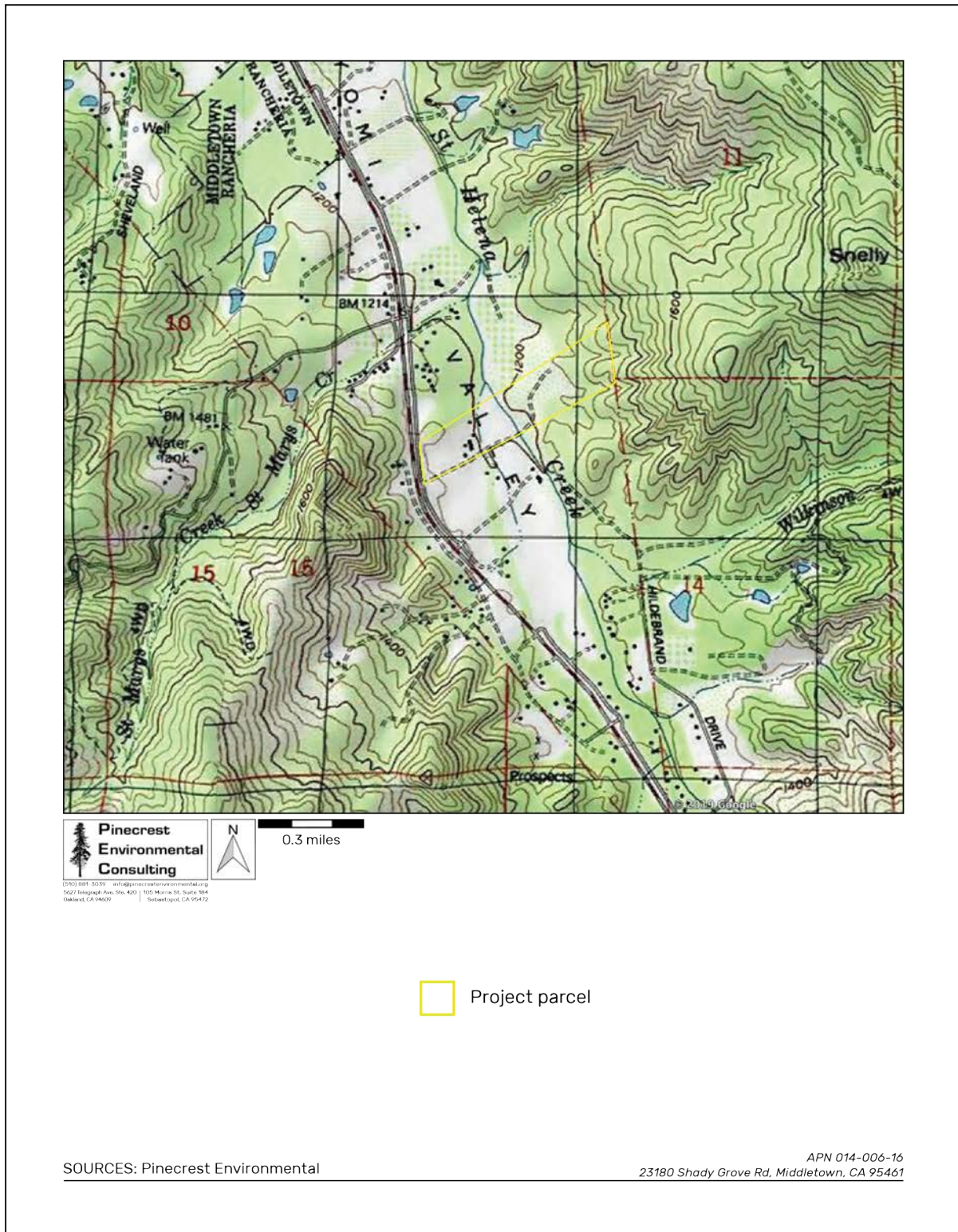


FIGURE 2: 40 FOOT CONTOURS





**FIGURE 3: WATER FEATURES OVERVIEW**



FIGURE 4: PHOTOGRAPH OF WATER FEATURES WEST

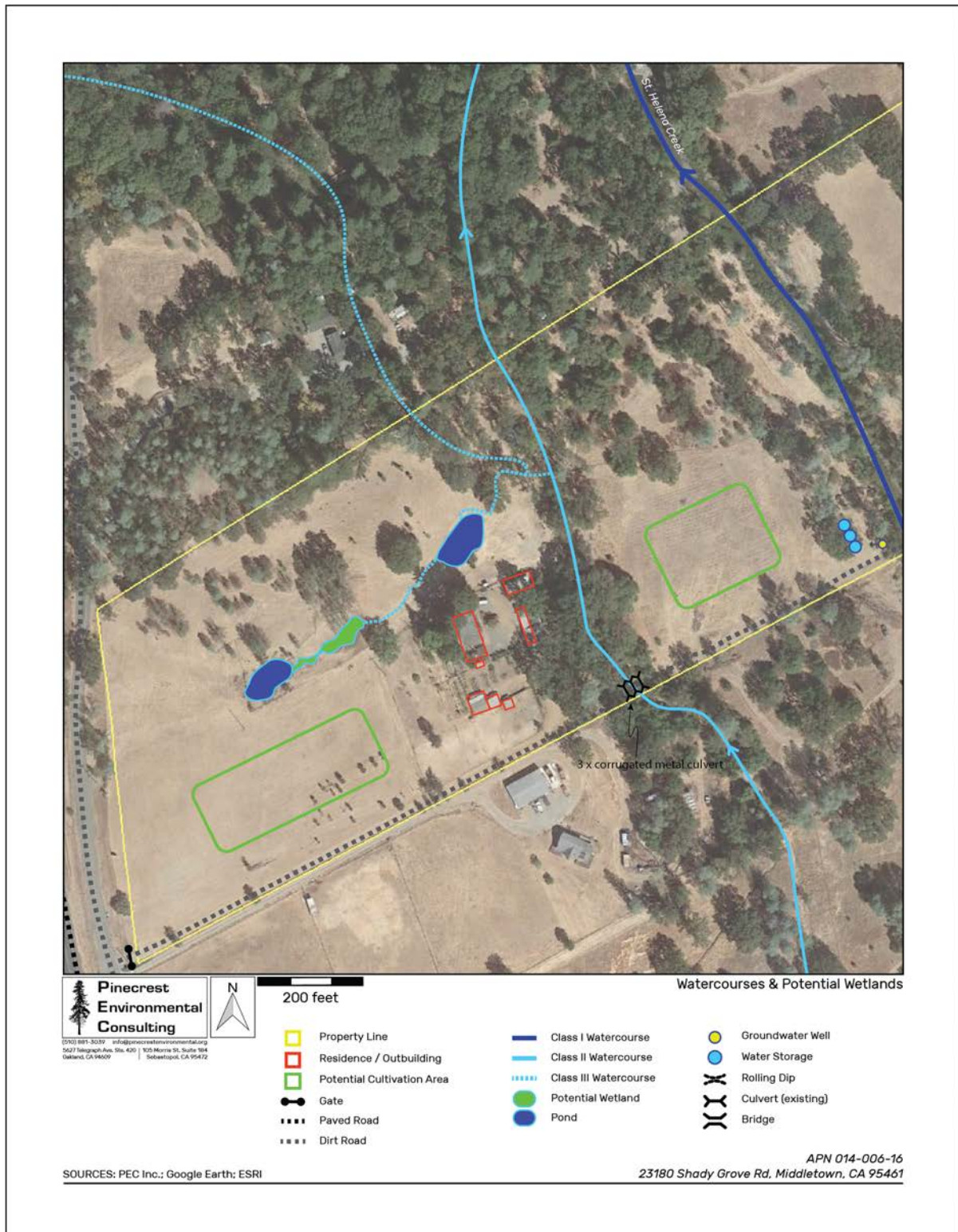
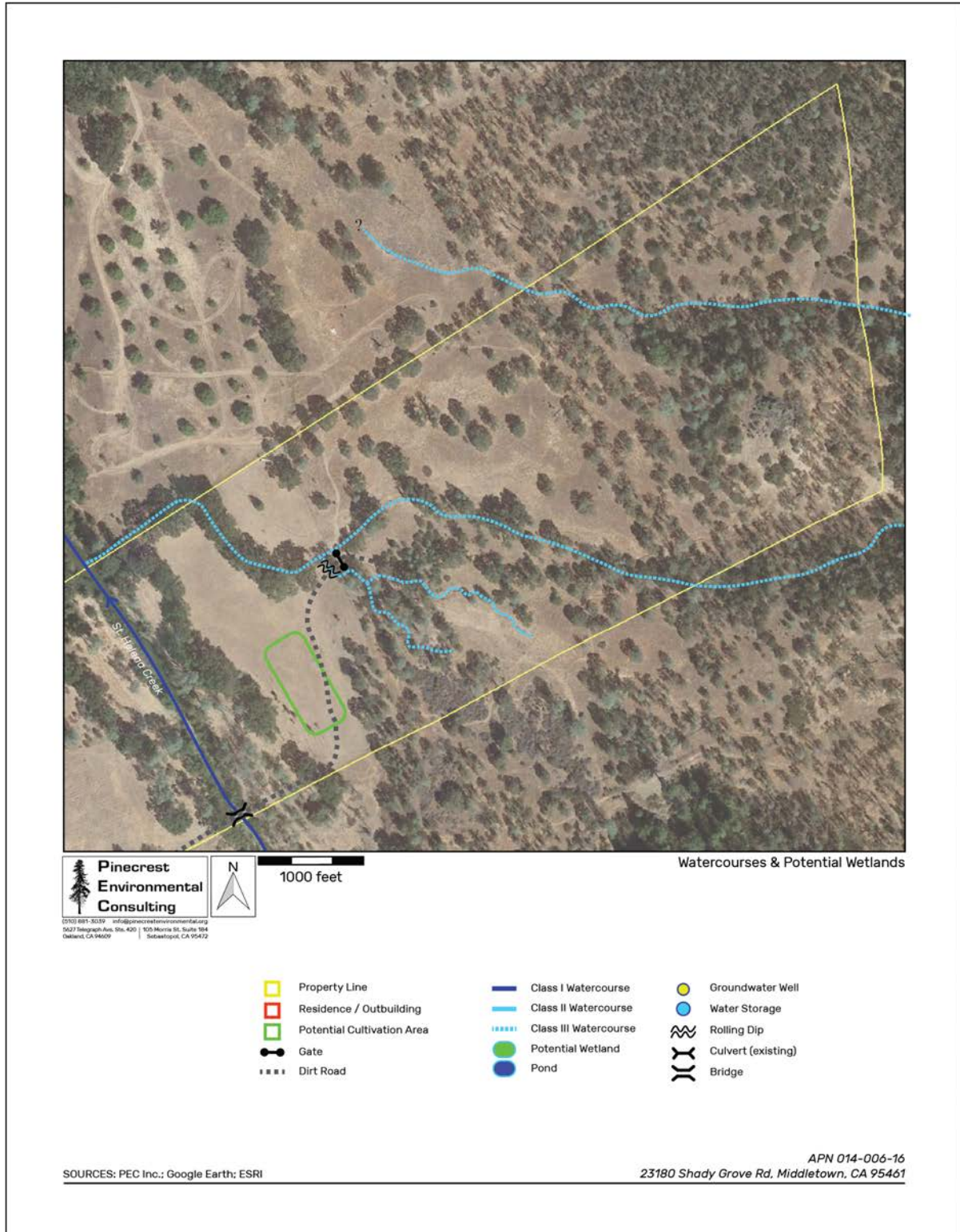




FIGURE 5: PHOTOGRAPH OF WATER FEATURES EAST



**FIGURE 6: PHOTOGRAPH OF ACCESS GATE**



SOURCES: PEC Inc.

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**FIGURE 7: PHOTOGRAPH OF DRIVEWAY**



SOURCES: PEC Inc.

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**FIGURE 8: PHOTOGRAPH OF RESIDENCE**



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Oakland, CA 94609 | San Francisco, CA 94132

SOURCES: PEC Inc.

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**FIGURE 9: PHOTOGRAPH OF WELL & WATER STORAGE**



SOURCES: PEC Inc.

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**FIGURE 10: PHOTOGRAPH OF TRIPLE CULVERT**



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**FIGURE 11: PHOTOGRAPH OF BRIDGE**



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**FIGURE 12: PHOTOGRAPH OF CLASS I ST. HELENA CREEK**



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**FIGURE 13: PHOTOGRAPH OF UNNAMED CLASS II WATERCOURSE**



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**FIGURE 14: PHOTOGRAPH OF CLASS III WATERCOURSE**



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**FIGURE 15: PHOTOGRAPH OF POND A**



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**FIGURE 16: PHOTOGRAPH OF SWALE**



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**FIGURE 17: PHOTOGRAPH OF POND B**



SOURCES: PEC Inc.

