

BIOLOGICAL ASSESSMENT

**23203, 23155, 23107 & 23095 JERUSALEM GRADE
[APN 013-015-46, 013-015-47, 013-015-48 & 013-015-44]**

LAKE COUNTY, CALIFORNIA

SUBMITTED TO:

Lake County Planning Consultants
23155 Jerusalem Grade
Middletown, California 95457

PREPARED BY:

Pinecrest Environmental Consulting
5627 Telegraph Avenue #420
Oakland, California 94609
(510) 881-3039

PROJECT No LAK004



JANUARY 23, 2020

TABLE OF CONTENTS

1.0 INTRODUCTION	3
1.1 PURPOSE	3
1.2 LOCATION	3
1.2.1 <i>Site Overview</i>	3
1.2.2 <i>Critical Habitat</i>	3
1.2.3 <i>Special-Status Species Occurrences</i>	4
1.2.4 <i>Landforms & Water Features</i>	5
1.2.5 <i>Existing Structures</i>	5
1.2.6 <i>Regional Land Uses</i>	6
1.3 METHODS	7
1.3.1 <i>Records Search & Literature Review</i>	7
1.3.2 <i>Field Surveys</i>	7
2.0 RESULTS	8
2.1 NATURAL COMMUNITIES IN THE EVALUATION AREA	8
2.2 NATURAL COMMUNITIES WITHIN THE PROJECT SITE	8
2.2.1 <i>Annual Avena-Bromus-Festuca-Cynosurus Grassland</i>	8
2.2.2 <i>Quercus-Pinus Woodland</i>	9
2.2.3 <i>Salix-Populus Riparian Corridor</i>	9
2.3 WILDLIFE	9
2.4 SOILS & GEOMORPHOLOGY	10
3.0 SUMMARY & CONCLUSIONS	11
4.0 REGULATORY FRAMEWORK	12
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
5.0 REFERENCES	14

FIGURE 1: REGIONAL LOCATION	15
FIGURE 2: 40 FOOT CONTOURS	16
FIGURE 3: WATER FEATURES.....	17
FIGURE 4: BUFFERS & SETBACKS.....	18
FIGURE 5: PHOTOGRAPH OF MAIN ACCESS ROAD	19
FIGURE 6: PHOTOGRAPH OF RESIDENCE	20
FIGURE 7: PHOTOGRAPH OF CLASS III WATERCOURSE.....	21
FIGURE 8: PHOTOGRAPH OF CLASS III WATERCOURSE.....	22
FIGURE 9: PHOTOGRAPH OF VEGETATED SWALE	23
FIGURE 10: PHOTOGRAPH OF CLASS I GUNTHER CREEK.....	24
FIGURE 11: PHOTOGRAPH OF WATER STORAGE & WELL	25
FIGURE 12: PHOTOGRAPH OF WATER STORAGE	26
FIGURE 13: PHOTOGRAPH OF PROPOSED CULTIVATION AREA	27
FIGURE 14: PHOTOGRAPH OF OFFSITE CULVERT	28
APPENDIX A: SPECIAL-STATUS SPECIES CONSIDERED.....	29
APPENDIX B: SPECIES ENCOUNTERED	44
APPENDIX C: CNDDDB OCCURRENCES MAP.....	47
APPENDIX D: MAP OF FEDERAL CRITICAL HABITAT	48
APPENDIX E: CANNABIS CULTIVATION BEST MANAGEMENT PRACTICES	49
E.1 CANNABIS CULTIVATION.....	49
E.2 EROSION & SEDIMENT CONTROL.....	51
E.3 WATER USE & POLLUTION	53
E.4 ROAD MAINTENANCE & GENERAL CONSTRUCTION.....	55
E.5 SWALE & VEGETATION MANAGEMENT	56
E.6 IRRIGATION & CULTIVATION MANAGEMENT	58
APPENDIX F: STREAM CLASSIFICATION CRITERIA	61

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 23203, 23155, 23107 & 23095 Jerusalem Grade in unincorporated Lake County, near the town of Middletown (Figure 1). The parcels are located in Section 14, Township 11 North, Range 6 West, on the USGS Jericho Valley 7.5 minute quad (Figure 2). The approximate latitude and longitude of the centroid of the parcel is 38.866 (N), -122.780 (W). The parcels are designated Assessor's Parcel Numbers 013-015-46, 013-015-47, 013-015-48 & 013-015-44, and are deeded 4.72, 5.59, 4.79, and 4.9 acres, respectively. All parcels are zoned RL, and are 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 parcels are accessed via dirt and/or paved driveways (Figure 6) that branches to the southwest off of the improved dirt road known as Jerusalem Grade (Figure 5). There are several potential cultivation areas (Figure 13) located in grassy portions of the parcels that are outside of the watercourse setbacks (Figures 3 & 4).

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 4.3 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 18 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.

There is one known occurrence of special-status animal species from the project parcel, an indistinct locality of Prairie Falcon (*Falco mexicanus*) located in the Jericho Valley 7.5 minute USGS quad, observed in 1991. The next nearest known occurrence of special-status animal species is Foothill Yellow-Legged Frog (*Rana boylei*; FYLF) observed in 2018 located 1.9 miles northwest of the project parcel in Soda Creek. There is also an occurrence of FYLF 2.6 miles south of the parcel in Putah Creek. The next nearest known occurrences of special-status animal species is Western Pond Turtle (*Emys marmorata*) observed in 1946 located 2.4 miles southeast of the project parcel in Putah Creek (Appendix C). The next nearest known occurrence of special-status animal species is Bald Eagle (*Haliaeetus leucocephalus*) located 2.7 miles southwest of the project parcel near McCreary Lake. The next nearest occurrence of special-status animal species is Golden Eagle (*Aquila chrysaetos*) observed in 1992 located 3.7 miles west of the project parcel near Hunting Creek. There are no other known special-status animal species from within 3 miles of the project parcel (Appendix C).

There are no special-status plant species known from within the project parcel (Appendix C). There are 19 different special-status plant species known from within 5 miles of the project parcel. The nearest known occurrence of special-status plant species is an indistinct locality of Sharsmith's Western Flax (*Hesperolinon sharsmithiae*) observed in 2010 whose boundary comes as close as 0.13 miles east of the project parcel but that is centered mostly over "The Cedars" natural area. There is another occurrence of Sharsmith's Western Flax located 0.4 miles northeast of the project parcel in Jerusalem Valley. The next nearest known occurrence of special-status plant species is Adobe Lily (*Fritillaria pluriflora*) observed in 2015 located 0.4 miles southeast of the project parcel. There is another occurrence of Adobe Lily located 3.1 miles northeast of the project parcel in Jericho Valley. The next nearest known occurrence of special-status plant species is Hall's Harmonia (*Harmonia hallii*) observed in 1947 located 1.9 miles southeast of the project parcel near Atmel Lake. The next nearest known occurrence of special-status plant species is Two-carpellate Western Flax (*Navarretia leucocephala* ssp. *pauciflora*) observed in 2000 located 2.8 miles south of the project parcel near McCreary Lake. There are no other known occurrences within 3 miles of the project parcel (Appendix C).

1.2.4 Landforms & Water Features

The parcels encompass the side of a low ridge that forms the western slope of Bishop Mountain, between Soda Creek and Gunther Creek (Figure 1). The maximum elevation of the parcels is 1,073 feet above sea level along the northeastern parcel boundary, and the minimum elevation is 919 feet above sea level at the far southwest corner of the property where Gunther Creek exits the parcel (Figure 2). Most of the parcel is rolling grassland, with slopes between 5% and 20%, as measured by Suunto PM5 handheld clinometer. There are two Class III watercourses onsite (Figures 7 & 8), the headwaters of small ephemeral drainages that begin as vegetated swales (Figure 9) and that flow offsite to the south before meeting up with Gunther Creek (Figure 3). Gunther Creek (Figure 10), a Class I watercourse, also briefly flows onsite in the far southern portion of the property.

Precipitation falling onsite eventually mostly infiltrates locally, gradually draining south before entering the Gunther Creek, then flowing west before the confluence with Soda Creek. Soda Creek is a perennial Class I watercourse and flows south for another 0.9 miles before the confluence with Putah Creek, which flows southeast for approximately 19 miles before emptying into 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.

1.2.5 Existing Structures

There is one existing residential structure onsite (Figures 6) at the end of an improved dirt and gravel driveway that branches to the south from the main access road and passes through an adjacent property before reaching the southwest parcel (Figure 5). Adjacent to the house is a recently dug groundwater well in a storage shed. There is another well onsite located on the northeast parcel (Figure 11). There is also water storage at this location, two approximately 2,500 gallon HDPE tanks. Two more tanks are also located on the southeast parcel (Figure 12). Most of the northern portion of the property is fenced with barbed wire and access controlled with a locking manual-entry metal gate (Figure 3). Several pre-existing gardens are visible on aerial photographs but these are no longer in use. There are no other permanent structures onsite.

There are three culverts required to reach the cultivation area (Figure 14) however these are located on the adjacent property to the north (Figure 3). There is one ford crossing on a Class III watercourse in the southwest parcel (Figure 3) that would need to be reinforced if that road were to be used. There is another ford crossing on a Class III watercourse in the southeast parcel (Figure 3) that would also need to be reinforced if it were to be used. The only disturbance on the south parcel is the remnants of a historically cultivated pad in the north-central portion of the parcel. The north parcel contains one residence and one outbuilding (Figure 10). Both parcels are accessed from the north via metal locking gate (Figure 7) that leads to a well maintained dirt and gravel road (Figure 6). The north parcel contains the concrete foundation of a building that was not completed, and next to this foundation is a water storage area (Figure 9). There are also several agricultural barns and livestock pens on the northern parcel. Both parcels are surrounded by barbed wire fencing.

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, and irrigated pastureland and vineyard and orchard developments in the valley bottoms. Farther to the west is the community of Hidden Valley Lake. To the south and east is primarily undeveloped land known as "The Cedars" and was severely burned in the Jerusalem Fire in August 2015 (Figure 1). The project parcels were not, however, burned during the last 10 years.

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 November 26, 2019. The weather was cloudy and dry. The temperature was cool for this time of year, approximately 55 degF in the morning, increasing to 60 degF in the afternoon, with relative humidity around 45% 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 southwest parcel and walking counter clockwise surveying each parcel sequentially, 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 burned chaparral and mixed conifer and chaparral scrub, with higher proportions of hardwoods near watercourses, and grasslands on flat floodplains and ridge tops, with scattered serpentine outcrops to the east (Figure 4).

2.2 NATURAL COMMUNITIES WITHIN THE PROJECT SITE

The entirety of the parcel consists of oak savannah, with higher outcrops of chaparral and oak trees on rocky substrates down the center of the property, and riparian woodland in the south along Gunther Creek (Figure 10). The entire property has been grazed intermittently and the species composition is reflective of this land use. Two small unnamed Class III watercourses drain the south parcel, and there are no watercourses on the north parcel. 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% annual grassland, 40% oak and manzanita woodland and 10% riparian woodland.

2.2.1 Annual *Avena-Bromus-Festuca-Cynosurus* Grassland

The well-drained grassland portions of the parcel are dominated by non-native annual species (Figure 9). Non-native herbaceous species observed onsite include soft chess (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), medusahead (*Elymus caput-medusae*), wild oats (*Avena barbata*), Italian rye (*Festuca perennis*), Zorro fescue (*Festuca myuros*), dogstail grass (*Cynosurus echinatus*), little rattlesnake grass (*Briza minor*), foxtail chess (*Hordeum murinum*), hairgrass (*Aira caryophyllea*), Harding grass (*Phalaris aquatica*), turkey mullein (*Croton setiger*), Klamathweed (*Hypericum perforatum*), Italian thistle (*Carduus pycnocephalus*), bull thistle (*Cirsium vulgare*), prickly lettuce (*Lactuca serriola*), big heron bill (*Erodium botrys*), spring vetch (*Vicia sativa*), field parsley (*Torilis arvensis*), smooth cat's ear (*Hypochaeris glabra*), 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 purple needlegrass (*Stipa pulchra*), Douglas' iris (*Iris douglasii*), blue-eyed grass (*Sisyrinchium bellum*), blue wildrye (*Elymus glaucus*), harvest brodiaea (*Brodiaea elegans*), annual lupine (*Lupinus bicolor*), Western buttercup (*Ranunculus occidentalis*), blue dicks (*Dichelostemma capitatum*), common yarrow (*Achillea millefolium*), ladies' tobacco (*Gnaphalium californicum*), bird's foot trefoil (*Acemispom americanus*), mugwort (*Artemisia douglasiana*), and willow herb (*Epilobium densiflorum*).

2.2.3 *Quercus-Pinus* Woodland

The south and northwest portions of the parcel are dominated by trees and other species adapted to the more mesic conditions. Species found these areas include Gray pine (*Pinus sabiniana*) to 20" diameter-at-breast-height (DBH), Douglas fir (*Pseudotsuga menziesii*) to 16" DBH, Madrone (*Arbutus menziesii*) to 14" DBH, Blue oak (*Quercus douglasii*) to 14" DBH, and Interior live oak (*Quercus wislizeni*) to 12" DBH. Woody understory species include toyon (*Heteromeles arbutifolia*), poison oak (*Toxicodendron diversilobium*), common manzanita (*Arctostaphylos manzanita*), hoary manzanita (*Arctostaphylos canescens*), leather oak (*Quercus durata*), Yerba Santa (*Eriodictyon californicum*), buck brush (*Ceanothus cuneatus*), deerbrush (*Ceanothus integerrimus*), coyote brush (*Baccharis pilularis*), and French broom (*Genista monspessulana*). Herbaceous species include goat's beard (*Tragopogon dubius*), woodland madia (*Ansiocarpus madioides*), white-headed navarretia (*Navarretia leucocephala*), wild carrot (*Daucus pusillus*), California bedstraw (*Galium californicum*), bracken fern (*Pteridium aquilinum*), soap plant (*Chlorogalum pomeridianum*), and Chinook brome (*Bromus laevipes*).

2.2.3 *Salix-Populus* Riparian Corridor

In addition to many of the species mentioned above, areas around the Class I reach of Gunther Creek include hydrophytic species such as Fremont cottonwood (*Populus fremontii*), Arroyo willow (*Salix lasiolepis*), white alder (*Alnus rhombifolia*), Oregon ash (*Fraxinus latifolia*), Himalayan blackberry (*Rubus armeniacus*), common horsetail (*Equisetum arvense*), bog rush (*Juncus patens*), pennyroyal (*Mentha pulegium*), nut sedge (*Cyperus eragrostis*), curly dock (*Rumex crispus*), English plantain (*Plantago lanceolata*), black mustard (*Brassica nigra*), miner's lettuce (*Claytonia perfoliata*), common bedstraw (*Galium aparine*), iris-leaved rush (*Juncus xiphioides*), bulge hedge nettle (*Stachys ajugoides*), and nit grass (*Gastridium phleoides*).

2.3 WILDLIFE

Wildlife activity was moderate due to the time of year and the weather. Nonetheless, numerous wildlife species were observed both directly and indirectly. Terrestrial species observed onsite include acorn woodpecker (*Melanerpes formicivorus*), turkey vulture (*Cathartes aura*), mourning dove (*Zenaida macroura*), dark-eyed junco (*Junco hyemalis*), California towhee (*Melospiza crissalis*), house sparrow (*Passer domesticus*), crow (*Corvus brachyrhynchos*), Western grey squirrel (*Sciurus griseus*), excavation mounds of pocket gopher (*Thomomys bottae*), runways of California vole (*Microtus californicus*), prints of mule deer (*Odocoileus hemionus*), scat of black-tailed jackrabbit (*Lepus californicus*), and California quail (*Callipepla californica*). In the pools of Gunther Creek we observed California roach (*Hesperoleucis symmetricus*) as well as Steelhead trout (*Oncorhynchus mykiss*) fry and water striders (*Gerridae*).

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 majority of the site are mapped as well-drained Phipps complex, 5 to 15 percent slopes (#195), with lesser proportions of Forbesville (10%), and unnamed (10%) formations. The steep hillslopes on the south side of the south parcel is mapped as well drained Bally-Phipps complex, 15-30% slopes (#107), with lesser proportions of Forbesville (12%) formations. Parent materials are alluvium and there are no serpentine or other ultramafic rock types onsite and no serpentine derived soils. There are no alkalai or vernal pool soil types onsite.

3.0 SUMMARY & CONCLUSIONS

No special-status plant species were observed during the surveys performed at the site in November 2019. 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 wetlands, vernal pools, serpentine outcrops, or other special habitat types that possess a high likelihood of containing special-status plant species in the proposed cultivation areas. We also require that all seed mixes and plantings used for revegetation be native species from local genotypes, sourced from local nurseries or seed suppliers. A list of suitable suppliers and species are available from PEC on request.

No special-status animal species were observed during the surveys performed at the site in November 2019. No impacts are predicted for any State or Federal special-status animal species in Appendix A due to the lack of actual observations and lack of suitable habitat near the proposed redevelopment sites. Although there is suitable habitat onsite for Foothill yellow-legged frog (FYLF) in Gunther Creek, the nearest occurrence is 1.9 miles away and there are no plans to approach within 200 feet of Gunther Creek. Furthermore there are few cracks or rodent burrows in the proposed cultivation areas that would provide estivation habitat, although there is a chance that animals may migrate through the area, thus care should be taken not to impact any amphibians observed onsite including frogs or salamanders or turtles, and all animals should be allowed to leave work areas on their own and should not be harmed or harassed in any way. None of the other species considered in Appendix C were observed onsite or have high likelihood to exist onsite.

No impacts are predicted for sediment discharge to watercourses or wetlands due to the absence of such features onsite and/or the lack of activities near to sensitive habitats. The only potentially jurisdictional features onsite are the two small Class III drainages that initiate onsite and flows offsite to the south eventually intersecting Gunther Creek. Any work shall be at least 50 feet away from these watercourses, and any overland routes for sediment should not exist between any work areas and these unnamed watercourses or Gunther Creek. If any of the classified watercourses are required to be crossed with vehicular traffic, culverts or low water rock fords will need to be installed in consultation with a hydrologist and CDFW. The driveway is not currently eroding however it is on steep terrain and should be maintained using closely spaced water bars or other method to prevent flow down the center of the roadbed and rilling. 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

- Baldwin, B.G., et al. 2012. *The Jepson Manual: Vascular Plants of California*. University of California Press, Berkeley, CA.
- California Department of Fish and Wildlife (CDFW). 2020. *California Natural Diversity Database*. CDFW Wildlife and Habitat Data Analysis Branch, Sacramento, CA. <https://www.wildlife.ca.gov/data>.
- California Native Plant Society (CNPS). 2019. *Inventory of Rare and Endangered Plants*. CNPS, Sacramento, CA.
- Central Valley Regional Water Quality Control Board (CVRWQCB). 2015. *Waste Discharge Requirements General Order for Discharges of Waste Associated with Medicinal Cannabis Cultivation Activities*. Order No. R5-2015-0113.
- County of Lake Assessor's Office. 2020. *Geographical Information Systems (GIS) Databases*. County of Lake, Lakeport, CA.
- Natural Resources Conservation Service (NRCS). 2018. *SoilWeb*. University of California, Agricultural and Natural Resources, Davis, CA. <http://casoilresource.lawr.ucdavis.edu/gmap/>.
- North Coast Regional Water Quality Control Board (NCRWQCB). 2015. *Best Management Practices for Discharges of Waste Resulting from Cannabis Cultivation and Associated Activities or Operations with Similar Environmental Effects*. Order No. R1-2015-0023.
- Sawyer, J.O., T. Keeler-Wolf, J. Evens. 2009. *Manual of California Vegetation*. California Native Plant Society Press, Sacramento, CA.
- State Water Resources Control Board (SWRCB). 2017. *Cannabis Cultivation General Order WQ 2017-0023-DWQ*. SWRCB, Sacramento, CA.
- U.S. Department of Agriculture (USDA). 1989. *Soil Survey of Lake County, California*. Soil Conservation Service, Washington D.C.
- U.S. Fish and Wildlife Service (USFWS). 2020. *Environmental Conservation Online System*. USFWS, Washington, DC. <https://ecos.fws.gov/ecp/>.
- U.S. Fish and Wildlife Service (USFWS). 2020. *National Wetlands Inventory*. USFWS, Washington, DC. <https://www.fws.gov/wetlands/>.