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**FIGURE 18: PHOTOGRAPH POTENTIAL CULTIVATION AREA**



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**FIGURE 19: PHOTOGRAPH OF POTENTIAL CULTIVATION AREA**



SOURCES: PEC Inc.

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## APPENDIX A: SPECIAL-STATUS SPECIES CONSIDERED

The following is a list of special-status plant and animal species generated based on knowledge of the species and habitats of Lake County by PEC staff, from various State and Federal databases, and from the California Natural Diversity Database (CNDDB). CNDDB occurrences within 5 miles of the project site are shown in bold.

Taxon	Status <sup>1</sup> Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
PLANTS			
Adobe lily ( <i>Fritillaria pluriflora</i> )	—/—/1B.2	Valley grasslands, foothill woodland	Very Low: Some marginally suitable grassland habitat exists onsite.
Anthony peak lupine ( <i>Lupinus antoninus</i> )	—/—/1B.2	Montane forest	<u>None</u> : No suitable montane habitat exists onsite.
Baker's manzanita ( <i>Arctostaphylos bakeri</i> ssp. <i>bakeri</i> )	—/—/1B.1	Serpentine chaparral	<u>None</u> : No serpentine habitat exists onsite.
Baker's meadowfoam ( <i>Limnanthes bakeri</i> )	—/ST/1B.1	Vernal pools, freshwater wetland	<u>Low</u> : Some suitable wetland habitat exists onsite.
<b>Baker's navarretia</b> ( <i>Navarretia leucocephala</i> ssp. <i>bakeri</i> )	—/—/1B.1	<b>Vernal pools</b>	<b>Low</b> : No vernal pool habitat exists onsite although some grassland habitat exists. Nearest known occurrence is 2.8 miles north of the parcel near CA-29.
Beaked tracyina ( <i>Tracyina rostrata</i> )	—/—/1B.2	Valley grassland, foothill woodland	<u>Low</u> : Some grassland habitat exists onsite.
<b>Bent flowered fiddleneck</b> ( <i>Amsinckia lunaris</i> )	—/—/1B.2	<b>Valley grassland, foothill woodland</b>	<b>Medium</b> : Some moderately suitable grassland habitat exists onsite. Nearest known occurrence is 2.8 miles north of the parcel near CA-29.
Big scale balsamroot ( <i>Balsamorhiza macrolepis</i> )	—/—/1B.2	Valley grassland, foothill woodland	<u>Low</u> : Some grassland habitat exists onsite.
Bogg's Lake hedge-hyssop ( <i>Gratiola heterosepala</i> )	—/—/1B.2	Vernal pools, lake margins	<u>Low</u> : Some suitable wetland habitat exists onsite.

Taxon	Status <sup>1</sup> Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Bolander's horkelia ( <i>Horkelia bolanderi</i> )	—/—/1B.2	Yellow pine forest, grassland	<u>Low</u> : Some suitable forest habitat exists onsite.
Brandegee's eriastrum ( <i>Eriastrum brandegeae</i> )	—/—/1B.1	Clearings in chaparral	<u>Low</u> : Some suitable chaparral habitat exists onsite.
Bristly sedge ( <i>Carex comosa</i> )	—/—/2B.1	Freshwater marsh, riparian	<u>Low</u> : Some suitable wetland habitat exists onsite.
Brownish beaked-rush ( <i>Rhynchospora capitellata</i> )	—/—/2B.2	Freshwater marsh, riparian	<u>Low</u> : Some suitable wetland habitat exists onsite.
Burke's goldfields ( <i>Lasthenia burkei</i> )	FE/SE/1B.1	Vernal pools	<u>Very Low</u> : No suitable vernal pool habitat exists onsite.
California alkalai grass ( <i>Puccinellia simplex</i> )	—/—/1B.2	Alkalai sink	<u>None</u> : No alkalai wetland habitat exists onsite.
California beaked-rush ( <i>Rhynchospora californica</i> )	—/—/1B.1	Freshwater wetlands	<u>Very Low</u> : Some marginally suitable wetland habitat exists onsite.
California satintail ( <i>Imperata brevifolia</i> )	—/—/2B.1	Chaparral	<u>Low</u> : Some suitable chaparral habitat exists onsite.
<b>Calistoga ceanothus</b> ( <i>Ceanothus divergens</i> )	—/—/1B.2	<b>Chaparral</b>	<b>Medium</b> : No chaparral habitat exists onsite. Nearest known occurrence is 2.9 miles west of the parcel near Mt. St. Helena.
Cascade downingia ( <i>Downingia willamettensis</i> )	—/—/2B.2	Vernal pool	<u>None</u> : No vernal pool habitat exists onsite.
Clara Hunt's milk vetch ( <i>Astragalus claranus</i> )	—/—/1B.1	Chaparral, grassland	<u>Low</u> : Some chaparral habitat exists onsite.
<b>Cobb Mountain lupine</b> ( <i>Lupinus sericatus</i> )	—/—/1B.2	<b>Chaparral, pine forest</b>	<b>Low</b> : Some chaparral habitat exists onsite. Nearest known occurrence is 2.9 miles west of the parcel near Mt. St. Helena.
<b>Colusa layia</b> ( <i>Layia septentrionalis</i> )	—/—/1B.2	<b>Chaparral, valley grassland</b>	<b>Medium</b> : Some suitable grassland habitat exists onsite. Nearest known occurrence is 3.4 miles south of the parcel in Robert Louis Stevenson State Park.

Taxon	Status <sup>1</sup> Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
<b>Congested-headed hayfield tarplant</b> ( <i>Hemizonia congesta</i> ssp. <i>congesta</i> )	—/—/1B.2	Grassland, coastal scrub	<b>Low:</b> Some grassland habitat exists onsite. Nearest known occurrence is 4.4 miles NE of the parcel in Coyote Valley.
Deep scarred cryptantha ( <i>Cryptantha excavata</i> )	—/—/1B.1	Foothill woodland	<b>Low:</b> Some grassland habitat exists onsite.
Dimorphic snapdragon ( <i>Antirrhinum subcordatum</i> )	—/—/4.3	Serpentine chaparral	<b>None:</b> No serpentine habitat exists onsite.
Drymaria-like western flax ( <i>Hesperolinon drymarioides</i> )	—/—/1B.2	Serpentine outcrops	<b>None:</b> No serpentine outcrop habitat exists onsite.
Dwarf downingia ( <i>Downingia pusilla</i> )	—/—/2B.2	Vernal pools, freshwater wetland	<b>None:</b> No vernal pool habitat exists onsite.
Dwarf soaproot ( <i>Chlorogalum pomeridianum</i> var. <i>minus</i> )	—/—/1B.2	Serpentine chaparral	<b>None:</b> No serpentine chaparral habitat exists onsite.
<b>Early jewelflower</b> ( <i>Streptanthus vernalis</i> )	—/—/1B.2	Serpentine outcrops	<b>None:</b> No suitable serpentine outcrop habitat exists onsite. Nearest known occurrence is 2.6 miles NW of the parcel near Bucksnot Creek.
Eel-grass pondweed ( <i>Potamogeton zosteriformis</i> )	—/—/2B.2	Freshwater lakes, ponds	<b>Very Low:</b> No suitable pond habitat exists onsite.
Few-flowered navarretia ( <i>Navarretia leucocephala</i> ssp. <i>pauciflora</i> )	FE/ST/1B.1	Vernal pools	<b>Very Low:</b> No suitable vernal pool habitat exists onsite.
Franciscan onion ( <i>Allium peninsulare</i> var. <i>franciscanum</i> )	—/—/1B.2	Grassland	<b>Very Low:</b> Some grassland habitat exists onsite.
<b>Freed's jewelflower</b> ( <i>Streptanthus brachiatus</i> ssp. <i>hoffmanii</i> )	—/—/1B.2	Serpentine outcrops	<b>None:</b> No serpentine outcrop habitat exists onsite. Nearest known occurrence is 2.3 miles W of the parcel near Kroll Creek.
Geysers panicum ( <i>Panicum acuminatum</i> var. <i>thermale</i> )	—/—/1B.2	Chaparral, wetlands	<b>Very Low:</b> No chaparral seep habitat exists onsite.
Glandular western flax ( <i>Hesperolinon adenophyllum</i> )	—/—/1B.2	Chaparral	<b>Low:</b> Some suitable chaparral habitat exists onsite.

Taxon	Status <sup>1</sup> Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Grassleaf water plantain ( <i>Alisma gramineum</i> )	—/—/2B.2	Wetland, riparian	<u>Very Low</u> : Some suitable riparian habitat exists onsite.
<b>Green's jewelflower</b> ( <i>Streptanthus hesperidis</i> )	—/—/1B.2	Serpentine outcrops	<b>None</b> : No serpentine outcrop habitat exists onsite. Nearest known occurrence is 2.8 miles north of the parcel near CA-29.
<b>Greene's narrow-leaved daisy</b> ( <i>Erigeron greenel</i> )	—/—/1B.2	Serpentine grassland	<b>None</b> : No serpentine habitat exists onsite. Nearest known occurrence is 1.8 miles N of the parcel near Middletown.
<b>Hall's harmonia</b> ( <i>Harmonia hallii</i> )	—/—/1B.2	Chaparral, grassland	<b>Medium</b> : Some grassland habitat exists onsite. Nearest known occurrence is 4.4 miles NE of the parcel in Coyote Valley.
Hoffman's bristly jewelflower ( <i>Streptanthus glandulosus</i> spp. <i>hoffmanii</i> )	—/—/1B.3	Chaparral, foothill woodland	<u>Very Low</u> : Some suitable chaparral habitat exists onsite.
Holly-leaved ceanothus ( <i>Ceanothus purpureus</i> )	—/—/1B.2	Chaparral	<u>Very Low</u> : Some suitable chaparral habitat exists onsite.
Hospital Canyon larkspur ( <i>Delphinium californicum</i> ssp. <i>interius</i> )	—/—/1B.2	Foothill woodland	<u>Low</u> : Some woodland habitat exists onsite.
Indian Valley brodiaea ( <i>Brodiaea rosea</i> )	—/SE/3.1	Serpentine chaparral	<u>Very Low</u> : No serpentine habitat exists onsite.
Jepson's coyote thistle ( <i>Eryngium jepsonii</i> )	—/—/4.2	Wetlands and vernal pools	<b>None</b> : No vernal pool habitat exists onsite.
Jepson's dodder ( <i>Cuscuta jepsonii</i> )	—/—/1B.2	Chaparral, grassland	<u>Low</u> : Some chaparral habitat exists onsite.
<b>Jepson's leptosiphon</b> ( <i>Leptosiphon jepsonii</i> )	—/—/1B.2	Chaparral, serpentine grassland	<b>None</b> : No serpentine chaparral habitat exists onsite. Nearest known occurrence is 1.8 miles N of the parcel near Middletown.
<b>Jepson's milk-vetch</b> ( <i>Astragalus rattanii</i> var. <i>jepsonianus</i> )	—/—/1B.2	Chaparral, serpentine grassland	<u>Low</u> : Some suitable chaparral habitat exists onsite. Nearest known occurrence is 2.9 miles west of the parcel near Mt. St. Helena.

Taxon	Status <sup>1</sup> Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Keck's checkerbloom ( <i>Sidalcea keckii</i> )	FE/—/1B.1	Valley grassland, serpentine	<u>Very Low</u> : Some potential wetland habitat exists onsite.
Kenwood marsh checkerbloom ( <i>Sidalcea oregana</i> ssp. <i>valida</i> )	FE/SE/1B.1	Freshwater wetlands	<u>Very Low</u> : Some potential wetland habitat exists onsite.
<b>Konocti manzanita</b> ( <i>Arctostaphylos manzanita</i> ssp. <i>elegans</i> )	—/—/1B.3	<b>Chaparral, foothill woodland</b>	<b><u>High</u>: Some suitable chaparral habitat exists onsite. Nearest known occurrence is 0.1 miles S of the project parcel near St. Helena Creek.</b>
Kruckeberg's jewelflower ( <i>Streptanthus morrisonii</i> ssp. <i>kruckebergii</i> )	—/—/1B.2	Serpentine outcrops	<u>None</u> : No serpentine outcrop habitat exists onsite.
Lake County stonecrop ( <i>Sedella leiocarpa</i> )	—/—/1B.1	Rock outcrops	<u>Very Low</u> : No rock outcrop habitat exists onsite.
<b>Lake County western flax</b> ( <i>Hesperolinon didymocarpum</i> )	—/SE/1B.2	<b>Serpentine grasslands</b>	<b><u>None</u>: No suitable serpentine habitat exists onsite. Nearest known occurrence is 2.8 miles north of the parcel near CA-29.</b>
Legenere ( <i>Legenere limosa</i> )	—/—/1B.1	Vernal pool, freshwater wetland	<u>Very Low</u> : No suitable vernal pool habitat exists onsite.
Loch Lomond button-celery ( <i>Eryngium constancei</i> )	FE/SE/1B.1	Vernal pool, freshwater wetland	<u>Very Low</u> : No suitable vernal pool habitat exists onsite.
Many-flowered navarretia ( <i>Navarretia leucocephala</i> spp. <i>plieantha</i> )	FE/SE/1B.2	Vernal pools	<u>Very Low</u> : No vernal pool habitat exists onsite.
Marsh checkerbloom ( <i>Sidalcea oregana</i> ssp. <i>hydrophila</i> )	—/—/1B.2	Freshwater wetland, riparian	<u>Low</u> : Some suitable riparian habitat exists onsite.
Mayacamas popcornflower ( <i>Plagiobothrys lithocaryus</i> )	—/—/A1	Foothill woodland, valley grassland	<u>Very Low</u> : Presumed extinct. Last observed in 1884 near present-day Lakeport.
Milo Baker's lupine ( <i>Lupinus milo-bakeri</i> )	—/—/1B.1	Foothill woodland	<u>Low</u> : Some suitable woodland habitat exists onsite.
Morrison's jewelflower ( <i>Streptanthus morrisonii</i> ssp. <i>morrisonii</i> )	—/—/1B.2	Serpentine outcrops	<u>None</u> : No serpentine outcrop habitat exists onsite.



Taxon	Status <sup>1</sup> Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
<b>Mt. St. Helena morning-glory</b> ( <i>Calystegia collina</i> ssp. <i>oxyphylla</i> )	—/—/4.2	Serpentine chaparral	<b>Very Low:</b> No serpentine habitat exists onsite. Nearest known occurrence is 2.0 miles NE of the parcel in Long Valley.
<b>Napa bluecurls</b> ( <i>Trichostema ruygtii</i> )	—/—/1B.2	Chaparral, grassland	<b>Medium:</b> Some grassland habitat exists onsite. Nearest known occurrence is 4.1 miles S of the parcel near Livermore Road.
Napa checkerbloom ( <i>Sidalcea hickmanii</i> ssp. <i>napensis</i> )	—/—/1B.1	Chaparral	<u>Low:</u> Some woodland habitat exists onsite.
<b>Napa false indigo</b> ( <i>Amorpha californica</i> var. <i>napensis</i> )	—/—/1B.2	Forest, woodland	<u>Low:</u> Some woodland habitat exists onsite. Nearest known occurrence is 3.4 miles south of the parcel in Robert Louis Stevenson State Park.
<b>Narrow-anthered brodiaea</b> ( <i>Brodiaea leptandra</i> )	—/—/1B.2	Foothill woodland, grassland	<b>Medium:</b> Some grassland habitat exists onsite. Nearest known occurrence is 2.9 miles west of the parcel near Mt. St. Helena.
North Coast semaphore grass ( <i>Pleuropogon hooverianus</i> )	—/—/1B.1	Freshwater wetland, vernal pools	<u>None:</u> No suitable vernal pool habitat exists onsite.
Northern California black walnut ( <i>Juglans hindsii</i> )	—/—/1B.1	Riparian	<u>Low:</u> Some suitable riparian habitat exists onsite.
Northern meadow sedge ( <i>Carex praticola</i> )	—/—/2B.2	Freshwater wetlands	<u>Very Low:</u> Some suitable wetland habitat exists onsite.
Nuttall's ribbon-leaved pondweed ( <i>Potamogeton epihydrus</i> )	—/—/2B.2	Ponds and lakes	<u>None:</u> No suitable pond habitat exists onsite.
Oregon polemonium ( <i>Polemonium carneum</i> )	—/—/2B.2	Coastal scrub, yellow pine forest	<u>None:</u> No suitable habitat exists onsite.
Oval-leaved viburnum ( <i>Viburnum ellipticum</i> )	—/—/2B.3	Chaparral	<u>Very Low:</u> Some suitable chaparral habitat exists onsite.
Pappose tarplant ( <i>Centromadia parryi</i> ssp. <i>parryi</i> )	—/—/1B.2	Grassland, wetland	<u>Medium:</u> Some grassland habitat exists onsite.
Pennell's bird's beak ( <i>Cordylanthus tenuis</i> ssp. <i>capillaris</i> )	FE/SR/1B.2	Chaparral	<u>Very Low:</u> Some suitable chaparral habitat exists onsite.

Taxon	Status <sup>1</sup> Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Peruvian dodder ( <i>Cuscuta obtusiflora</i> var. <i>glandulosa</i> )	—/—/1B.2	Grassland, chaparral	<u>Very Low</u> : Parasitic plant, typical host plants not known from the property.
Pink creamsacs ( <i>Castilleja rubicundula</i> var. <i>rubicundula</i> )	—/—/1B.2	Grasslands	<u>Low</u> : Some grassland habitat exists onsite.
<b>Porter's navarretia</b> ( <i>Navarretia paradoxinota</i> )	—/—/1B.3	Grasslands, wetlands	<b><u>Low</u></b> : Some grassland habitat exists onsite. Nearest known occurrence is 1.8 miles N of the parcel near Middletown.
Raiche's manzanita ( <i>Arctostaphylos stanfordiana</i> ssp. <i>raichei</i> )	—/—/1B.1	Serpentine chaparral	<u>None</u> : No serpentine chaparral habitat exists onsite.
<b>Rincon Ridge ceanothus</b> ( <i>Ceanothus confusus</i> )	—/—/1B.1	Chaparral, foothill grassland	<b><u>Low</u></b> : Some suitable chaparral habitat exists onsite. Nearest known occurrence is 2.9 miles west of the parcel near Mt. St. Helena.
Rincon Ridge manzanita ( <i>Arctostaphylos stanfordiana</i> ssp. <i>decumbens</i> )	—/—/1B.1	Chaparral	<u>Very Low</u> : Some suitable chaparral habitat exists onsite.
Round-leaved filaree ( <i>California macrophylla</i> )	—/—/1B.2	Foothill grassland	<u>Low</u> : Some grassland habitat exists onsite.
<b>Saline clover</b> ( <i>Trifolium hydrophilum</i> )	—/—/1B.2	Wetland, riparian	<b><u>Low</u></b> : Some potential wetland habitat exists onsite. Nearest known occurrence is 2.0 miles NE of the parcel in Long Valley.
San Joaquin spearscale ( <i>Extriplex joaquinana</i> )	—/—/1B.2	Shadscale scrub, valley grassland	<u>None</u> : No alkalai scrub habitat exists.
Santa Rosa horkelia ( <i>Horkelia tenuiloba</i> )	—/—/1B.2	Chaparral	<u>Low</u> : Some suitable chaparral habitat exists onsite.
Sebastopol meadowfoam ( <i>Limnanthes vincularis</i> )	FE/SE/1B.1	Freshwater wetland, vernal pools	<u>None</u> : No suitable vernal pool habitat exists onsite.
<b>Serpentine cryptantha</b> ( <i>Cryptantha dissita</i> )	—/—/1B.2	Serpentine chaparral	<b><u>Very Low</u></b> : No serpentine habitat exists onsite. Nearest known occurrence is 1.8 miles N of the parcel near Middletown.

Taxon	Status <sup>1</sup> Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Serpentine daisy ( <i>Erigeron serpentinus</i> )	—/—/1B.3	Serpentine chaparral	<u>None</u> : No serpentine chaparral habitat exists onsite.
Sharsmith's western flax ( <i>Hesperolinon sharsmithiae</i> )	—/—/1B.2	Chaparral	<u>Very Low</u> : Some suitable chaparral habitat exists onsite.
Shining navarretia ( <i>Navarretia nigelliformis</i> ssp. <i>radians</i> )	—/—/1B.2	Vernal pools	<u>Very Low</u> : No suitable vernal pool habitat exists onsite.
Slender Orcutt grass ( <i>Orcuttia tenuis</i> )	FT/SE/1B.1	Grassland, freshwater wetlands	<u>Very Low</u> : No suitable wet meadow habitat exists onsite.
Small-flowered calycadenia ( <i>Calycadenia micrantha</i> )	—/—/1B.2	Foothill grassland	<u>Low</u> : Some suitable grassland habitat exists onsite.
Small groundcone ( <i>Kopsiopsis hookeri</i> )	—/—/2B.3	Redwood forest	<u>None</u> : No suitable forest habitat exists onsite.
Small pincushion navarretia ( <i>Navarretia meyersii</i> ssp. <i>deminuta</i> )	—/—/1B.1	Wetlands	<u>Low</u> : Some potential wetland habitat exists onsite. Nearest known occurrence is 2.0 miles NE of the parcel in Long Valley.
Snow Mountain buckwheat ( <i>Eriogonum nervulosum</i> )	—/—/1B.2	Serpentine outcrops	<u>None</u> : No serpentine outcrop habitat exists onsite. Nearest known occurrence is 2.3 miles W of the parcel near Kroll Creek.
Socrates Mine jewelflower ( <i>Streptanthus brachiatus</i> ssp. <i>brachiatus</i> )	—/—/1B.2	Serpentine outcrops	<u>None</u> : No serpentine habitat exists onsite.
Sonoma beardtongue ( <i>Penstemon newberryi</i> var. <i>sonomensis</i> )	—/—/1B.3	Chaparral	<u>Very Low</u> : Some chaparral habitat exists onsite. Nearest known occurrence is 2.9 miles west of the parcel near Mt. St. Helena.
Sonoma ceanothus ( <i>Ceanothus sonomensis</i> )	—/—/1B.2	Chaparral	<u>Low</u> : Some chaparral habitat exists onsite.
Thin-lobed horkelia ( <i>Horkelia tenuiloba</i> )	—/—/1B.2	Chaparral	<u>Low</u> : Some chaparral habitat exists onsite.
Three-fingered morning glory ( <i>Calystegia collina</i> ssp. <i>tridactylosa</i> )	—/—/1B.2	Serpentine grassland	<u>Very Low</u> : No serpentine habitat exists onsite.

Taxon	Status <sup>1</sup> Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Three peaks jewelflower ( <i>Streptanthus morrisonii</i> spp. <i>elatus</i> )	—/—/1B.2	Serpentine outcrops	<b>None:</b> No serpentine outcrop habitat exists onsite. Nearest known occurrence is 2.3 miles NW of the parcel near Bucksnot Creek.
Tracy's eriastrum ( <i>Eriastrum tracyi</i> )	—/SR/3.2	Chaparral	<u>Low:</u> Some chaparral habitat exists onsite.
Two-carpellate Western flax ( <i>Hesperolinon bicarpellatum</i> )	—/—/1B.2	Chaparral	<u>Low:</u> Some chaparral habitat exists onsite. Nearest known occurrence is 1.8 miles N of the parcel near Middletown.
Vine Hill ceanothus ( <i>Ceanothus foliosus</i> var. <i>vineatus</i> )	—/—/1B.1	Chaparral	<u>Low:</u> Some chaparral habitat exists onsite.
Vine Hill manzanita ( <i>Arctostaphylos densiflora</i> )	—/SE/1B.1	Chaparral	<u>Low:</u> Some chaparral habitat exists onsite.
Watershield ( <i>Brasenia schreberi</i> )	—/—/2B.3	Pond, wetland	<u>Very Low:</u> No suitable pond habitat exists in the project area.
White beaked-rush ( <i>Rhynchospora alba</i> )	—/—/2B.2	Wetlands, freshwater marsh	<u>Very Low:</u> Some potential wetland habitat exists onsite.
White flowered rein orchid ( <i>Piperia candida</i> )	—/—/1B.2	Yellow pine forest	<u>Low:</u> Some forest habitat exists onsite.
Wolly meadowfoam ( <i>Limnanthes floccosa</i> ssp. <i>floccosa</i> )	—/—/4.2	Vernal pools	<b>None:</b> No vernal pool habitat exists onsite.
<b>MOSSES, LICHENS &amp; LIVERWORTS</b>			
Angel's hair lichen ( <i>Ramalina thrausta</i> )	—/—/2B.1	Old growth conifer and hardwood forests	<u>Very Low:</u> Some suitable forest habitat exists onsite.
Coastal triquetrella ( <i>Triquetrella californica</i> )	—/—/1B.2	Forest, woodland	<u>Low:</u> Some woodland habitat exists onsite.
Elongate copper moss ( <i>Mielichhoferia elongata</i> )	—/—/4.3	Forest, woodland	<u>Very Low:</u> Some woodland habitat exists onsite.
Methuselah's beard lichen ( <i>Dolichousnea longissima</i> )	—/—/4.2	Old growth conifer and hardwood forests	<u>Medium:</u> Some suitable forest habitat exists onsite.