23203 Jerusalem Grade, Lower Lake, California, 95457



2 miles

APN 013-015-46, 013-015-47, 013-015-48 & 013-015-44
23203, 23155, 23107 & 23095 Jerusalem Grade, Middletown, CA 95457

FIGURE 2: 40 FOOT CONTOURS

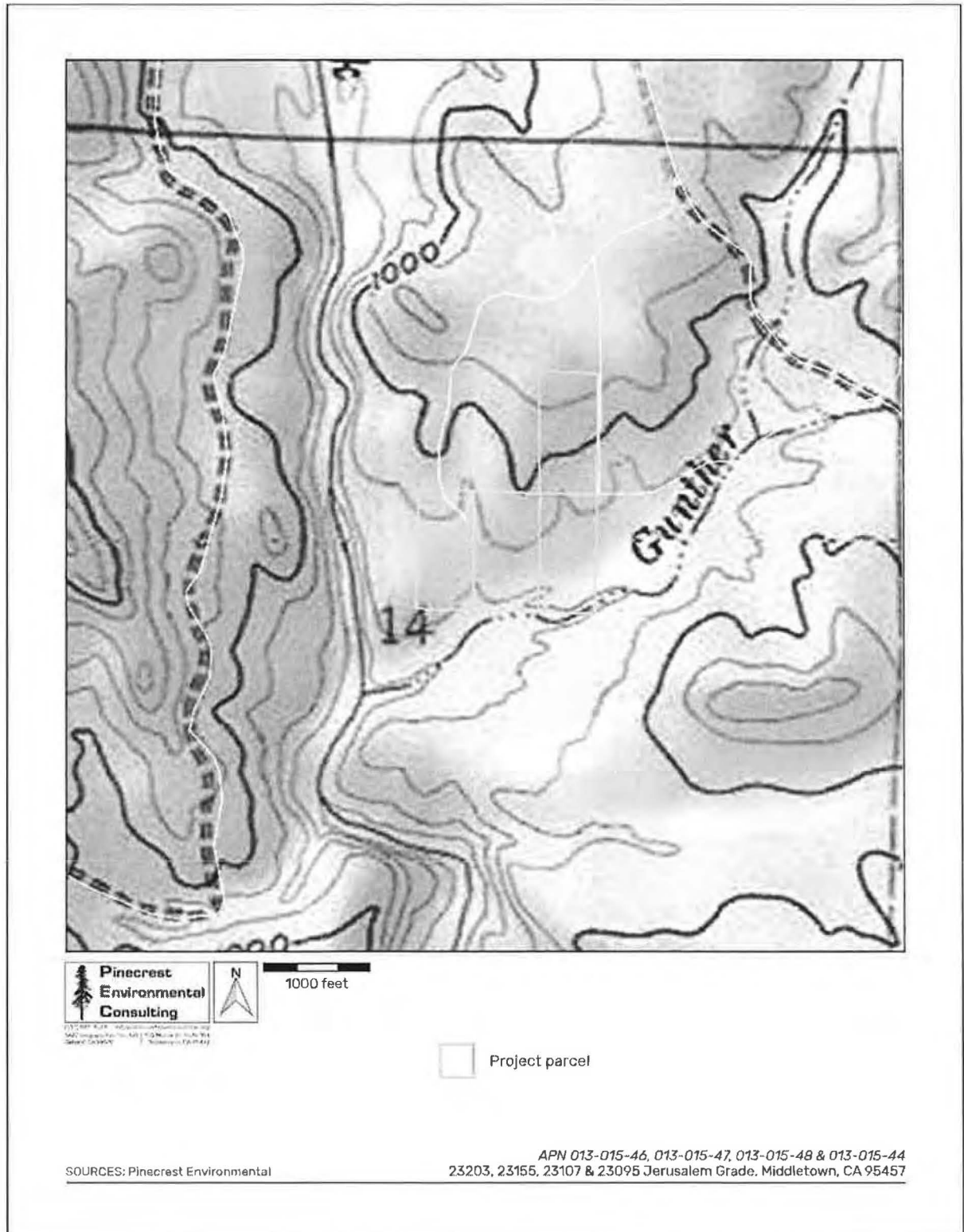


FIGURE 3: WATER FEATURES

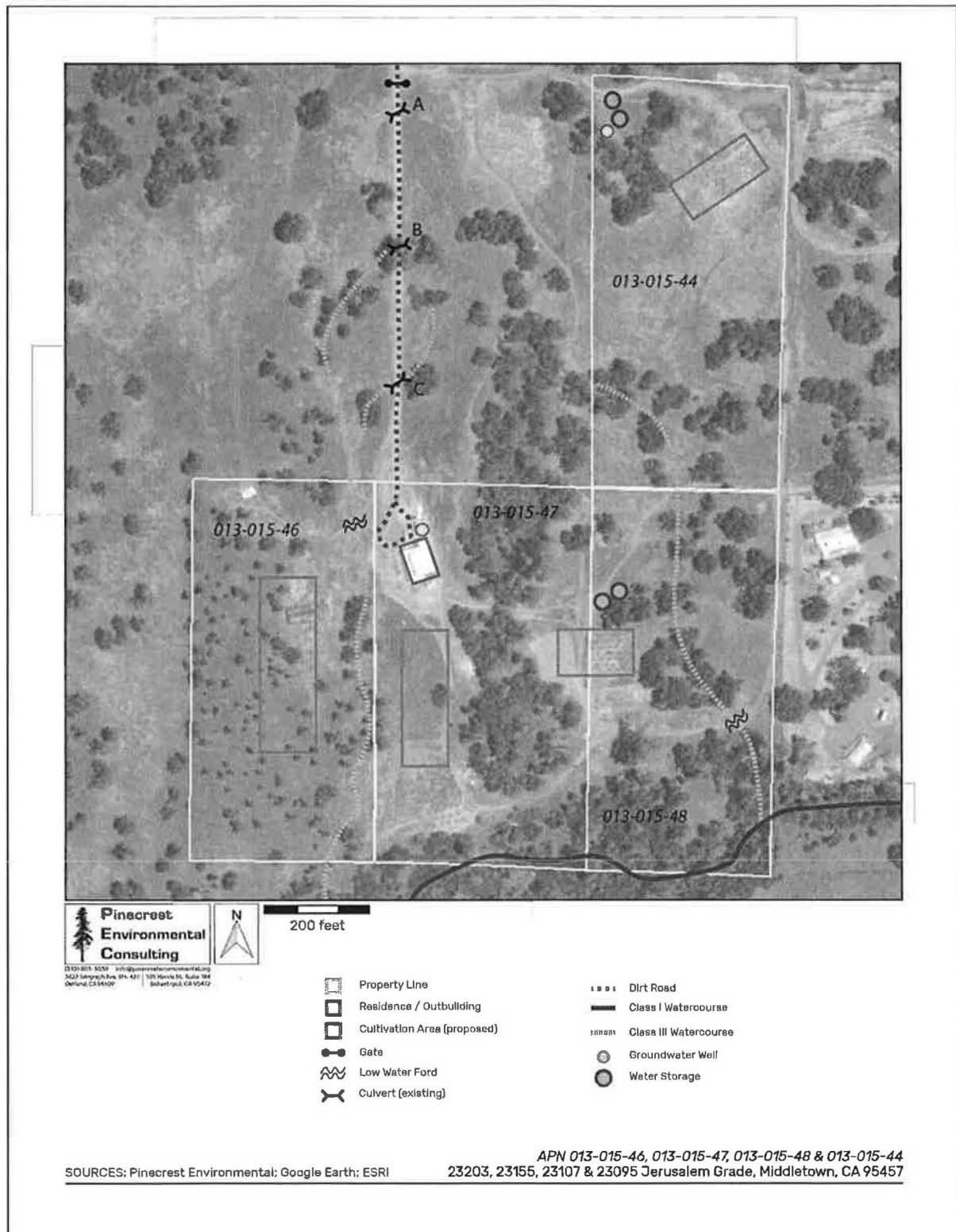


FIGURE 4: BUFFERS & SETBACKS

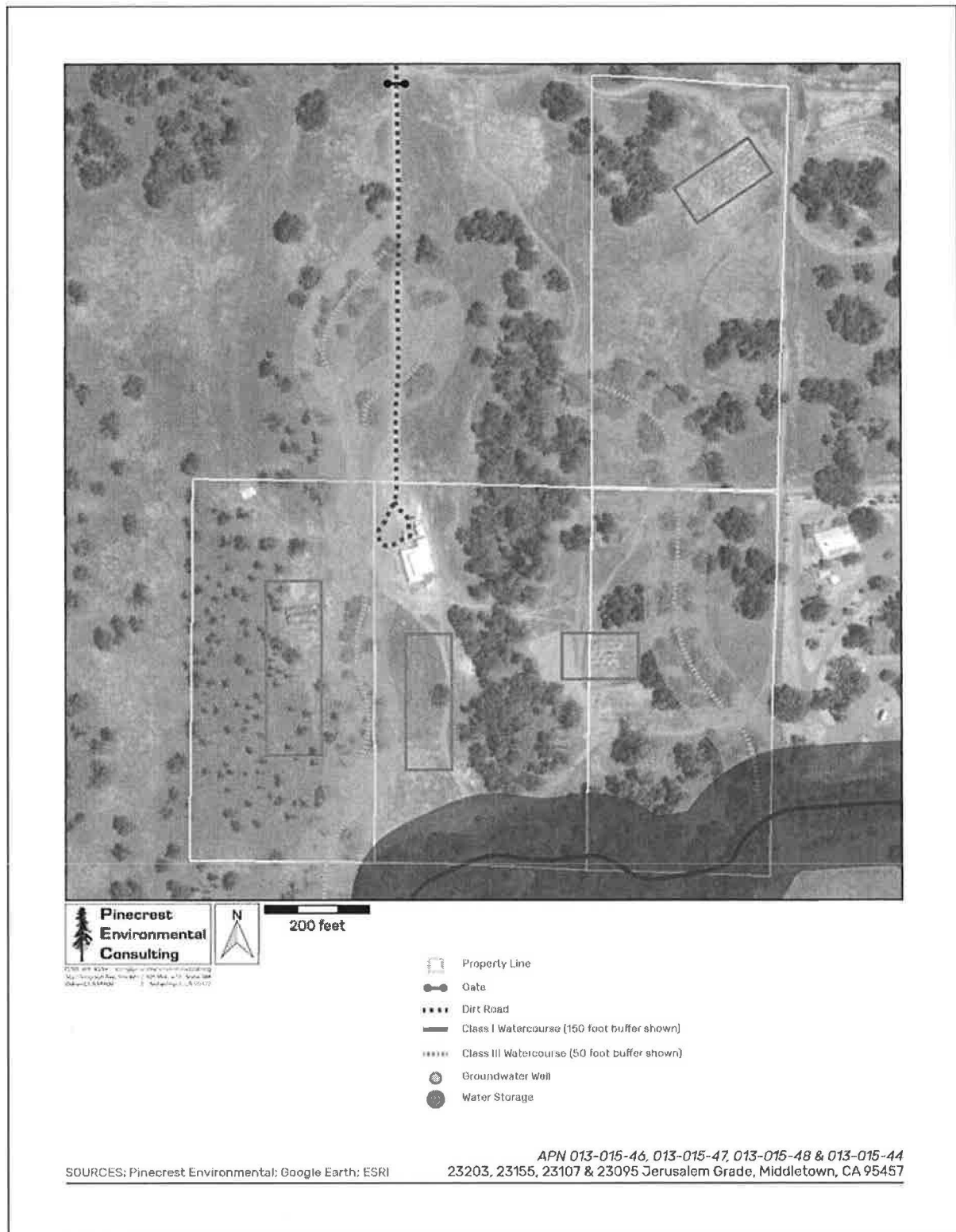


FIGURE 5: PHOTOGRAPH OF MAIN ACCESS ROAD



SOURCES: PEC Inc.

APN 013-015-46, 013-015-47, 013-015-48 & 013-015-44
23203, 23155, 23107 & 23095 Jerusalem Grade, Middletown, CA 95457

FIGURE 6: PHOTOGRAPH OF RESIDENCE



SOURCES: PEC Inc.

APN 013-015-46, 013-015-47, 013-015-48 & 013-015-44
23203, 23155, 23107 & 23095 Jerusalem Grade, Middletown, CA 95457

FIGURE 7: PHOTOGRAPH OF CLASS III WATECOURSE



SOURCES: PEC Inc.

APN 013-015-46, 013-015-47, 013-015-48 & 013-015-44
23203, 23155, 23107 & 23095 Jerusalem Grade, Middletown, CA 95457

FIGURE 8: PHOTOGRAPH OF CLASS III WATERCOURSE



SOURCES: PEC Inc.

APN 013-015-46, 013-015-47, 013-015-48 & 013-015-44
23203, 23155, 23107 & 23095 Jerusalem Grade, Middletown, CA 95457

FIGURE 9: PHOTOGRAPH OF VEGETATED SWALE



SOURCES: PEC Inc.

APN 013-015-46, 013-015-47, 013-015-48 & 013-015-44
23203, 23155, 23107 & 23095 Jerusalem Grade, Middletown, CA 95457

FIGURE 10: PHOTOGRAPH OF CLASS I GUNTHER CREEK



SOURCES: PEC Inc.

APN 013-015-46, 013-015-47, 013-015-48 & 013-015-44
23203, 23155, 23107 & 23095 Jerusalem Grade, Middletown, CA 95457

FIGURE 11: PHOTOGRAPH OF WATER STORAGE & WELL



SOURCES: PEC Inc.

APN 013-015-46, 013-015-47, 013-015-48 & 013-015-44
23203, 23155, 23107 & 23095 Jerusalem Grade, Middletown, CA 95457

FIGURE 12: PHOTOGRAPH OF WATER STORAGE



SOURCES: PEC Inc.

APN 013-015-46, 013-015-47, 013-015-48 & 013-015-44
23203, 23155, 23107 & 23095 Jerusalem Grade, Middletown, CA 95457

FIGURE 13: PHOTOGRAPH OF PROPOSED CULTIVATION AREA



SOURCES: PEC Inc.

APN 013-015-46, 013-015-47, 013-015-48 & 013-015-44
23203, 23155, 23107 & 23095 Jerusalem Grade, Middletown, CA 95457

FIGURE 14: PHOTOGRAPH OF OFFSITE CULVERT



SOURCES: PEC Inc.

APN 013-015-46, 013-015-47, 013-015-48 & 013-015-44
23203, 23155, 23107 & 23095 Jerusalem Grade, Middletown, CA 95457

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 (CNDDDB). CNDDDB occurrences within 5 miles of the project site are shown in bold.

Taxon	Status ¹ Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
PLANTS			
Adobe lily (<i>Fritillaria pluriflora</i>)	—/—/1B.2	Valley grasslands, woodland	Medium: Some grassland habitat exists onsite. Nearest occurrence is 0.4 miles southeast of the project parcel in Jerusalem Valley.
Alkalai milk-vetch (<i>Astragalus tener</i> var. <i>tener</i>)	—/—/1B.2	Valley grasslands, alkali sinks	<u>None:</u> No suitable alkalai habitat exists onsite.
Anthony peak lupine (<i>Lupinus antoninus</i>)	—/—/1B.2	Mixed evergreen forest	<u>Very Low:</u> No suitable forest habitat exists onsite.