Taxon	Status <sup>1</sup> Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Slender silver moss ( <i>Anomobryum julaceum</i> )	—/—/4.2	Rocky substrates in forests, riparian	<u>Very Low</u> : No suitable riparian habitat exists onsite.
Torren's grimmia ( <i>Grimmia torenii</i> )	—/—/1B.3	Forest, woodland	<u>Very Low</u> : Some woodland habitat exists onsite.
FISH			
Chinook Salmon Coastal California DPS ( <i>Oncorhynchus kisutch</i> )	FT/SE/—	Freshwater streams, open ocean and estuaries	<u>None</u> : No suitable streams exist onsite.
Clear Lake Drainage Resident Rainbow trout ( <i>Oncorhynchus mykiss</i> )	FE/SE/—	Freshwater streams, open ocean and estuaries	<u>Low</u> : Some potential habitat exists in the project area in St. Helena Creek.
Clear Lake hitch ( <i>Lavinia exilicauda chi</i> )	FE/SE/—	Freshwater lakes and streams	<u>Low</u> : Some potential habitat exists in the project area in St. Helena Creek.
Coho Salmon Central California Coast ESU ( <i>Oncorhynchus kisutch</i> )	FE/SE/—	Freshwater streams, open ocean and estuaries	<u>None</u> : No suitable streams exist onsite.
Sacramento perch ( <i>Archoplites interruptus</i> )	—/SSC/—	Low gradient sloughs and lakes	<u>Very Low</u> : No suitable habitat exists in the project area, although species is found in Clear Lake.
Sacramento splittail ( <i>Pogonichthys macrolepidotus</i> )	—/SSC/—	Low gradient freshwater streams	<u>Low</u> : Some potential habitat exists in the project area in St. Helena Creek.
Steelhead Central California Coast DPS ( <i>Oncorhynchus mykiss irideus</i> )	FT/—/—	Freshwater streams, open ocean and estuaries	<u>None</u> : No suitable streams exist onsite.
Steelhead Northern California DPS ( <i>Oncorhynchus mykiss irideus</i> )	FT/—/—	Freshwater streams, open ocean and estuaries	<u>None</u> : No suitable streams exist onsite.
AMPHIBIANS & REPTILES			
California giant salamander ( <i>Dicamptodon ensatus</i> )	—/SSC/—	Wetlands and riparian areas	<u>Medium</u> : Some suitable habitat exists onsite surrounding riparian zones. Species is not known from the region. Nearest known occurrence is 1.7 miles SW of the parcel near Clayton Road.

Taxon	Status <sup>1</sup> Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
California red-legged frog ( <i>Rana draytonii</i> )	FT/SSC/—	Vernal pools, seasonal pools, stock ponds, and associated grasslands	<u>Very Low</u> : Some potential habitat exists onsite for breeding. Some low quality estivation habitat exists onsite.
California tiger salamander ( <i>Ambystoma californiense</i> )	FT/SSC/—	Ponds, streams, drainages, and associated uplands	<u>Very Low</u> : Some potential habitat exists onsite.
Foothill yellow-legged frog ( <i>Rana boylei</i> )	—/SSC/—	Wetlands, riparian, streams and ponds	<u>High</u> : Some suitable breeding and estivation habitat onsite in and around riparian zones. Nearest known occurrence is 1.7 miles NW of the parcel near Dry Creek Road.
Red bellied newt ( <i>Taricha rivularis</i> )	—/SSC/—	Woodland streams, riparian corridors	<u>Medium</u> : Some suitable breeding and estivation habitat onsite in and around riparian zones. Nearest known occurrence is 4.5 miles SW of the parcel near Ida Clayton Road.
Western pond turtle ( <i>Emys marmorata</i> )	—/SSC/—	Slow-moving creeks, streams, ponds, rivers, ditches.	<u>High</u> : Some suitable breeding and estivation habitat onsite in and around St. Helena Creek. Nearest known occurrence is 0.8 miles N of the parcel near Middletown Rancheria.
INVERTEBRATES			
Behren's silverspot butterfly ( <i>Speyeria zerene behrensii</i> )	FE/SSC/—	Coastal prairie	<u>None</u> : Requires blue violet to reproduce; none onsite.
Borax Lake cuckoo wasp ( <i>Hedychridium milleri</i> )	—/SSC/—	Lakes and streams	<u>Low</u> : Some suitable lake or stream habitat exists onsite.
Brownish dubiraphian riffle beetle ( <i>Dubiraphia brunneescens</i> )	—/SSC/—	Freshwater lakes and streams	<u>Low</u> : Some suitable stream habitat exists onsite.
California brackishwater snail ( <i>Tryonia imitator</i> )	—/SSC/—	Brackish wetlands	<u>Low</u> : Some suitable wetland habitat exists onsite.
California floater ( <i>Anodonta californiensis</i> )	—/SSC/—	Freshwater ponds, streams	<u>Low</u> : Some suitable stream habitat exists onsite.
California freshwater shrimp ( <i>Syncaris pacifica</i> )	FE/SE/—	Freshwater ponds	<u>None</u> : No suitable pond habitat exists onsite.

Taxon	Status <sup>1</sup> Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
California linderiella ( <i>Linderiella occidentalis</i> )	—/SSC/—	Vernal pools	<u>None</u> : No vernal pool habitat exists onsite.
Clear Lake pyrg ( <i>Pyrgulopsis ventricosa</i> )	—/SSC/—	Freshwater streams	<u>Low</u> : Some suitable stream habitat exists onsite.
Crotch bumble bee ( <i>Bombus crotchii</i> )	—/SSC/—	Grassland, chaparral	<u>Medium</u> : Some grassland habitat exists onsite.
Leech's skyline diving beetle ( <i>Hydroporus leechi</i> )	—/SSC/—	Freshwater ponds	<u>None</u> : No suitable pond habitat exists onsite.
Myrtle silverspot butterfly ( <i>Speyeria zerene myrtilae</i> )	FE/SSC/—	Coastal prairie, chaparral	<u>None</u> : Requires western dog violet for reproduction; none onsite.
Monarch butterfly California overwintering Population #1 ( <i>Danaus plexippus</i> )	—/SSC/—	Large trees required for roosting.	<u>Low</u> : Some suitable trees for roosting onsite.
<b>Obscure bumble bee</b> ( <i>Bombus caliginosus</i> )	—/SSC/—	<b>Grassland, foothill woodland, chaparral</b>	<b><u>Medium</u>: Some grassland habitat exists onsite. Nearest known occurrence is 3.4 miles south of the parcel in Robert Louis Stevenson State Park.</b>
Opler's longhorn moth ( <i>Adela oplerella</i> )	—/SSC/—	Usually associated with <i>Platystemon</i> (creamcups)	<u>Very Low</u> : No suitable host plants observed onsite.
Oregon floater ( <i>Anodonta oregonensis</i> )	—/SSC/—	Large freshwater streams	<u>Low</u> : Some suitable stream habitat exists onsite.
<b>Ricksecker's water scavenger beetle</b> ( <i>Hydrochara rickseckeri</i> )	—/SSC/—	<b>Freshwater lakes and ponds</b>	<b><u>Low</u>: No suitable pond habitat exists onsite. Nearest known occurrence is 2.0 miles NE of the parcel in Long Valley.</b>
<b>Serpentine cypress wood-boring beetle</b> ( <i>Trachykele hartmani</i> )	—/SSC/—	<b>Requires cypress trees in serpentine outcrops</b>	<b><u>Very Low</u>: No suitable host plants known from the project site. Nearest known occurrence is 2.9 miles west of the parcel near Mt. St. Helena.</b>
Sonoma zerene fritillary ( <i>Speyeria zerene sonomensis</i> )	—/SSC/—	Grasslands and meadows with <i>Viola</i> plants	<u>None</u> : Requires <i>Viola</i> for reproduction; none onsite.
Western bumblebee ( <i>Bombus occidentalis</i> )	—/SSC/—	Grassland	<u>Medium</u> : Some grassland habitat exists onsite.

Taxon	Status <sup>1</sup> Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Wilbur Springs minute moss beetle ( <i>Ochthebius reticulatus</i> )	—/SSC/—	Shorelines of hot springs	<u>None</u> : No suitable hot spring habitat exists onsite.
Wilbur Springs shorebug ( <i>Saldula usingeri</i> )	—/SSC/—	Ponds	<u>None</u> : No suitable pond habitat exists onsite.
Wilbur Springs shore fly ( <i>Paracoenia calida</i> )	—/SSC/—	Hot sulphur springs	<u>None</u> : No suitable hot spring habitat exists onsite.
Vernal pool andrenid bee ( <i>Andrena blennospermatis</i> )	—/SSC/—	Upland areas near vernal pools	<u>Low</u> : No suitable vernal pool habitat exists onsite although some grassland habitat exists.
BIRDS			
<b>American peregrine falcon</b> ( <i>Falco peregrinus anatum</i> )	—/SSC/—	<b>Forages in open grasslands, nests in trees</b>	<b><u>Low</u>: Some suitable nesting and foraging habitat exists. Nearest known occurrence is indistinct and covers the entirety of the USGS Detert Reservoir 7.5 minute quad, that encompasses the project parcel.</b>
Bank swallow ( <i>Riparia riparia</i> )	FE/SE/—	Typically found near lakes and streams	<u>Low</u> : Some suitable stream habitat exists onsite.
Bald eagle ( <i>Haliaeetus leucocephalus</i> )	—/SSC/—	Forages over open lakes and streams	<u>Very Low</u> : No suitable foraging or nesting habitat exists onsite.
Bell's sage sparrow ( <i>Artemisiospiza belli belli</i> )	—/SSC/—	Cliff faces near water	<u>Low</u> : Some suitable woodland habitat exists onsite.
Black swift ( <i>Cypseloides niger</i> )	—/SSC/—	Cliff faces near water	<u>Low</u> : Some suitable stream habitat exists onsite.
Burrowing owl ( <i>Athene cunicularia</i> )	—/SSC/—	Grasslands with ground squirrel burrows	<u>Low</u> : Some suitable grassland habitat exists onsite.
California black rail ( <i>Laterallus jamaicensis coturniculus</i> )	FE/SE/—	Coastal salt marshes and mudflats	<u>None</u> : No suitable salt marsh habitat exists onsite.
California horned lark ( <i>Eremophila alpestris actia</i> )	—/SSC/—	Herbaceous vegetation, chaparral	<u>Low</u> : Some suitable foraging and nesting habitat exists onsite.



Taxon	Status <sup>1</sup> Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Cooper's hawk ( <i>Accipiter cooperii</i> )	—/WL/—	Forages over open grassland.	<u>Low</u> : Some suitable foraging and nesting habitat exists onsite.
Ferruginous hawk ( <i>Buteo regalis</i> )	—/SSC/—	Forages over open grassland. Nests in old-growth trees.	<u>Low</u> : Some suitable foraging and nesting habitat exists onsite.
Golden eagle ( <i>Aquila chrysaetos</i> )	—/SSC/—	Forages over open grassland. Nests in old-growth trees.	<u>Medium</u> : Some suitable foraging and nesting habitat exists onsite.
Grasshopper sparrow ( <i>Ammodramus savannarum</i> )	—/SSC/—	Forages over open grassland.	<u>Low</u> : Some suitable foraging and nesting habitat exists onsite.
Great blue heron ( <i>Ardea herodias</i> )	—/SSC/—	Nests in trees, forages in wetlands and grasslands	<u>Medium</u> : Some suitable foraging or nesting habitat exists onsite.
Great egret ( <i>Ardea alba</i> )	—/SSC/—	Nests in trees, forages in wetlands and grasslands	<u>Medium</u> : Some suitable foraging or nesting habitat exists onsite.
Marbled murrelet ( <i>Brachyramphus marmoratus</i> )	FT/SE/—	Old growth coniferous forest	<u>Very Low</u> : No suitable coniferous forest habitat exists onsite.
Northern goshawk ( <i>Accipiter gentilis</i> )	—/SSC/—	Coniferous forest	<u>Very Low</u> : No suitable forest habitat exists onsite.
<b>Northern spotted owl</b> ( <i>Strix occidentalis</i> )	FT/ST/—	<b>Nests primarily in old growth forests</b>	<b><u>Very Low</u>: No suitable nesting habitat onsite. Some marginal foraging habitat onsite. Nearest occurrence is 1.8 miles to the W near St. Mary's Creek. Other occurrences between 2 and 4 miles near Activity Center SON0024.</b>
Osprey ( <i>Pandion haliaetus</i> )	—/WL/—	Areas with fish	<u>Low</u> : Some marginal foraging habitat onsite. Some poor quality nesting habitat onsite.
<b>Prairie falcon</b> ( <i>Falco mexicanus</i> )	—/SSC/—	<b>Forages over grasslands</b>	<b><u>Medium</u>: Some suitable nesting and foraging habitat exists onsite. Nearest known occurrence is indistinct and covers the entirety of the USGS Detert Reservoir 7.5 minute quad, that encompasses the project parcel.</b>
<b>Purple martin</b> ( <i>Progne subis</i> )	FE/SE/—	<b>Insectivorous, nests in cavities</b>	<b><u>Low</u>: Some suitable nesting habitat onsite. Some suitable foraging habitat onsite. Nearest known occurrence is 3.7 miles E of the parcel near Langtry Farms Golf Club.</b>