Baker's goldfields (<i>Lasthenia californica</i> ssp. <i>bakeri</i>)	—/—/1B.2	Coastal grasslands	<u>Low:</u> Some grassland habitat exists onsite.
Baker's manzanita (<i>Arctostaphylos bakeri</i> ssp. <i>bakeri</i>)	—/—/1B.1	Serpentine chaparral, mixed evergreen forest	<u>None:</u> No serpentine habitat exists onsite.
Baker's meadowfoam (<i>Limnanthes bakeri</i>)	—/ST/1B.1	Vernal pools, freshwater wetland	<u>None:</u> No suitable wetland habitat onsite.
Baker's navarretia (<i>Navarretia leucocephala</i> ssp. <i>bakeri</i>)	—/—/1B.1	Vernal pools, riparian woodland	<u>Very Low:</u> No vernal pools exist onsite.
Beaked tracyina (<i>Tracyina rostrata</i>)	—/—/1B.2	Valley grassland, foothill woodland	<u>Low:</u> Some grassland habitat exists onsite.
Bent flowered fiddleneck (<i>Amsinckia lunaris</i>)	—/—/1B.2	Valley grassland, foothill woodland	Low: Some grassland habitat exists onsite. Nearest occurrence is 4.8 miles southwest of the parcel in Coyote Valley.

Taxon	Status ¹ Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Big scale balsamroot (<i>Balsamorhiza macrolepis</i>)	—/—/1B.2	Valley grassland	<u>Low</u> : Some grassland habitat exists onsite.
Bogg's Lake hedge-hyssop (<i>Gratiola heterosepala</i>)	—/—/1B.2	Freshwater marsh, riparian	<u>None</u> : No suitable wetland habitat exists onsite. Nearest occurrence is 4.0 miles northwest of the parcel near Stienhart Lake.
Bolander's horkelia (<i>Horkelia bolanderi</i>)	—/—/1B.2	Forest, meadows, wetlands	<u>Very Low</u> : No suitable forest habitat exists onsite.
Brandegee's eriastrium (<i>Eriastrium brandegeae</i>)	—/—/1B.1	Chaparral	<u>Low</u> : A small amount of chaparral habitat exists onsite.
Bristly sedge (<i>Carex comosa</i>)	—/—/2B.1	Freshwater marsh, riparian	<u>None</u> : No suitable wetland habitat exists onsite.
Brownish beaked-rush (<i>Rhynchospora capitellata</i>)	—/—/2B.2	Freshwater marsh, riparian	<u>None</u> : No suitable wetland habitat exists onsite.
Burke's goldfields (<i>Lasthenia burkei</i>)	FE/SE/1B.1	Vernal pools	<u>Very Low</u> : No vernal pool habitat exists onsite. Nearest occurrence is 4.1 miles southwest of the parcel near Coyote Creek.
California alkalai grass (<i>Puccinellia simplex</i>)	—/—/1B.2	Grassland, riparian	<u>None</u> : No alkalai wetland habitat exists onsite.
California beaked-rush (<i>Rhynchospora californica</i>)	—/—/1B.1	Freshwater wetlands	<u>None</u> : No wetland habitat exists onsite.
California satintail (<i>Imperata brevifolia</i>)	—/—/2B.1	Chaparral, wetlands	<u>Low</u> : A small amount of chaparral habitat exists onsite.
Calistoga ceanothus (<i>Ceanothus divergens</i>)	—/—/1B.2	Chaparral	<u>Low</u> : Some chaparral habitat exists onsite.
Caper-fruited tropidocarpum (<i>Tropidocarpum capparideum</i>)	—/—/1B.1	Valley grassland	<u>Very Low</u> : Some grassland habitat exists onsite.
Cascade downingia (<i>Downingia willamettensis</i>)	—/—/2B.2	Wetland, grassland	<u>Low</u> : Some grassland habitat exists onsite.
Clara Hunt's milk vetch (<i>Astragalus claranus</i>)	—/—/1B.1	Chaparral, grassland	<u>Very Low</u> : Some chaparral habitat exists onsite.