Taxon	Status <sup>1</sup> Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Ridgway's rail ( <i>Rallus obsoletus obsoletus</i> )	FE/SE/—	Mudflats and tidal sloughs	<u>None</u> : No suitable tidal habitat exists onsite.
Salt marsh common yellowthroat ( <i>Geothlypis trichas sinuosa</i> )	—/SSC/—	Forages in grasslands and nests in dense freshwater marshes	<u>Very Low</u> : No suitable nesting or foraging habitat exists onsite.
Sharp-shinned hawk ( <i>Accipiter striatus</i> )	—/SSC/—	Forest and woodland	<u>Very Low</u> : Some suitable nesting and foraging habitat exists onsite.
<b>Tricolored blackbird</b> ( <i>Agelaius tricolor</i> )	—/SSC/—	<b>Forages in grasslands and nests in freshwater marshes</b>	<b><u>Low</u>: No suitable nesting habitat exists onsite. Some suitable foraging habitat. Nearest known occurrence is 2.0 miles NE of the parcel in Long Valley.</b>
Western yellow-billed cuckoo ( <i>Coccyzus americanus occidentalis</i> )	—/SE/—	Woodland, riparian	<u>Low</u> : Some suitable nesting and foraging habitat exists onsite.
White-tailed kite ( <i>Elanus leucurus</i> )	—/CFP/—	Prefers to nest in marshes next to deciduous forests.	<u>Low</u> : Some suitable nesting and foraging habitat exists onsite.
Yellow breasted chat ( <i>Icteria virens</i> )	—/SSC/—	Dense shrubby growth, grasslands	<u>Low</u> : Some suitable grassland habitat exists onsite.
Yellow rail ( <i>Coturnicops noveboracensis</i> )	—/SSC/—	Breeds in marshes, forages in wet meadows	<u>None</u> : No suitable marsh habitat exists onsite.
Yellow warbler ( <i>Coturnicops noveboracensis</i> )	—/SSC/—	Riparian, shrubland, farmland	<u>Low</u> : Some suitable scrub habitat exists onsite.
<b>MAMMALS</b>			
American badger ( <i>Taxidea taxus</i> )	—/SSC/—	Open grassland habitats with plenty of prey	<u>Low</u> : Some suitable den habitat exists onsite.
Big free-tailed bat ( <i>Nyctinomops macrotis</i> )	—/SSC/—	Forages over open areas, roosts in trees or caves	<u>Low</u> : Some suitable foraging habitat. Few suitable roosts in project area.
<b>Fisher</b> ( <i>Pekania pennanti</i> )	—/SSC/—	<b>Forages and breeds primarily in forests</b>	<b><u>Low</u>: No suitable forest habitat exists onsite. Nearest known occurrence is 4.4 miles W of the parcel near Bear Creek.</b>

Taxon	Status <sup>1</sup> Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Fringed myotis ( <i>Myotis thysanodes</i> )	—/SSC/—	Roosts in caves or buildings and forages in open habitats	<u>Very Low</u> : Some suitable foraging habitat. Few suitable roosts in project area.
<b>Hoary bat</b> ( <i>Lasiurus cinereus</i> )	—/SSC/—	<b>Forages over open areas, roots in trees or caves at high altitude</b>	<u>Very Low</u> : Few suitable roosts in the project area. Nearest known occurrence is 2.0 miles NE of the parcel in Long Valley.
Long-eared myotis ( <i>Myotis evotis</i> )	—/SSC/—	Roosts in caves or buildings and forages in open habitats	<u>Low</u> : Some suitable foraging habitat. Few suitable roosts in project area.
Long-legged myotis ( <i>Myotis volans</i> )	—/SSC/—	Roosts in caves or buildings and forages in open habitats	<u>Very Low</u> : Some foraging habitat. Few suitable roosts in project area.
North American porcupine ( <i>Erethizon dorsatum</i> )	—/SSC/—	Require rocky areas or trees for dens, abundant open space for foraging	<u>Very Low</u> : Some suitable foraging and den habitat exists onsite.
<b>Pallid bat</b> ( <i>Antrozous pallidus</i> )	—/SSC/—	<b>Common in open dry habitats with rocky areas for roosting</b>	<u>Low</u> : Some foraging habitat exists. Few suitable roosts in the project area. Nearest known occurrence is 1.4 miles S of the parcel near St. Helena Creek.
<b>Silver haired bat</b> ( <i>Lasionycteris noctivagans</i> )	—/SSC/—	<b>Nocturnal, migratory, solitary, roosts in tree cavities</b>	<u>Low</u> : Some suitable trees exist for roosting. Some foraging habitat exists. Nearest known occurrence is 2.0 miles NE of the parcel in Long Valley.
Sonoma tree vole ( <i>Arborimus pomo</i> )	—/SSC/—	Old growth Douglas fir canopies	<u>None</u> : No suitable forest habitat exists onsite.
<b>Townsend's big-eared bat</b> ( <i>Corynorhinus townsendii</i> )	—/SSC/—	<b>Hibernate in mines or caves, roost in man made structures and caves</b>	<u>Medium</u> : Few man-made structures exist suitable for roosting. Some habitat for foraging. Nearest known occurrence is immediately adjacent to the parcel to the S along St. Helena Creek.
Western red bat ( <i>Lasiurus blossevillii</i> )	—/SSC/—	Forages over open areas, roots in trees or caves	<u>Very Low</u> : Little suitable roosting habitat. Some suitable foraging habitat.
Yuma myotis ( <i>Myotis yumanensis</i> )	—/SSC/—	Forages over open areas, roots in trees or caves	<u>Very Low</u> : No suitable nesting habitat exists onsite. Some suitable foraging habitat exists onsite.

Taxon	Status <sup>1</sup> Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
HABITATS			
Coastal & Valley Freshwater Marsh (CVFM)	—	—	<u>None</u> : No marsh habitat exists onsite.
Northern Basalt Flow Vernal Pool (NBFVP)	—	—	<u>None</u> : No basalt flow vernal pool habitat exists onsite.
Northern Hardpan Vernal Pool (NHVP)	—	—	<u>None</u> : No hardpan vernal pool habitat exists onsite.
Northern Vernal Pool (NVP)	—	—	<u>None</u> : No vernal pool habitat exists onsite.
Sycamore Alluvial Woodland (SAW)	—	—	<u>None</u> : No woodland habitat exists onsite.
Valley Needlegrass Grassland (VNG)	—	—	<u>Low</u> : Some grassland habitat exists onsite.
Valley Oak Woodland (VOW)	—	—	<u>None</u> : No valley oaks exist onsite.
Valley Sink Scrub (VSS)	—	—	<u>None</u> : No sink habitat exists onsite.

<sup>1</sup> Status:

Federal

FE = Federally Endangered Species

FT = Federally Threatened Species

State

SE = State Endangered Species

ST = State Threatened Species

SR = State Rare (applies to plants only)

SSC = California Species of Special Concern

CFP = California Fully Protected Species

CNPS (applies to plants only)

List 1B = plants considered rare, threatened, or endangered in California and elsewhere

List 2B = plants rare, threatened or endangered in California, but more common elsewhere

List 4 = plants of limited distribution

<sup>2</sup> USFWS

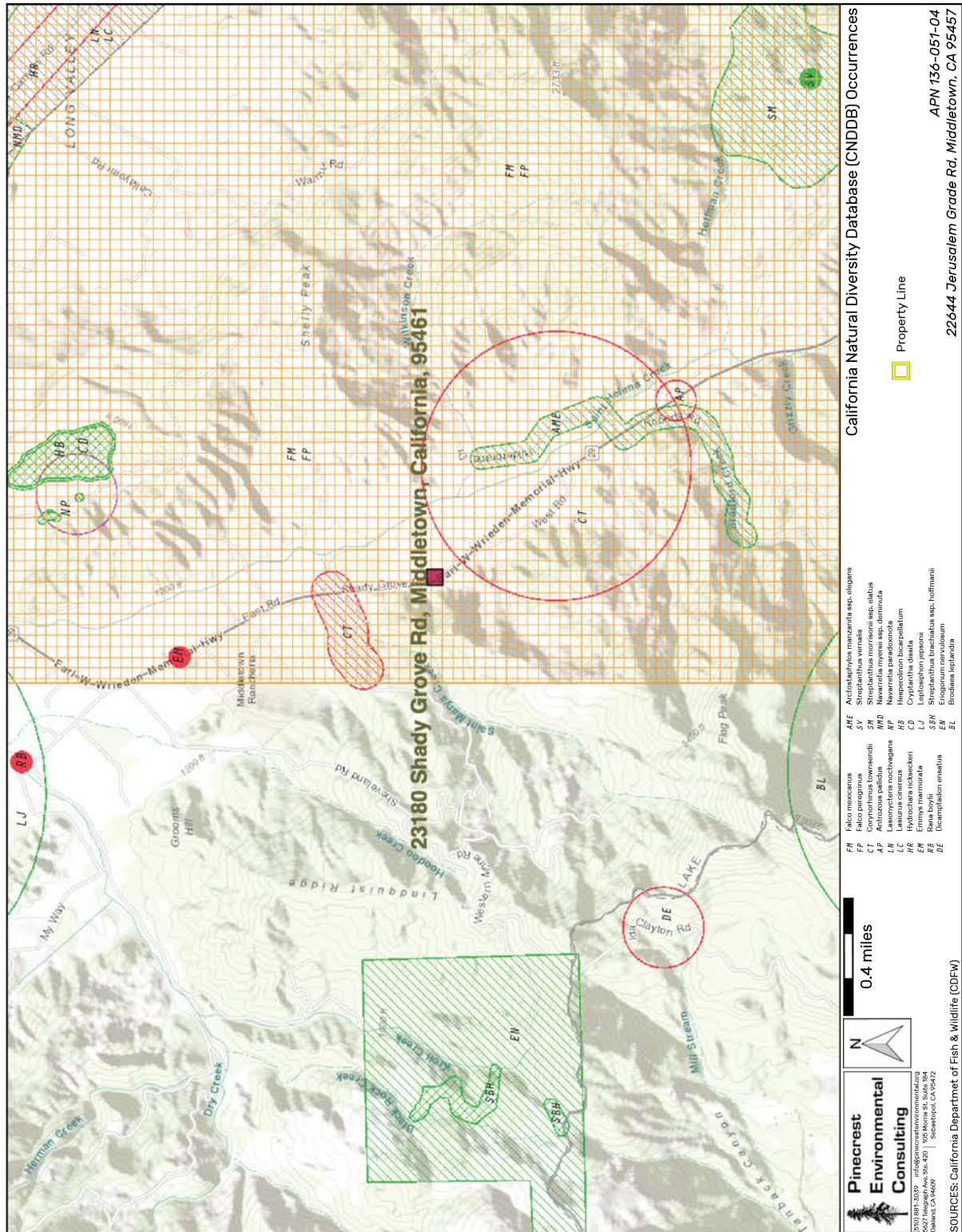
## APPENDIX B: SPECIES ENCOUNTERED

PLANTS
<i>Acer macrophyllum</i>
<i>Achillea millefolium</i>
<i>Achillea millefolium</i>
<i>Acmispon americanus</i>
<i>Agrostis capillaris</i>
<i>Aira caryophylla</i>
<i>Alnus rhombifolia</i>
<i>Arbutus menziesii</i>
<i>Arctostaphylos manzanita</i>
<i>Arctostaphylos viscida</i>
<i>Artemisia douglasiana</i>
<i>Athyrium filix-femina</i>
<i>Avena barbata</i>
<i>Baccharis pilularis</i>
<i>Brassica nigra</i>
<i>Briza major</i>
<i>Briza minor</i>
<i>Brodiaea elegans</i>
<i>Bromus diandrus</i>
<i>Bromus hordeaceus</i>
<i>Bromus-Cynosurus</i>
<i>Carduus pycnocephalus</i>
<i>Carex nudata</i>
<i>Ceanothus cuneatus</i>
<i>Ceanothus integerrimus</i>
<i>Centaurea solstitialis</i>
<i>Chlorogalum pomeridianum</i>
<i>Cirsium vulgare</i>
<i>Cirsium vulgare</i>
<i>Cladophora</i>
<i>Claytonia perfoliata</i>
<i>Croton setiger</i>
<i>Cynosurus echinatus</i>
<i>Cyperus eragrostis</i>
<i>Cytisus scoparius</i>

<i>Deschampsia cespitosa</i>
<i>Dichelostemma capitata</i>
<i>Dipsacus fullonum</i>
<i>Elymus caput-medusae</i>
<i>Elymus glaucus</i>
<i>Equisetum arvense</i>
<i>Eriodictyon californicum</i>
<i>Erodium botrys</i>
<i>Festuca myuros</i>
<i>Galium aparine</i>
<i>Gastridium phleoides</i>
<i>Genista monspessulana</i>
<i>Geranium molle</i>
<i>Gnaphalium californicum</i>
<i>Holcus lanatus</i>
<i>Holocarpha virgata</i>
<i>Hordeum murinum</i>
<i>Hypericum perforatum</i>
<i>Hypochaeris glabra</i>
<i>Iris douglasii</i>
<i>Juglans hindsii</i>
<i>Juncus patens</i>
<i>Lactuca serriola</i>
<i>Lupinus bicolor</i>
<i>Madia gracilis</i>
<i>Melilotus albus</i>
<i>Mentha pulegium</i>
<i>Phacelia imbricata</i>
<i>Phalaris aquatica</i>
<i>Pinus ponderosa</i>
<i>Pinus sabiniana</i>
<i>Plantago lanceolata</i>
<i>Pseudotsuga menziesii</i>
<i>Quercus douglasii</i>
<i>Quercus kelloggii</i>
<i>Quercus lobata</i>
<i>Ranunculus occidentalis</i>
<i>Rhamnus californica</i>
<i>Rubus armeniacus</i>
<i>Rumex acetocella</i>
<i>Rumex crispus</i>
<i>Salix lasiolepis</i>

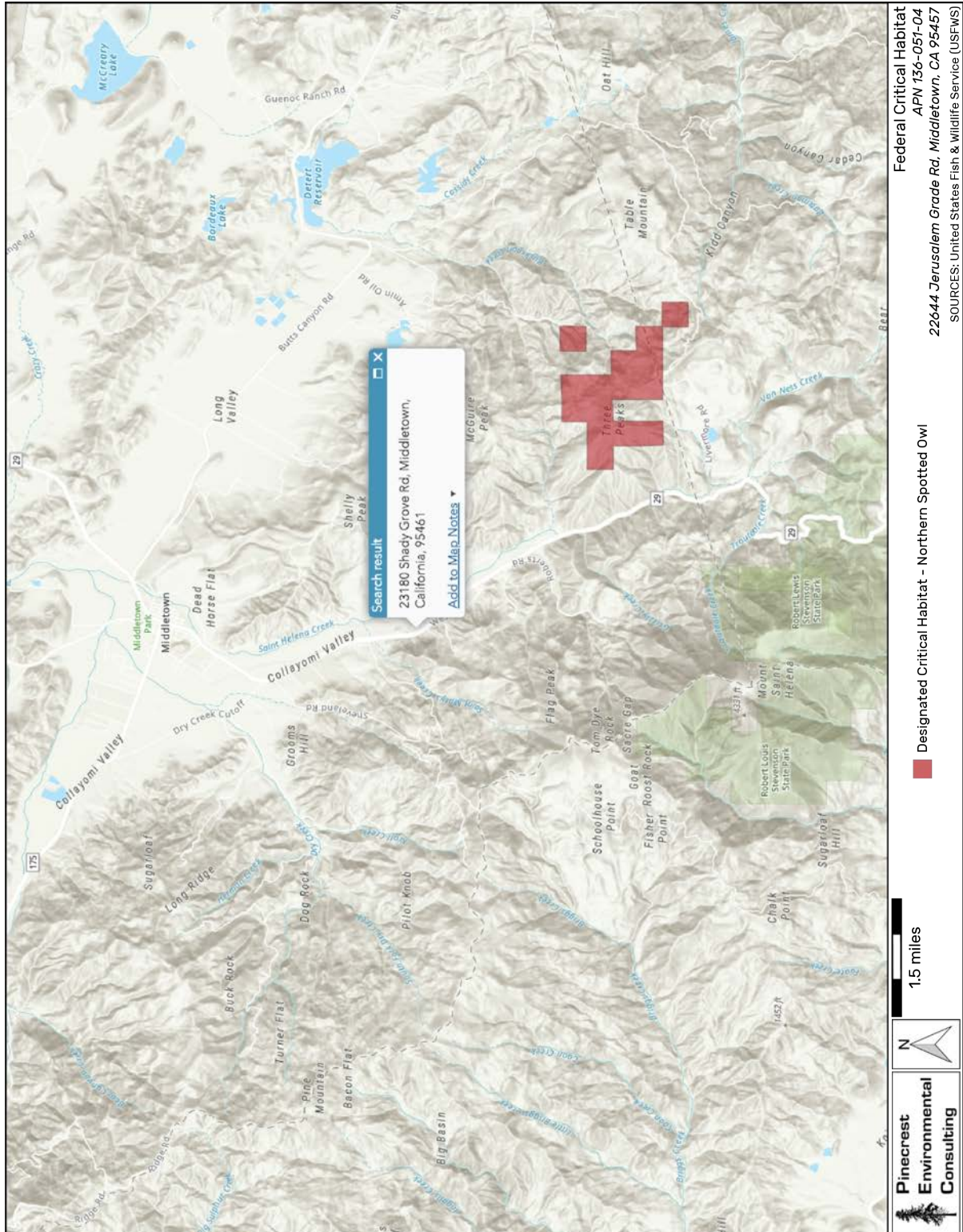
<i>Stachys ajugoides</i>
<i>Stellaria media</i>
<i>Torilis arvensis</i>
<i>Toxicodendron diversilobium</i>
<i>Trifolium hirtum</i>
<i>Typha angustifolia</i>
<i>Umbellularia californica</i>
<i>Verbena lasiostachys</i>
<i>Vicia sativa</i>

ANIMALS
<i>Buteo jamaicensis</i>
<i>Cathartes aura</i>
<i>Corvus brachyrhynchos</i>
<i>Cyanocitta stelleri</i>
<i>Gerridae spp.</i>
<i>Junco hyemalis</i>
<i>Lepus californicus</i>
<i>Melanerpes formicivorus</i>
<i>Melospiza melodia</i>
<i>Melospiza crissalis</i>
<i>Odocoileus hemionus</i>
<i>Otospermophilus beecheyi</i>
<i>Pica hudsonia</i>
<i>Pseudacris regalia</i>
<i>Thomomys bottae</i>





## APPENDIX D: MAP OF FEDERAL CRITICAL HABITAT



## APPENDIX E: CANNABIS CULTIVATION BEST MANAGEMENT PRACTICES

Best management practices (BMPs) are designed to prevent, minimize, and control the discharge of waste and pollutants associated with site operations and maintenance for the aforementioned project. Many of these BMPs are considered enforceable conditions under North Coast Regional Water Quality Board Order No. R1-2015-0023 and applicable State Water Resources Control Board *Cannabis* General Order No. WQ 2017-0023-DWQ.

### E.1 CANNABIS CULTIVATION

- Pesticide and fertilizer storage facilities shall be located outside of the Riparian Corridor setbacks for structures.
- Pesticide and fertilizer storage facilities shall not be located within 100 feet of a wellhead, or within 50 feet of identified wetlands.
- Pesticide and fertilizer storage facilities shall be adequate to protect pesticide and fertilizer containers from the weather.
- Store all bags and boxes of pesticides and fertilizers off the ground on pallets or shelves.
- If the structure does not have an impermeable floor, store all liquid pesticides and fertilizers on shelves capable of containing spills or provide appropriate secondary containment.
- Routinely check for leaks and spills.
- Have spill cleanup kit onsite to be able to respond to any leaks or spills.
- Inspect planting stock for pests and diseases prior to planting. Avoid planting stock with pests and disease and notify the supplier of the planting stock of the infestation.
- Comply with all pesticide laws and regulations as enforced by the California Department of Pesticide Regulation and Sonoma County Agricultural Commissioner.
- For pesticides with the signal word CAUTION that have listed food uses, comply with all pesticide label directions as they pertain to personal protective equipment, application method, and rate, environmental hazards, longest reentry intervals and greenhouse and indoor use directions.
- For all other pesticides, use must comply with all label requirements including site and crop restrictions.
- Prior to the use of any registered pesticide on cannabis, Operator Identification Number should be obtained from the County Agricultural Commissioner if required.
- Submit monthly pesticide use reports to the County Agricultural Commissioner if required.

- Prior to applying fertilizers, evaluate irrigation water, soils, growth media, and plant tissue to optimize plant growth and avoid over fertilization.
- Apply fertilizers at label rates and no higher.
- Do not apply fertilizers in a way that will result in runoff that may contaminate ground or surface water or escape via airborne drift or fugitive dust.
- Observe riparian corridor setbacks for agricultural cultivation as applicable. These shall be maintained as “no touch” areas. The removal of vegetation is prohibited within these setback areas.
- No equipment, vehicles, or other materials shall be stored in the riparian setback areas.
- Composting areas shall not be located in the riparian setback areas.
- Irrigation must be conducted in a manner that does not result in runoff from the cultivated area.
- Any water tanks or storage facilities must obtain all necessary permits from the Sonoma County Permit and Resource Management Department (PRMD).
- The use of membrane based water bladders is prohibited.
- If using an irrigation system, inspect for and repair leaks prior to planting each year and continuously during the season.
- Irrigation systems shall be equipped with a backflow prevention devices and shutoff valves.
- Recycle or properly dispose of all plastic bags, containers, and irrigation materials.
- Properly dispose of green waste in a manner that does not discharge pollutants to a watercourse. This may be accomplished by composting, chipping, and/or shredding. The method of green waste disposal must be documented.
- Used growth medium (soil and other organic medium) shall be handled to minimize or prevent discharge of soil and residual nutrients and chemicals to watercourses. Proper disposal could include incorporating into garden beds, spreading on a stable surface and re-vegetating, storage in watertight dumpsters, or covering with tarps or plastic sheeting prior to proper disposal. The method of disposal must be documented.
- Compost piles are to be located outside of riparian setbacks for agricultural cultivation and in a manner that will not discharge pollutants to a watercourse. If necessary, construct a berm or install fiber roll around compost area to prevent runoff or use straw wattles around perimeter.
- Cover compost piles with tarp or impermeable surface prior to fall rains and continuously throughout the rainy season.
- Leave a vegetative barrier along the property boundary and interior watercourses to act as a pollutant filter.
- Avoid soil disturbance between November 1 and April 15 and during times of active precipitation.

- All exposed and disturbed soil must be covered with a minimum of 2 inches of mulch, such as straw, bark, wood chips, etc., by November 15. Alternatively, establish a thick cover crop over disturbed areas composed of native species.
- Erosion control materials shall be available on site at all times in the form of straw or appropriate mulch adequate to cover area of disturbed soil.
- In the event of a forecast storm event likely to produce runoff, apply mulch to disturbed areas prior to rain event.
- Any grading or drainage conducted as part of site preparation shall have the appropriate permits from the Sonoma County PRMD.

## **E.2 EROSION & SEDIMENT CONTROL**

- Erosion control and sediment detention devices and materials shall be incorporated into the cleanup/restoration work design and installed prior to the end of project work and before the beginning of the rainy season or any predicted rain events.
- Any continuing, approved project work conducted after October 15 shall have erosion control measures completed and up-to-date.
- All erosion control measures shall be inspected daily during severe rain events.
- Erosion control materials shall be, at minimum, stored on-site at all times during approved project work between May 1 and October 15.
- Approved project work within the 5-year flood plain shall not begin until all temporary erosion controls (straw bales or silt fences that are effectively keyed-in) are installed downslope of cleanup/restoration activities.
- Native species appropriate to the local habitat shall be used for all revegetation purposes. Non-invasive, non-persistent grass species (e.g., barley grass) may be used for their temporary erosion control benefits to stabilize disturbed slopes and prevent exposure of disturbed soils to rainfall.
- Upon work completion, all exposed soil present in and around the cleanup/restoration sites shall be stabilized within 7 days.
- The disturbed area will be minimized at all times to only that which is essential for the completion of the project.
- Provide temporary cover over disturbed areas that are not currently being worked on.
- Heavy equipment shall not be used in flowing water.
- Use of heavy equipment shall be avoided or minimized in a channel bottom with rocky or cobbled substrate.
- Heavy equipment shall not introduce chemicals or foreign sediment to the channel (e.g., remove mud from tracks or cover channel work area with plastic sheeting prior to heavy equipment entry).
- When heavy equipment is used, any woody debris and stream bank or streambed vegetation disturbed shall be replaced to a pre-project density with native species appropriate to the

site.