Taxon	Status ¹ Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Cobb Mountain lupine (<i>Lupinus sericatus</i>)	—/—/1B.2	Chaparral, pine forest	<u>Low</u> : Some chaparral habitat exists onsite.
Colusa layia (<i>Layia septentrionalis</i>)	—/—/1B.2	Chaparral, valley grassland	<u>Low</u> : No suitable grassland habitat exists onsite.
Congested-headed hayfield tarplant (<i>Hemizonia congesta</i> ssp. <i>congesta</i>)	—/—/1B.2	Grassland, coastal scrub	Very Low : Some grassland habitat exists onsite. Nearest occurrence is 4.4 miles west of the parcel near Coyote Valley.
Deep scarred cryptantha (<i>Cryptantha excavata</i>)	—/—/1B.1	Foothill woodland	<u>Very Low</u> : Some grassland habitat exists onsite.
Dimorphic snapdragon (<i>Antirrhinum subcordatum</i>)	—/—/4.3	Serpentine, chaparral	<u>None</u> : No serpentine habitat exists onsite.
Drymaria-like western flax (<i>Hesperolinon drymarioides</i>)	—/—/1B.2	Serpentine outcrops	<u>None</u> : No serpentine outcrop habitat exists onsite.
Dwarf downingia (<i>Downingia pusilla</i>)	—/—/2B.2	Vernal pool, freshwater wetland	<u>None</u> : No vernal pool habitat exists onsite.
Dwarf soaproot (<i>Chlorogalum pomeridianum</i> var. <i>minus</i>)	—/—/1B.2	Serpentine chaparral	<u>None</u> : No serpentine chaparral habitat exists onsite.
Eel-grass pondweed (<i>Potamogeton zosteriformis</i>)	—/—/2B.2	Freshwater wetland, aquatic	<u>None</u> : No suitable wetlands exist onsite.
Few-flowered navarretia (<i>Navarretia leucocephala</i> ssp. <i>pauciflora</i>)	FE/ST/1B.1	Wetlands, vernal pools	<u>None</u> : No vernal pool habitat exists onsite.
Franciscan onion (<i>Allium peninsulare</i> var. <i>franciscanum</i>)	—/—/1B.2	Coastal prairie	<u>Very Low</u> : Some grassland habitat exists onsite.
Freed's jewelflower (<i>Streptanthus brachiatus</i> ssp. <i>hoffmanii</i>)	—/—/1B.2	Serpentine outcrops	None : No serpentine outcrop habitat exists onsite. Nearest occurrence is 3.2 miles northeast of the parcel near Hole Creek.
Geysers panicum (<i>Panicum acuminatum</i> var. <i>thermale</i>)	—/—/1B.2	Chaparral, wetlands	<u>Very Low</u> : A small amount of chaparral habitat exists onsite.
Glandular western flax (<i>Hesperolinon adenophyllum</i>)	—/—/1B.2	Chaparral	<u>Very Low</u> : A small amount of chaparral habitat exists onsite.

Taxon	Status ¹ Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Grassleaf water plantain (<i>Alisma gramineum</i>)	—/—/2B.2	Wetland, riparian	<u>None</u> : No suitable wetland habitat exists onsite.
Green jewelflower (<i>Streptanthus hesperidis</i>)	—/—/1B.2	Serpentine outcrops	<u>None</u> : No serpentine outcrop habitat exists onsite. Nearest occurrence is 4.2 miles southwest of the parcel near Coyote Valley.
Greene's narrow-leaved daisy (<i>Erigeron greenei</i>)	—/—/1B.2	Serpentine grassland	<u>None</u> : No serpentine habitat exists onsite.
Hall's harmonia (<i>Harmonia hallii</i>)	—/—/1B.2	Chaparral	<u>Medium</u> : A small amount of chaparral habitat exists onsite. Nearest occurrence is 1.9 miles southeast of the project parcel near Amel Lake.
Hoffman's bristly jewelflower (<i>Streptanthus glandulosus</i> spp. <i>hoffmanii</i>)	—/—/1B.3	Chaparral, foothill woodland	<u>Very Low</u> : A small amount of chaparral habitat exists onsite.
Holly-leaved ceanothus (<i>Ceanothus purpureus</i>)	—/—/1B.2	Chaparral	<u>Very Low</u> : A small amount of chaparral habitat exists onsite.
Hospital Canyon larkspur (<i>Delphinium californicum</i> ssp. <i>interius</i>)	—/—/1B.2	Foothill woodland	<u>Very Low</u> : A small amount of woodland habitat exists onsite.
Jepson's coyote thistle (<i>Eryngium jepsonii</i>)	—/—/4.2	Wetlands and vernal pools	<u>None</u> : No vernal pool habitat exists onsite.
Jepson's leptosiphon (<i>Leptosiphon jepsonii</i>)	—/—/1B.2	Chaparral, serpentine grassland	<u>None</u> : No serpentine chaparral habitat exists onsite.
Jepson's milk-vetch (<i>Astragalus rattanii</i> var. <i>jepsonianus</i>)	—/—/1B.2	Chaparral, serpentine grassland	<u>Very Low</u> : Some chaparral habitat exists onsite. Nearest occurrence is 4.2 miles southwest of the parcel near Hidden Valley Road.
Kenwood marsh checkerbloom (<i>Sidalcea oregana</i> ssp. <i>valida</i>)	FE/SE/1B.1	Freshwater wetlands	<u>None</u> : No suitable wetland habitat exists onsite.
Konocti manzanita (<i>Arctostaphylos manzanita</i> ssp. <i>elegans</i>)	—/—/1B.3	Chaparral, foothill woodland	<u>Very Low</u> : A small amount of chaparral habitat exists onsite.
Kruckeberg's jewelflower (<i>Streptanthus morrisonii</i> ssp. <i>kruckebergii</i>)	—/—/1B.2	Serpentine outcrops	<u>None</u> : No serpentine outcrop habitat exists onsite. Nearest occurrence is 4.7 miles northeast of the parcel near Round Mountain.

Taxon	Status ¹ Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Lake County stonecrop (<i>Sedella leiocarpa</i>)	—/—/1B.1	Rock outcrops	<u>Very Low</u> : Some rock outcrop habitat exists onsite.
Lake County western flax (<i>Hesperolinon didymocarpum</i>)	—/SE/1B.2	Serpentine grasslands	<u>None</u> : No suitable serpentine habitat exists onsite.
Legenere (<i>Legenere limosa</i>)	—/—/1B.1	Freshwater wetland, valley grassland	<u>None</u> : No suitable wetland habitat exists onsite. Nearest occurrence is 4.0 miles northwest of the parcel near Stienhart Lake.
Loch Lomond button-celery (<i>Eryngium constancei</i>)	FE/SE/1B.1	Freshwater wetland	<u>None</u> : No suitable wetland 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. Nearest occurrence is 4.0 miles northwest of the parcel near Stienhart Lake.
Marsh checkerbloom (<i>Sidalcea oregana</i> ssp. <i>hydrophila</i>)	—/—/1B.2	Freshwater wetland, riparian	<u>None</u> : No suitable riparian habitat exists onsite.
Marsh microseris (<i>Microseris paludosa</i>)	—/—/1B.2	Northern coastal scrub	<u>None</u> : No marsh habitat exists onsite.
Milo Baker's lupine (<i>Lupinus milo-bakeri</i>)	—/—/1B.1	Foothill woodland, valley grassland	<u>None</u> : No serpentine habitat exists onsite.
Morrison's jewelflower (<i>Streptanthus morrisonii</i> ssp. <i>morrisonii</i>)	—/—/1B.2	Chaparral	<u>Very Low</u> : Some chaparral habitat exists onsite.
Mt. St. Helena morning-glory (<i>Calystegia collina</i> ssp. <i>oxyphylla</i>)	—/—/4.2	Serpentine chaparral	<u>None</u> : No serpentine habitat exists onsite. Nearest occurrence is 4.2 miles southwest of the parcel near Long Valley.
Napa bluecurls (<i>Trichostema ruygtii</i>)	—/—/1B.2	Chaparral, grassland	<u>Very Low</u> : Some grassland habitat exists onsite.
Napa checkerbloom (<i>Sidalcea hickmanii</i> ssp. <i>napensis</i>)	—/—/1B.1	Chaparral	<u>Very Low</u> : Some woodland habitat exists onsite.
Napa false indigo (<i>Amorpha californica</i> var. <i>napensis</i>)	—/—/1B.2	Forest, woodland	<u>Very Low</u> : Some woodland habitat exists onsite.
Narrow-anthered brodiaea (<i>Brodiaea leptandra</i>)	—/—/1B.2	Foothill woodland, grassland	<u>Low</u> : Some grassland habitat exists onsite.

Taxon	Status ¹ Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
North Coast semaphore grass (<i>Pleuropogon hooverianus</i>)	—/—/1B.1	Freshwater wetland, vernal pools	<u>None</u> : No suitable wetland or vernal pool habitat exists onsite.
Northern California black walnut (<i>Juglans hindsii</i>)	—/—/1B.1	Riparian, woodland	<u>Very Low</u> : No suitable riparian habitat exists onsite.
Northern meadow sedge (<i>Carex praticola</i>)	—/—/2B.2	Freshwater wetlands	<u>None</u> : No suitable wetland habitat exists onsite.
Nuttall's ribbon-leaved pondweed (<i>Potamogeton ephedrus</i>)	—/—/2B.2	Freshwater wetlands	<u>None</u> : No wetland or pond habitat exists onsite.
Oregon polemonium (<i>Polemonium carneum</i>)	—/—/2B.2	Coastal scrub, yellow pine forest	<u>None</u> : No coastal scrub habitat exists onsite.
Oval-leaved viburnum (<i>Viburnum ellipticum</i>)	—/—/2B.3	Chaparral	<u>Low</u> : Some chaparral habitat exists onsite.
Pappose tarplant (<i>Centromadia parryi</i> ssp. <i>parryi</i>)	—/—/1B.2	Grassland, wetland	<u>None</u> : No wetland habitat exists onsite.
Pennell's bird's beak (<i>Cordylanthus tenuis</i> ssp. <i>capillaris</i>)	—/—/1B.2	Chaparral	<u>Very Low</u> : Some chaparral habitat exists onsite.
Perennial goldfields (<i>Lasthenia californica</i> ssp. <i>macrantha</i>)	—/—/1B.2	Northern coastal scrub	<u>Very Low</u> : Some grassland habitat exists onsite.
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. Nearest occurrence is 6.8 miles west of the parcel near Harbin Mountain.
Porter's navarretia (<i>Navarretia paradoxinota</i>)	—/—/1B.3	Grasslands, wetlands	<u>Very Low</u> : No suitable wetland habitat exists onsite. Nearest occurrence is 4.2 miles west of the parcel near Coyote Valley.
Purple-stemmed checkerbloom (<i>Sidalcea malviflora</i> ssp. <i>purpurea</i>)	—/—/1B.2	Wetlands	<u>None</u> : No suitable wetland habitat exists onsite.
Raiche's manzanita (<i>Arctostaphylos stanfordiana</i> ssp. <i>raichei</i>)	—/—/1B.1	Chaparral	<u>Very Low</u> : A small amount of chaparral habitat exists onsite.

Taxon	Status ¹ Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Rincon Ridge ceanothus (<i>Ceanothus confusus</i>)	—/—/1B.1	Chaparral	<u>Medium</u> : Some chaparral habitat exists onsite.
Rincon Ridge manzanita (<i>Arctostaphylos stanfordiana</i> ssp. <i>decumbens</i>)	—/—/1B.1	Chaparral	<u>Very Low</u> : Some chaparral habitat exists onsite.
Round-leaved filaree (<i>California macrophylla</i>)	—/—/1B.2	Foothill grassland	<u>Very Low</u> : Some grassland habitat exists onsite.
Saline clover (<i>Trifolium hydrophilum</i>)	—/—/1B.2	Wetland, riparian	<u>None</u> : No suitable wetland habitat exists onsite.
San Joaquin spearscale (<i>Extriplex joaquinana</i>)	—/—/1B.2	Shadscale scrub, valley grassland	<u>None</u> : No alkali scrub habitat exists.
Santa Cruz clover (<i>Trifolium buckwestiorum</i>)	—/—/1B.1	Coastal prairie	<u>Very Low</u> : Some grassland habitat onsite but species prefers the coast.
Santa Rosa horkelia (<i>Horkelia tenuiloba</i>)	—/—/1B.2	Freshwater wetland, vernal pools	<u>Low</u> : Some chaparral habitat exists onsite.
Sebastopol meadowfoam (<i>Limnanthes vincularis</i>)	FE/SE/1B.1	Freshwater wetland, vernal pools	<u>None</u> : No vernal pool habitat exists onsite.
Serpentine cryptantha (<i>Cryptantha dissita</i>)	—/—/1B.2	Serpentine chaparral	<u>None</u> : No serpentine habitat exists onsite.
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>Low</u> : A small amount of chaparral habitat exists onsite. Nearest occurrence is 0.13 miles southeast and 0.4 miles northwest of the project parcel.
Slender Orcutt grass (<i>Orcuttia tenuis</i>)	FT/SE/1B.1	Grassland, freshwater wetlands	<u>None</u> : No suitable grassland habitat exists onsite. Nearest occurrence is 3.9 miles northwest of the parcel near Stienhart Lake.
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 redwood forest habitat exists onsite.

Taxon	Status ¹ Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Snow Mountain buckwheat (<i>Eriogonum nervulosum</i>)	—/—/1B.2	Serpentine outcrops	<u>None</u> : No serpentine outcrop habitat exists onsite.
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 grassland habitat exists onsite.
Sonoma ceanothus (<i>Ceanothus sonomensis</i>)	—/—/1B.2	Chaparral	<u>Very Low</u> : Some chaparral habitat exists onsite.
Sonoma sunshine (<i>Blennosperma bakeri</i>)	FE/SE /1B.1	Valley grassland, freshwater wetland	<u>Very Low</u> : Some grassland habitat exists onsite, although species prefers wetlands.
Thin-lobed horkelia (<i>Horkelia tenuiloba</i>)	—/—/1B.2	Chaparral	<u>Very Low</u> : Some chaparral habitat exists onsite.
Three-fingered morning glory (<i>Calystegia collina</i> ssp. <i>tridactylosa</i>)	—/—/1B.2	Serpentine grassland	<u>None</u> : No serpentine habitat exists onsite.
Two-carpellate Western flax (<i>Hesperolinon bicarpellatum</i>)	—/—/1B.2	Chaparral	<u>Low</u>: A small amount of chaparral habitat exists onsite. Nearest occurrence is 2.8 miles south of the project parcel near McCreary Lake.
Vine Hill ceanothus (<i>Ceanothus foliosus</i> var. <i>vineatus</i>)	—/—/1B.1	Chaparral	<u>Very Low</u> : Some chaparral habitat exists onsite.
Vine Hill manzanita (<i>Arctostaphylos densiflora</i>)	—/SE/1B.1	Chaparral	<u>Very Low</u> : Some chaparral habitat exists onsite.
Watershield (<i>Brasenia schreberi</i>)	—/—/2B.3	Pond, wetland	<u>None</u> : No pond habitat exists in the project area.
White beaked-rush (<i>Rhynchospora alba</i>)	—/—/2B.2	Wetlands, riparian	<u>None</u> : No suitable wetland habitat exists onsite.
White flowered rein orchid (<i>Piperia candida</i>)	—/—/1B.2	Yellow pine forest	<u>Very Low</u> : No suitable forest habitat exists onsite.
Wolly meadowfoam (<i>Limnanthes floccosa</i> ssp. <i>floccosa</i>)	—/—/4.2	Vernal pools	<u>None</u> : No vernal pool habitat exists onsite.

Taxon	Status ¹ Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
MOSSES, LICHENS & LIVERWORTS			
Angel's hair lichen (<i>Ramalina thrausta</i>)	—/—/2B.1	Old growth conifer and hardwood forests	<u>None</u> : No suitable forest habitat exists onsite.
Coastal triquetrella (<i>Triquetrella californica</i>)	—/—/1B.2	Forest, woodland	<u>Very 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>None</u> : No forest habitat exists onsite.
Slender silver moss (<i>Anomobryum julaceum</i>)	—/—/4.2	Rocky substrates in forests	<u>Very Low</u> : Some woodland habitat exists onsite.
Torren's grimmia (<i>Grimmia torenii</i>)	—/—/1B.3	Forest, woodland	<u>Very Low</u>: Some woodland habitat exists onsite. Nearest occurrence is 3.9 miles northeast of the parcel near Jericho Creek.
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>None</u> : No suitable streams exist onsite.
Clear Lake hitch (<i>Lavinia exilicauda chi</i>)	FE/SE/—	Freshwater lakes and streams	<u>None</u> : No suitable streams exist onsite.
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>None</u> : No suitable habitat exists onsite.
Sacramento splittail (<i>Pogonichthys macrolepidotus</i>)	—/SSC/—	Low gradient freshwater streams	<u>None</u> : No suitable streams exist onsite.

Taxon	Status ¹ Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
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>None</u> : No suitable wetland habitat exists onsite. Some poor quality estivation habitat onsite.
California red-legged frog (<i>Rana draytonii</i>)	FT/SSC/—	Vernal pools, seasonal pools, stock ponds, and associated grasslands	<u>None</u> : No suitable pond or wetland habitat exists onsite.
California tiger salamander (<i>Ambystoma californiense</i>)	FT/SSC/—	Ponds, streams, drainages, and associated uplands	<u>None</u> : No suitable pond or wetland habitat exists onsite.
Foothill yellow-legged frog (<i>Rana boylei</i>)	—/SSC/—	Wetlands, riparian, streams and ponds	Very Low : No suitable breeding habitat onsite. Some poor quality estivation habitat onsite. Nearest occurrence is 1.9 miles north of the project parcel in Soda Creek.
Red bellied newt (<i>Taricha rivularis</i>)	—/SSC/—	Woodland streams, riparian corridors	<u>None</u> : No suitable habitat exists onsite.
Western pond turtle (<i>Emys marmorata</i>)	—/SSC/—	Slow-moving creeks, streams, ponds, rivers, ditches.	None : No pond habitat exists onsite. Nearest occurrence is 2.4 miles south of the parcel in Putah Creek.
INVERTEBRATES			
Behren's silverspot butterfly (<i>Speyeria zerene behrensi</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>None</u> : No suitable lake or stream habitat exists onsite.
Brownish dubiraphian riffle beetle (<i>Dubiraphia brunnescens</i>)	—/SSC/—	Freshwater streams	<u>None</u> : No suitable stream habitat exists onsite.