- When possible, existing ingress or egress points shall be used or work shall be performed remotely from the top of the creek banks.
- Divert runoff away from unprotected slopes or loose soils using a combination of mats, geotextiles, silt fencing, wattling, check dams, sediment basins, vegetated buffers, or rock armor.
- Deploy appropriate erosion control measures such as silt fencing or straw wattles around all temporary exposed piles or soil or surface disturbances.
- All temporary exposed piles or soil or surface disturbances shall have tarping and sand bags or other stabilization materials deployed in order to prevent discharge of sediments in the event of a rain or wind event.
- Geotechnical fabric shall be deployed on all exposed dirt surfaces with a slope of greater than 15% and staked in place during ground disturbing activities, and silt fencing deployed on slopes of greater than 15% where appropriate.
- Sand bags, straw bales, or other devices shall be placed at appropriate locations near and alongside the roadsides and swales in anticipation of large storm events.
- Bioswales and cultivation areas including parking areas shall be maintained free of trash including empty soil and pesticide or fertilizer containers.
- Locations of sediment sources shall be identified during rain events and mitigated where appropriate.
- Protect ditch inlets and outlets from erosion using rock armor.
- Silt fencing shall be installed downstream of rock piles, stockpiles, and temporary soils storage areas.
- Desilting or retention basins shall be installed if the capacity of the natural percolation exceeds the inputs during routine storm events.
- Sediment traps shall be used on all exposed driveway surfaces where natural vegetation is not able to be established.
- Exposed unvegetated surfaces will be graveled where appropriate.
- Rock placed for slope protection shall be the minimum necessary to avoid erosion, and shall be part of a design that provides for native plant revegetation and minimizes bank armoring.
- Soil exposed as a result of project work, soil above rock riprap, and interstitial spaces between rocks shall be revegetated with native vegetation by live planting, seed casting, or hydroseeding prior to the rainy season of the year work is completed.
- Avoidance of earthwork on steep slopes and minimization of cut/fill volumes, combined with proper compaction, shall occur to ensure the area is resilient to issues associated with seismic events and mass wasting. If cracks are observed, or new construction is anticipated, consultation with a qualified professional is recommended.
- Culvert fill slopes shall be constructed at a 2:1 slope or shall be armored with rock.

- If it is necessary to conduct work in or near a live stream, the work space shall be isolated to avoid project activities in flowing water.
- Any spoils associated with site maintenance shall be placed in a stable location where it cannot enter a watercourse.
- Sidecasting shall be minimized and shall be avoided on unstable areas or where it has the potential to enter a watercourse.
- Entrance to the project site shall be maintained in a condition that will prevent tracking or flowing of sediment into the public right-of-way.
- All sediment spilled, dropped, washed, or tracked onto the public right-of-ways shall be removed immediately.
- When necessary, wheels shall be cleaned to remove sediment prior to entrance onto public rights-of-ways.
- When wheel washing is required, it shall be done in an area stabilized with crushed stone that drains into a sediment trap fitted with appropriate erosion control measures.
- To control surface water runoff in and around cultivation areas use fiber rolls or wattling and stake appropriately and perpendicular to the flow path.
- Cover crops should be utilized on all exposed slopes that are not able to be protected by other means.
- Cover crops should be native species as described in the associated biological resources report.
- Rip compacted soils prior to placing spoils to prevent the potential for ponding under the spoils that could result in spoil site failure and subsequent sedimentation.
- Compact and contour stored spoils to mimic the natural slope contours and drainage patterns to reduce the potential for fill saturation and failure.
- Ensure that spoil materials are free of woody debris, and not placed on top of brush, logs or trees.
- Inspect all roads and culverts regularly for blockages.

### **E.3 WATER USE & POLLUTION**

- Ensure that all appropriate water rights permits are filed with the State Water Resources Control Board.
- Notify the California Department of Fish and Wildlife by submitting a Lake and Streambed Alteration (LSA) notification package if the proposed activities involve substantial diversion from or alteration of the bed or bank of a stream or other waterbody.
- Ensure that all water storage features are permitted from the Department of Water Rights if necessary.



- All refueling and pesticide and chemical storage and transfer shall occur greater than 100 feet away from any swales, creeks, or natural areas.
- All refueling and pesticide and chemical storage and transfer shall occur on top of an impermeable metal or other fabric mat that is no less than 2 inches high on all sides and capable of completely containing any spillage.
- Concrete truck and other vehicles shall not be washed out in natural areas or directly onto soil and shall be washed out into a metal or other impermeable basin and disposed of properly such that no water is discharged to the soil.
- All waste shall be kept in plastic drums with tight fitting lids so that water is not able to make contact with the contents and potentially leach to the environment.
- All pesticide sprays shall occur on windless nights for outdoor facilities.
- Chemical or fertilizer wastes shall never be disposed of into swales or creeks and shall be contained inside closed-roof facilities and designated with appropriate labeling until it is possible to dispose of properly.
- Septic leach fields and graywater mulch fields shall be maintained free of large vegetation and not used for aboveground storage that may impact their proper functioning.
- Chemical contamination (fuel, grease, oil, hydraulic fluid, solvents, etc.) of water and soils is prohibited during routine equipment operation and maintenance.
- The use or storage of petroleum-powered equipment shall be accomplished in a manner that prevents the potential release of petroleum materials into waters of the state (Fish and Game Code 5650).
- Schedule excavation and grading activities for dry weather periods.
- Designate a contained area for equipment storage, short-term maintenance, and refueling. Ensure it is located at least 50 feet from waterbodies.
- Inspect vehicles for leaks and repair immediately.
- Clean up leaks, drips and other spills immediately to avoid soil or groundwater contamination.
- Conduct major vehicle maintenance and washing offsite.
- Ensure that all spent fluids including motor oil, radiator coolant, or other fluids and used vehicle batteries are collected, stored, and recycled as hazardous waste offsite.
- Ensure that all construction debris is taken to appropriate landfills and all sediment disposed of in upland areas or offsite, beyond the 100-year floodplain.
- Use dry cleanup methods (e.g., absorbent materials, cat litter, and/or rags) whenever possible. If necessary for dust control, use only a minimal amount of water.
- Sweep up spilled dry materials immediately.
- Separate organic material (e.g., roots, stumps) from the dirt fill and store separately. Place this material in long-term, upland storage sites, as it cannot be used for fill.
- Spoils shall not be placed or stored in locations where soils are wet or unstable, or where slope stability could be adversely affected.

- Do not locate spoil piles in or immediately adjacent to wetlands and watercourses.
- Store spoil piles in a manner (e.g. cover pile with plastic tarps and surround base of pile with straw wattle) or location that would not result in any runoff from the spoil pile ending up in wetlands and watercourses.
- Keep temporary disposal sites out of wetlands, adjacent riparian corridors, and ordinary high water areas as well as high risk zones, such as 100-year floodplain and unstable slopes.
- Conduct operations on a size and scale that considers available water sources and other water use and users in the planning watershed.
- Implement water conservation measures such as rainwater catchment systems, drip irrigation, mulching, or irrigation water recycling where possible.
- Hauled water utilized for irrigation shall be documented via receipt or similar, and show the date, name, and license plate of the water hauler, and the quantity of water purchased.
- If using a water storage tank, do not locate the tank in a flood plain or next to equipment that generates heat. Locate the tank so it is easy to install, access, and maintain.
- Vertical tanks should be installed according to manufacturer's specifications and placed on firm, compacted soil that is free of rocks/sharp objects and capable of bearing the weight of the tank and its maximum contents.
- Install float valves on tanks to prevent them from overflowing.
- Place proper lining or sealing in ponds to prevent water loss.

#### **E.4 ROAD MAINTENANCE & GENERAL CONSTRUCTION**

- Always limit work to the appropriate work date windows considering wet weather, migratory bird and other biological and environmental constraints that may be placed on the project.
- Proper design and location of roads and other features is critical to ensuring that a road or other feature be adequately drained and is best accomplished through consultation with a qualified professional.
- Placement of temporary access roads, staging areas, and other facilities shall avoid or minimize disturbance to habitat.
- If inspection identifies surface rills or ruts, then surfacing and drainage likely needs maintenance. Consultation should be made with a licensed professional to design appropriate erosion control strategies.
- Design of roads should allow for sheet flow of water and use water bars and rolling dips to break up slope length.
- Vehicle speed shall be kept to a maximum of 10 mph while onsite to minimize dust generation.
- All unvegetated and unpaved roadways and vehicle turnarounds shall be graveled to a depth of not less than 1" in order to prevent dust and sediment entrainment.

- Applicant will use geotechnical fabric or similar materials on exposed slopes, and distribute weed-free straw mulch wherever possible on exposed surfaces on the perimeter of all graded roads and graveled areas.
- Roads and the berms alongside all roads shall be maintained free of headcuts, gullies, stutter bumps, and other erosion features capable of discharging sediment to adjacent grassland areas.
- Roads will be graveled with clean rock whenever required to prevent dust and sediment erosion during the wet season.
- Whenever possible, road maintenance activities shall be performed from May 1 to October 15.
- Work performed outside of this window should take extra precautions for winter weather erosion control prevention beyond that which is described in this Plan.
- A 48 hour advance forecast for rain shall trigger a temporary cessation of work, and all soils piles will need to be covered and secured with sandbags or other materials.
- Placement of temporary access roads, staging areas, and other facilities shall avoid or minimize disturbance to habitat.
- Whenever feasible, finished grades shall not exceed 1.5:1 side slopes. In circumstances where final grades cannot achieve 1.5:1 slope, additional erosion control or stabilization methods shall be applied as appropriate for the project location.
- Spoils and excavated material not used during project activities shall be removed and placed outside of 100-year floodplains.
- Upon completion of grading, slope protection of all disturbed sites shall be provided prior to the rainy season through a combination of permanent vegetative treatment, mulching, geotextiles, and/or rock, or equivalent.
- Position vehicles and other apparatus so as to not block emergency vehicle access.
- After construction is complete, all storm drain systems and culverts shall be inspected and cleared of accumulated sediment and debris.
- Sediment barriers including wattles and silt fencing should be checked for sediment accumulation following each significant rainfall and sediment removed or the feature replaced as needed.
- Road drainage shall be discharged to a stable location away from a watercourse.
- Use sediment control devices, such as check dams, sand/gravel bag barriers, and other acceptable techniques, when it is neither practical nor environmentally sound to disperse ditch water immediately before the ditch reaches a stream.
- Within areas with potential to discharge to a watercourse (i.e. within riparian areas of at least 200 feet of a stream) road surface drainage shall be filtered through vegetation, slash, or other appropriate material or settled into a depression with an outlet with adequate drainage.

## E.5 SWALE & VEGETATION MANAGEMENT

- The work area shall be restored to pre-project work condition or better.
- Any stream bank area left barren of vegetation as a result of cleanup/restoration activities shall be stabilized by seeding, replanting, or other means with native trees, shrubs, and/or grasses appropriate to the site prior to the rainy season in the year work was conducted.
- Ensure that vegetated swales are properly formed, allow moderate velocity water passage without causing sediment entrainment, and are otherwise functioning properly.
- Create and expand vegetated bioswales where necessary, should additional construction or road maintenance be required, in order to maintain flow without scour.
- All bioswales and other drainage features requiring revegetation will be seeded with native vegetation and lawns and hedgerows maintained in good health and watered in dry years.
- Vegetation including grasses shall be mowed as necessary to create fire breaks and to prevent the accumulation of fuels that would be able to sustain a ground fire.
- All vegetation shall be surveyed on foot once a year by staff and new outbreaks of any invasive weeds identified by the California Invasive Plant Council as noxious or invasive to be removed by the owner or qualified landscaping professionals.
- Channels and swales that show evidence of overland flow and scour (e.g. bare of vegetation) shall be seeded with native grasses such as *Stipa pulchra*, *Hordeum brachyantherum*, *Elymus glaucus*, and *Bromus carinatus*, and kept vegetated at all times.
- If shrubs and non-woody riparian vegetation are disturbed, they shall be replaced with similar native species appropriate to the site.
- Disturbance to native shrubs, woody perennials or tree removal on the streambank or in the stream channel shall be avoided or minimized.
- If riparian trees over six inches dbh (diameter at breast height) are to be removed, they shall be replaced by native species appropriate to the site at a 3:1 ratio.
- Where physical constraints in the project area prevent replanting at a 3:1 ratio and canopy cover is sufficient for habitat needs, replanting may occur at a lesser replacement ratio.
- Vegetation planting for slope protection purposes shall be timed to require as little irrigation as possible for ensuring establishment by the commencement of the rainy season.
- The spread or introduction of exotic plant species shall be avoided to the maximum extent possible by avoiding areas with established native vegetation during cleanup/restoration activities, restoring disturbed areas with appropriate native species, and post-project monitoring and control of exotic species.
- Removal of invasive exotic species after construction activities is strongly recommended. Mechanical removal (hand tools, weed whacking, hand pulling) of exotics shall be done in preparation for establishment of native plantings.
- Where permanent soil stabilization is required a locally-appropriate mix of native grass species shall be used such as a mix containing *Nassella pulchra*, *Hordeum*

*brachyantherum*, *Elymus glaucus*, and *Bromus carinatus* or as described in the site's Biological Resources Assessment.

- Entire cultivation site shall be seeded and maintained as a permanent non-tilled cover crop during non-usage times. Straw mulch shall be used where native seeding is not practicable.
- Use mulches (e.g. wood chips or bark) in cultivation areas that do not have ground cover to prevent erosion and minimize evaporative loss.
- Mulch shall be applied at a rate of 4000 lbs / acre and seeding shall be applied to achieve 70% cover in the first year or approximately 200 lbs / acre.
- Annual inspections for the purpose of assessing the survival and growth of revegetated areas and the presence of exposed soil shall be conducted for three years following project work.
- Dischargers and/or their consultant(s) or third party representative(s) shall note the presence of native/non-native vegetation and extent of exposed soil, and take photographs during each inspection.
- Dischargers and/or their consultant(s) or third party representative(s) shall provide the location of each work site, pre- and post-project work photos, diagram of all areas revegetated and the planting methods and plants used, and an assessment of the success of the revegetation program in the annual monitoring report as required under relevant state and local water board regulations.