Taxon	Status ¹ Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
California brackishwater snail (<i>Tryonia imitator</i>)	—/SSC/—	Brackish wetlands	<u>None</u> : No suitable wetland habitat exists onsite.
California floater (<i>Anodonta californiensis</i>)	—/SSC/—	Freshwater ponds, streams	<u>None</u> : No suitable stream habitat exists onsite.
California freshwater shrimp (<i>Syncaris pacifica</i>)	FE/SE/—	Freshwater ponds, streams	<u>None</u> : No suitable stream habitat exists onsite.
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>None</u> : No suitable stream habitat exists onsite.
Crotch bumble bee (<i>Bombus crotchii</i>)	—/SSC/—	Grassland, chaparral	<u>Low</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 myrtlae</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>None</u> : No suitable trees for roosting onsite.
Obscure bumble bee (<i>Bombus caliginosus</i>)	—/SSC/—	Grassland, foothill woodland, chaparral	<u>Low</u> : Some grassland habitat exists onsite.
Opler's longhorn moth (<i>Adela oplerella</i>)	—/SSC/—	Usually associated with <i>Platystemon</i> (creamcups)	<u>None</u> : No suitable host plants onsite.
Oregon floater (<i>Anodonta oregonensis</i>)	—/SSC/—	High order freshwater streams	<u>None</u> : No suitable stream habitat exists onsite.
Ricksecker's water scavenger beetle (<i>Hydrochara rickseckeri</i>)	—/SSC/—	Freshwater ponds	<u>None</u> : No suitable pond habitat exists onsite.
Sonoma zerene fritillary (<i>Speyeria zerene sonomensis</i>)	—/SSC/—	Grasslands and meadows	<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 ¹ Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Wilbur Springs shorebug (<i>Saldula usingeri</i>)	—/SSC/—	Ponds	<u>None</u> : No suitable pond habitat exists onsite.
Vernal pool andrenid bee (<i>Andrena blennospermatis</i>)	—/SSC/—	Upland areas near vernal pools	<u>None</u> : No vernal pool habitat exists onsite.
BIRDS			
American peregrine falcon (<i>Falco peregrinus anatum</i>)	—/SSC/—	Forages in open grasslands, nests in trees	Very Low : No suitable nesting habitat exists. Nearest occurrence is 4.2 miles south of the parcel near McCreary Lake.
Bank swallow (<i>Riparia riparia</i>)	FE/SE/—	Typically found near lakes and streams	<u>None</u> : No suitable stream habitat exists onsite.
Bald eagle (<i>Haliaeetus leucocephalus</i>)	—/SSC/—	Forages over open lakes and streams	Very Low : No suitable foraging or nesting habitat exists onsite. Nearest occurrence is 2.7 miles south of the project parcel near McCreary Lake.
Black swift (<i>Cypseloides niger</i>)	—/SSC/—	Cliff faces near water	<u>None</u> : No suitable stream habitat exists onsite.
Burrowing owl (<i>Athene cunicularia</i>)	—/SSC/—	Grasslands	<u>None</u> : No suitable grassland with ground squirrel burrows exists onsite.
California horned lark (<i>Eremophila alpestris actia</i>)	—/SSC/—	Herbaceous vegetation, chaparral	Very Low : A small amount of chaparral habitat exists onsite.
Cooper's hawk (<i>Accipiter cooperii</i>)	—/WL/—	Forages over open grassland.	Low : Some suitable foraging habitat exists onsite. No suitable nesting habitat.
Golden eagle (<i>Aquila chrysaetos</i>)	—/SSC/—	Forages over open grassland. Nests in old-growth trees.	Low : Some suitable foraging habitat. No suitable nesting habitat. Nearest occurrence is 3.7 miles west of the parcel near Hunting Creek.
Grasshopper sparrow (<i>Ammodramus savannarum</i>)	—/SSC/—	Forages over open grassland.	Low : Some suitable foraging habitat exists onsite.
Great egret (<i>Ardea alba</i>)	FE/SE/—	Nests in trees, forages in wetlands and grasslands	<u>None</u> : No suitable foraging or nesting habitat exists onsite.

Taxon	Status ¹ Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Marbled murrelet (<i>Brachyramphus marmoratus</i>)	FT/SE/—	Old growth forest	<u>None</u> : No suitable forest habitat exists onsite.
Northern goshawk (<i>Accipiter gentilis</i>)	—/SSC/—	Old growth forest	<u>Very Low</u> : No suitable forest habitat exists onsite.
Northern spotted owl (<i>Strix occidentalis</i>)	FT/ST/—	Nests primarily in old growth forests	<u>None</u> : No suitable nesting or foraging habitat onsite. Nearest occurrence is 10 miles to the west near Boggs Mountain.
Osprey (<i>Pandion haliaetus</i>)	—/WL/—	Areas with fish	<u>None</u> : No suitable lake or stream habitat exists onsite.
Prairie falcon (<i>Falco mexicanus</i>)	—/SSC/—	Forages over grasslands	<u>Medium</u> : Some suitable nesting and foraging habitat exists onsite. Nearest occurrence is somewhere in the Jericho Valley USGS Quad, which overlaps the project parcel.
Purple martin (<i>Progne subis</i>)	FE/SE/—	Insectivorous, nests in cavities	<u>Medium</u> : Some suitable nesting habitat exists onsite. Some suitable foraging habitat exists onsite.
Sharp-shinned hawk (<i>Accipiter striatus</i>)	—/SSC/—	Forest and woodland	<u>Very Low</u> : Some suitable foraging habitat exists onsite. No suitable nesting habitat exists onsite.
Tricolored blackbird (<i>Agelaius tricolor</i>)	—/SSC/—	Forages in grasslands and nests in freshwater marshes	<u>Low</u> : Some suitable nesting and foraging habitat exists onsite.
Western yellow-billed cuckoo (<i>Coccyzus americanus occidentalis</i>)	—/SE/—	Woodland, riparian	<u>Very Low</u> : No suitable nesting habitat exists. Some suitable foraging habitat.
White-tailed kite (<i>Elanus leucurus</i>)	—/CFP/—	Prefers to nest in marshes next to deciduous forests.	<u>Very Low</u> : No suitable nesting habitat exists onsite. Some suitable foraging habitat.
Yellow warbler (<i>Coturnicops noveboracensis</i>)	—/SSC/—	Riparian, shrubland, farmland.	<u>Low</u> : Some suitable habitat exists onsite.
MAMMALS			
American badger (<i>Taxidea taxus</i>)	—/SSC/—	Open grassland habitats with plenty of prey.	<u>None</u> : Insufficient habitat complexity exists for this territorial animal.

Taxon	Status ¹ Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
Big free-tailed bat (<i>Nyctinomops macrotis</i>)	—/SSC/—	Forages over open areas, roots in trees or caves	<u>None</u> : Some suitable foraging habitat. No suitable roosts.
Fisher (<i>Pekania pennanti</i>)	—/SSC/—	Forages and breeds primarily in forests.	<u>None</u> : No suitable forest habitat.
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. No suitable roosts in project area.
Hoary bat (<i>Lasiurus cinereus</i>)	—/SSC/—	Forages over open areas, roots in trees or caves at high altitude.	<u>Very Low</u> : Foraging limited to high altitudes. No suitable roosts in the project area.
Long-eared myotis (<i>Myotis evotis</i>)	—/SSC/—	Roosts in caves or buildings and forages in open habitats	<u>Very Low</u> : Some suitable foraging habitat. No suitable roosts in project area.
Long-legged myotis (<i>Myotis volans</i>)	—/SSC/—	Roosts in caves or buildings and forages in open habitats	<u>None</u> : Some foraging habitat. No suitable roosts.
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 habitat. No suitable den habitat.
Pallid bat (<i>Antrozous pallidus</i>)	—/SSC/—	Common in open dry habitats with rocky areas for roosting.	<u>Very Low</u> : Some foraging habitat exists. No suitable roosts in the project area.
Townsend's big-eared bat (<i>Corynorhinus townsendii</i>)	—/SSC/—	Hibernate in mines or caves, roost in man made structures and caves.	<u>Very Low</u>: Few man-made structures exist suitable for roosting. Some habitat for foraging. Nearest occurrence is 5.5 miles north of the parcel near Morgan Valley Road.
Western red bat (<i>Lasiurus blossevillei</i>)	—/SSC/—	Forages over open areas, roots in trees or caves.	<u>Very Low</u> : No 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 onsite. Some suitable foraging habitat exists.
HABITATS			
Coastal & Valley Freshwater Marsh (CVFM)	—	—	<u>None</u> : No marsh habitat exists onsite.

Taxon	Status ¹ Fed/State/CNPS	Habitat	Potential to Occur Within the Project Area
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.