## E.6 IRRIGATION & CULTIVATION MANAGEMENT

- Cultivation-related waste shall be stored in a place where it will not enter a stream.
- Soil bags and other garbage shall be collected, contained, and disposed of at an appropriate facility, including for recycling where available.
- Pots shall be collected and stored where they will not enter a waterway or create a nuisance.
- Plant waste and other compostable materials be stored (or composted, as applicable) at locations where they will not enter or be blown into surface waters, and in a manner that ensures that residues and pollutants within those materials do not migrate or leach into surface water or groundwaters.
- Imported soil for cultivation purposes shall be minimized. In the event that containers (e.g. grow bags or grow pots) are used for cultivation, reuse of soil shall be maximized to the extent feasible.
- Spent growth medium (i.e. soil and other organic medium) shall be handled to minimize discharge of soil and residual nutrients and chemicals to watercourses. Proper handling of spent soil could include incorporating into garden beds, spreading on a stable surface and revegetation, storage in watertight dumpsters, covering with tarps or plastic sheeting prior to proper disposal.
- Trash containers of sufficient size and number shall be provided and properly serviced to contain the solid waste generated by the project.

- Provide roofs, awnings, or attached lids on all trash containers to minimize direct precipitation and prevent rainfall from entering containers.
- Use lined bins or dumpsters to reduce leaking of liquid waste. Design trash container areas so that drainage from adjoining roofs and pavement is diverted around the area(s) to avoid run-on.
- Make sure trash container areas are screened or walled to prevent off-site transport of trash. Consider using refuse containers that are bear-proof and/or secure from wildlife.
- Refuse shall be removed from the site on a frequency that does not result in nuisance conditions, transported in a manner that they remain contained during transport, and the contents shall be disposed of properly at a proper disposal facility.
- Ensure that human waste disposal systems do not pose a threat to surface or ground water quality or create a nuisance. Onsite treatment systems should follow applicable County ordinances for human waste disposal requirements, consistent with the applicable tier under the State Water Resources Control Board Onsite Waste Treatment System Policy.
- Install buffer strips, bioswales, or vegetation downslope of cultivation areas to filter runoff of chemicals from irrigation.
- Irrigate at rates to avoid or minimize runoff.
- Regularly inspect and repair leaks in mains and laterals, in irrigation connections, or at the ends of drip tape and feeder lines.
- Design irrigation system to include redundancy (i.e., safety valves) in the event that leaks occur, so that waste of water is prevented and minimized.
- Recapture and reuse irrigation runoff (tailwater) where possible, through passive (gravity-fed) or active (pumped) means.
- Construct retention basins for tailwater infiltration; percolation medium may be used to reduce pollutant concentration in infiltrated water. Constructed treatment wetlands may also be effective at reducing nutrient loads in water.
- Ensure that drainage and/or infiltration areas are located away from unstable or potentially unstable features.
- Regularly replace worn, outdated or inefficient irrigation system components and equipment.
- Leave a vegetative barrier along the property boundary and interior watercourses to act as a pollutant filter.
- Employ rain-triggered shutoff devices to prevent irrigation after precipitation.
- Evaluate irrigation water, soils, growth media, and plant tissue to optimize plant growth and avoid over-fertilization.
- All chemicals shall be stored in a manner, method, and location that ensures that there is no threat of discharge to waters of the State.
- Products shall be labeled properly and applied according to the label.



- Use integrated pest management strategies that apply pesticides only to the area of need, only when there is an economic benefit to the grower, and at times when runoff losses are least likely.
- Periodically calibrate pesticide application equipment.
- Use anti-backflow devices on water supply hoses, and other mixing/loading practices designed to reduce the risk of runoff and spills.
- Petroleum products shall be stored with a secondary containment system such as a pan or a tub
- Throughout the rainy season, any temporary containment facility shall have a permanent cover and side-wind protection, or be covered during non-working days and prior to and during rain events.
- Materials shall be stored in their original containers and the original product labels shall be maintained in place in a legible condition. Damaged or otherwise illegible labels shall be replaced immediately.
- Bagged and boxed materials shall be stored on pallets and shall not be allowed to accumulate on the ground. To provide protection from wind and rain throughout the rainy season, bagged and boxed materials shall be covered during non-working days and prior to rain events.
- Have proper chemical and fertilizer storage instructions posted at all times in an open and conspicuous location.
- Prepare and keep a spill prevention and cleanup plan onsite when dealing with any hazardous materials.
- Keep ample supply of appropriate spill clean-up material near storage areas.
- Plant cover crops to boost soil fertility, improve soil texture, and protect from storm caused sediment runoff.

## APPENDIX F: STREAM CLASSIFICATION CRITERIA

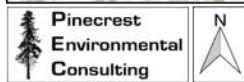
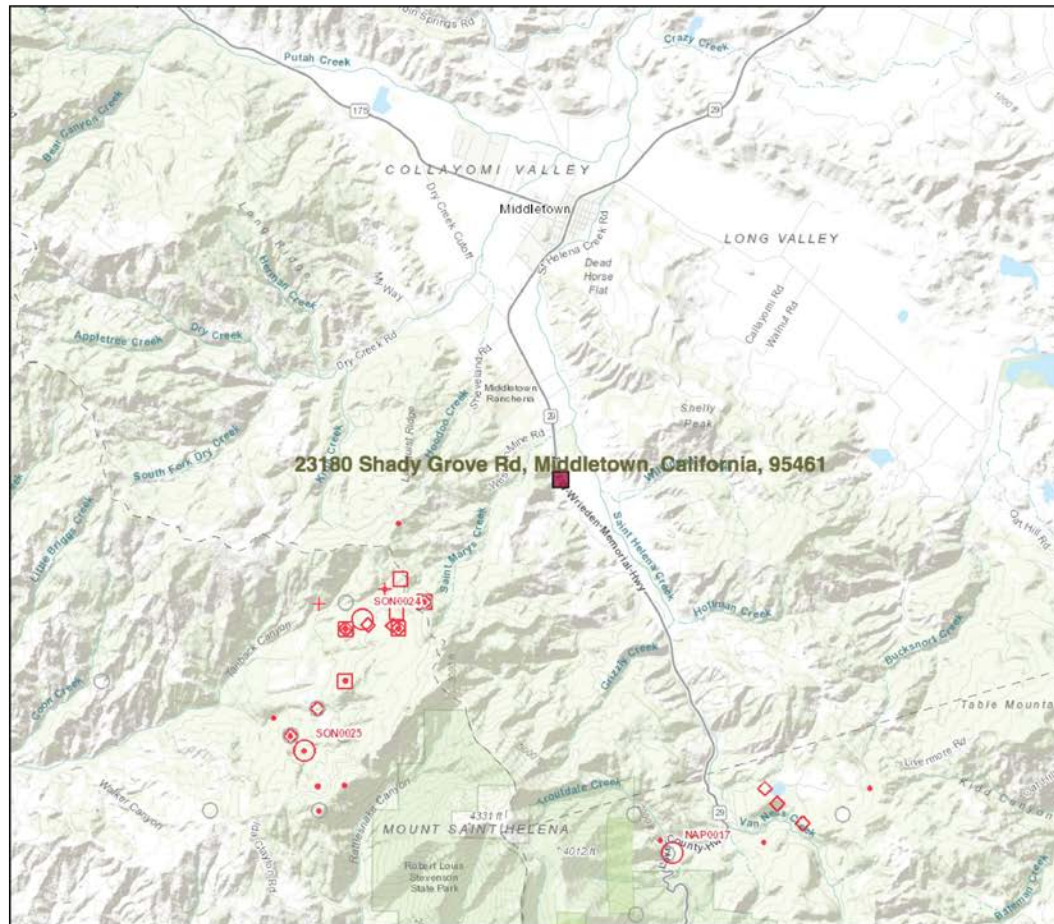
The following stream classification criteria were copied from the California Department of Forestry & Fire Protection *Forest Practice Rules* (CALFIRE 2017) and is widely used by many state and local agencies. Most state and local jurisdictions require setbacks of 50, 100, and 150 feet from Class III, II, and I streams, respectively (as shown in Figure 4) although greater setbacks may be required in some jurisdictions.

**Watercourse** – a natural or artificial channel through which water flows.

- **Perennial watercourse (Class I\*):**
  1. In the absence of diversions, water is flowing for more than nine months during a typical year,
  2. Fish always or seasonally present onsite or includes habitat to sustain fish migration and spawning, and/or
  3. Spring: an area where there is concentrated discharge of ground water that flows at the ground surface. A spring may flow any part of the year. For the purpose of this Policy, a spring does not have a defined bed and banks.
- **Intermittent watercourse (Class II\*):**
  1. In the absence of diversions, water is flowing for three to nine months during a typical year,
  2. Provides aquatic habitat for non-fish aquatic species,
  3. Fish always or seasonally present within 1,000 feet downstream, and/or
  4. Water is flowing less than three months during a typical year and the stream supports riparian vegetation.
- **Ephemeral watercourse (Class III\*):** In the absence of diversion, water is flowing less than three months during a typical year and the stream does not support riparian vegetation or aquatic life. Ephemeral watercourses typically have water flowing for a short duration after precipitation events or snowmelt and show evidence of being capable of sediment transport.
- **Other watercourses (Class IV\*):** Class IV watercourses do not support native aquatic species and are man-made, provide established domestic, agricultural, hydroelectric supply, or other beneficial use.

\*Except where more restrictive, stream class designations are equivalent to the Forest Practice Rules Water Course and Lake Protection Zone definitions (California Code of Regulations, title 14, Chapter 4. Forest Practice Rules, Subchapters 4, 5, and 6 Forest District Rules, Article 6 Water Course and Lake Protection).

## APPENDIX G: REGIONAL NSO OCCURRENCES



(510) 881-5059 | info@pinecrestenvironmental.org  
5627 Telegraph Ave. Ste. 420 | 105 Morris St. Suite 304  
Oakland, CA 94609 | Sebastopol, CA 95962



1000 feet

Northern Spotted Owl (*Strix occidentalis*) occurrences

- Property Line
- Nest
- Pair
- + Young
- Activity Center
- Other Positive Observation
- Negative Observation

SOURCES: U.S. Fish & Wildlife Dept.

APN 014-006-16  
23180 Shady Grove Rd, Middletown, CA 95461

## APPENDIX H: AVOIDANCE & MINIMIZATION MEASURES FOR WORKING AROUND FYLF & NSO

A comprehensive list of BMP's and avoidance measures relating to erosion, sediment control, water use, vegetation maintenance, and industrial practices are provided in Appendix D. However, below are some specific Avoidance & Minimization Measures (AMM) designed to ensure that there will be no incidental take of any special-status animals during the course of construction or operation of the proposed commercial *Cannabis* farm for both Foothill yellow-legged frog (*Rana boylei*; FYLF) and Northern spotted owl (*Strix occidentalis*; NSO).

- All employees and contractors including one-time contractors and day-laborers shall be distributed cards with visual identifications of both FYLF and NSO, including both male and female, and juvenile and adult forms, and be briefed on all of the following AMMs contained herein.
- Operator should obtain signatures from all employees at the bottom of a copy of these A&M's on an annual basis to demonstrate understanding of these measures.
- Any animals of FYLF or NSO observed onsite should result in immediate stoppage of all work, and allowed to leave the site unmolested.
- All animals observed onsite should be allowed to leave the premises voluntarily, unmolested, and their locality should be recorded in the CNDDB database if possible.
- Vehicle speeds should be limited to 5 mph all year, with 3 mph limit during FYLF breeding and migration season, October to June.
- Avoid ground disturbance including trenching, grading, or road scraping without first clearing the site from a qualified biologist.
- All roadways and culverts shall be inspected once before major rain events and once after to ensure that all erosion control materials are effective.
- Operator shall keep onsite sufficient emergency road erosion repair materials to fix sediment discharge problems during storms in real-time.
- All containers and other vessels shall be checked before use to ensure that no animals are inside.
- Vessels shall be turned over and not made into "pitfall traps" out of which animals cannot escape.
- No uncovered holes with vertical sides greater than 5 inches should exist for more than 24 hours.

- Native woody species should be planted wherever revegetation is required.
- Preconstruction breeding bird surveys for NSO are recommended if tree removal is to take place.
- Avoid loud noises or heavy machinery work during the breeding and nesting window which is generally February 1 to September 1.
- Aerial wires, strings, or nets or other hazards that could impact birds including owls while in flight or cause entanglement are prohibited.
- All lights shall be shielded from glare escaping upwards or sideways in the evenings and at night, and all exterior lights turned off when not in use.