¹ 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

² USFWS

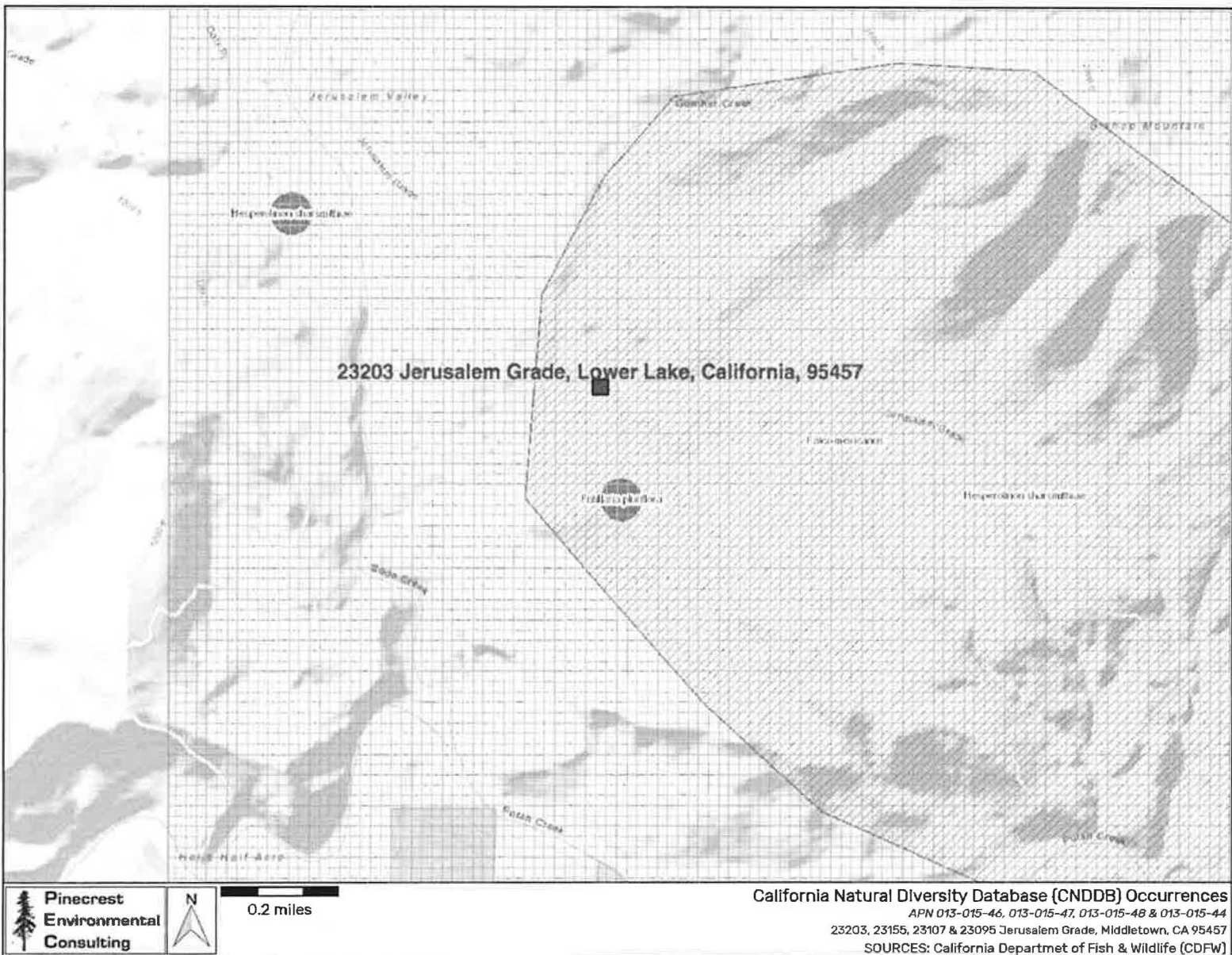
APPENDIX B: SPECIES ENCOUNTERED

PLANTS
<i>Achillea millefolium</i>
<i>Acmispon americanus</i>
<i>Aira caryophyllea</i>
<i>Alnus rhombifolia</i>
<i>Ansiocarpus madioides</i>
<i>Arbutus menziesii</i>
<i>Arctostaphylos canescens</i>
<i>Arctostaphylos manzanita</i>
<i>Artemisia douglasiana</i>
<i>Avena barbata</i>
<i>Baccharis pilularis</i>
<i>Brassica nigra</i>
<i>Briza minor</i>
<i>Brodiaea elegans</i>
<i>Bromus diandrus</i>
<i>Bromus hordeaceus</i>
<i>Bromus laevipes</i>
<i>Carduus pycnocephalus</i>
<i>Ceanothus cuneatus</i>
<i>Ceanothus integerrimus</i>
<i>Chlorogalum pomeridianum</i>
<i>Cirsium vulgare</i>
<i>Claytonia perfoliata</i>
<i>Croton setiger</i>
<i>Cynosurus echinatus</i>
<i>Cyperus eragrostis</i>
<i>Daucus pusillus</i>
<i>Dichelostemma capitatum</i>
<i>Dipsacus fullonum</i>
<i>Elymus caput-medusae</i>
<i>Elymus glaucus</i>
<i>Epilobium densiflorum</i>
<i>Equisetum arvense</i>
<i>Eriodictyon californicum</i>
<i>Erodium botrys</i>
<i>Festuca myuros</i>
<i>Festuca perennis</i>
<i>Fraxinus latifolia</i>
<i>Galium aparine</i>

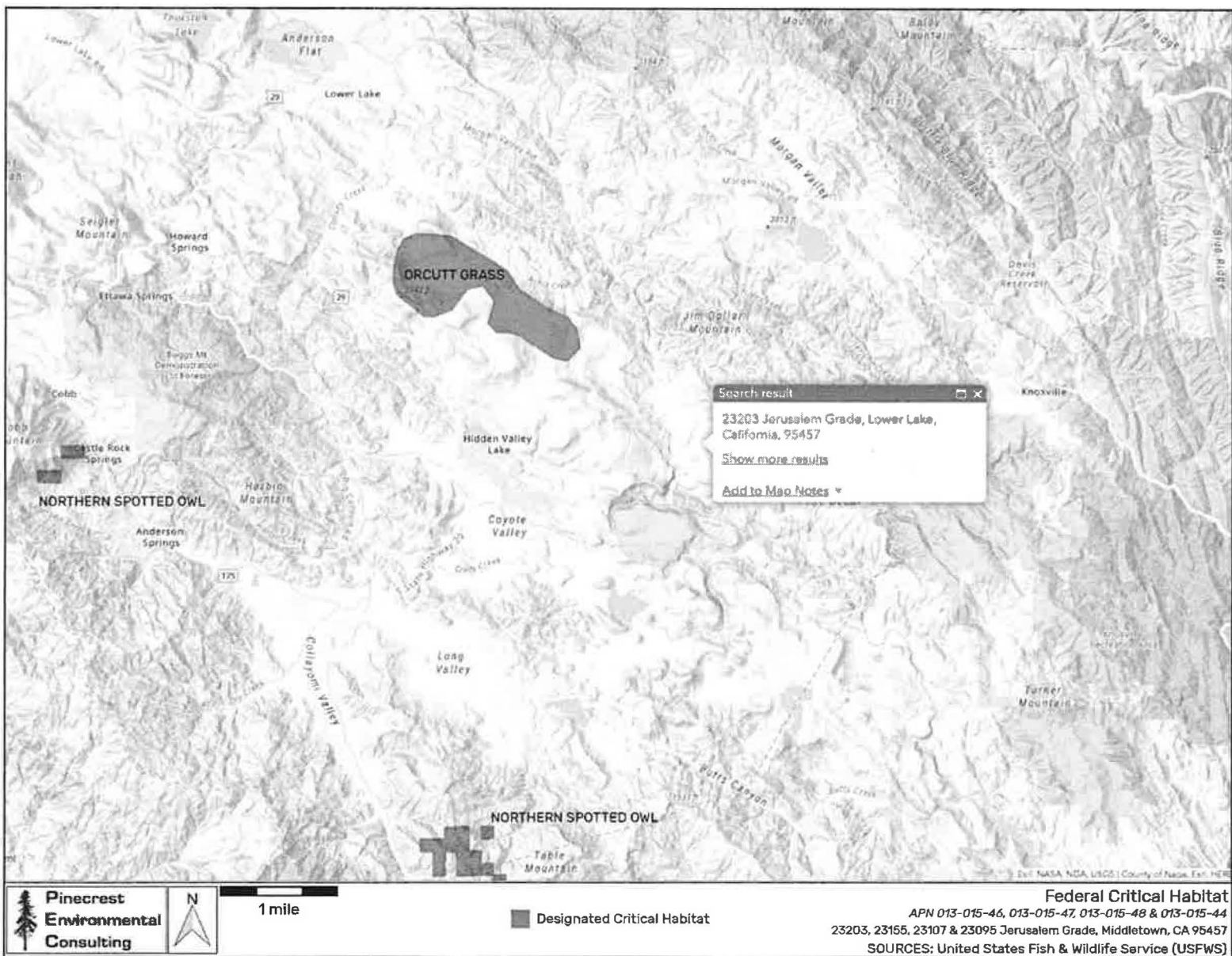
<i>Galium californicum</i>
<i>Gastroidium phleoides</i>
<i>Genista monspessulana</i>
<i>Geranium molle</i>
<i>Gnaphalium californicum</i>
<i>Heteromeles arbutifolia</i>
<i>Hordeum murinum</i>
<i>Hypericum perforatum</i>
<i>Hypochaeris glabra</i>
<i>Iris douglasii</i>
<i>Juncus patens</i>
<i>Juncus xiphioides</i>
<i>Lactuca serriola</i>
<i>Lupinus bicolor</i>
<i>Melilotus albus</i>
<i>Mentha pulegium</i>
<i>Navarretia leucocephala</i>
<i>Phalaris aquatica</i>
<i>Pinus sabiniana</i>
<i>Plantago lanceolata</i>
<i>Populus fremontii</i>
<i>Pseudotsuga menziesii</i>
<i>Pteridium aquilinum</i>
<i>Quercus douglasii</i>
<i>Quercus durata</i>
<i>Quercus wislizeni</i>
<i>Quercus-Pinus</i>
<i>Ranunculus occidentalis</i>
<i>Rubus armeniacus</i>
<i>Rumex acetocella</i>
<i>Rumex crispus</i>
<i>Salix lasiolepis</i>
<i>Salix-Populus</i>
<i>Sisyrinchium bellum</i>
<i>Stachys ajugoides</i>
<i>Stellaria media</i>
<i>Stipa pulchra</i>
<i>Torilis arvensis</i>
<i>Toxicodendron diversilobium</i>
<i>Tragopogon dubius</i>
<i>Trifolium hirtum</i>
<i>Vicia sativa</i>

ANIMALS
<i>Callipepla californica</i>
<i>Cathartes aura</i>
<i>Corvus brachyrhynchos</i>
<i>Gerridae spp.</i>
<i>Hesperoleucus symmetricus</i>
<i>Junco hyemalis</i>
<i>Lepus californicus</i>
<i>Melanerpes formicivorus</i>
<i>Melospiza crissalis</i>
<i>Microtus californicus</i>
<i>Odocoileus hemionus</i>
<i>Oncorhynchus mykiss</i>
<i>Passer domesticus</i>
<i>Sciurus griseus</i>
<i>Thomomys bottae</i>
<i>Zenaidura macroura</i>

APPENDIX C: CNDDB OCCURRENCES MAP



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).