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ANTHEM WINERY

BIOLOGICAL RESOURCES RECONNAISSANCE SURVEY AND SPECIAL STATUS PLANT RECONNAISSANCE

3454 REDWOOD ROAD
(APN 035-470-020-000)
NAPA COUNTY

(MUSCI JOB# BS-14-147)

31 August 2014

This report presents information on natural resources, especially sensitive native plants, on lands of Arbuckle Winery proposed for construction of a winery and accessory uses. The site is located at 3454 AND 3456 Redwood Road, on the ridge between Redwood Road and Dry Creek Road in Napa County (APN 035-470-020-000). The area surveyed for this report is indicated on Aerial Map, Figure 1 (outlined in yellow)(winery site indicated by yellow "X").

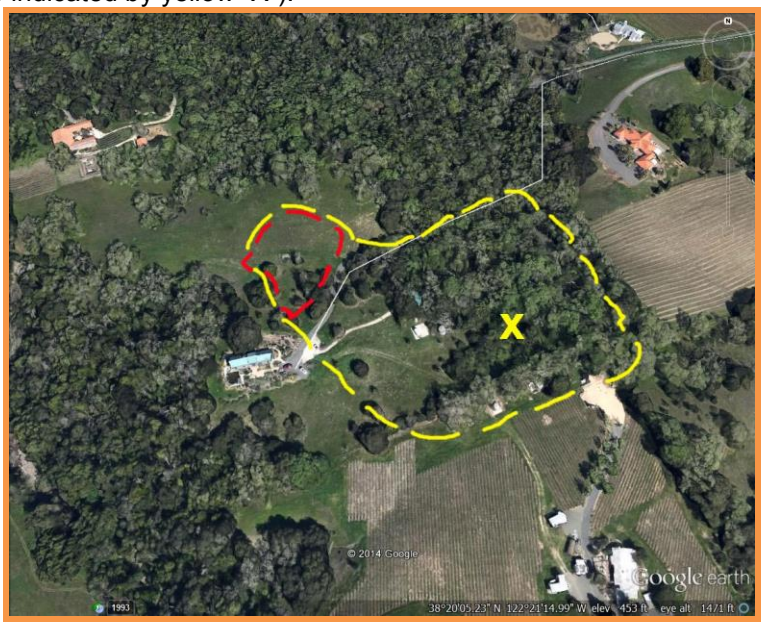

FIGURE 2: AERIAL OF SURVEY AREA
[Survey area indicated by yellow boundary]
[Winery site indicated by yellow "X"]
[Spoils site indicated by red boundary]
[adapted from Google Earth]

The purpose of the survey and study is to determine whether there are significant biological resources which may be adversely affected by the proposed winery development. This report incorporates information to satisfy County of Napa requirements for both the Biological Resources Reconnaissance Survey and the Special Status Plant Study.

PROJECT DESCRIPTION

This request is to modify Anthem Winery's existing Winery Use Permit (#96006-UP) to build a larger winery facility, a tasting room, offices, and caves on a property located at 3454 Redwood Rd., Napa, California 94558 with an Assessor Parcel Number of 035-470-020 (the "subject property").

Background:
Anthem Winery and Vineyards, LLC is owned by Justin and Julie Arbuckle, Trustees of the Arbuckle Family Trust. They acquired the subject property in July of 2006 along with its existing winery facility and Winery Use Permit. The current use permit is limited to 30,000 gallons and an indoor wine production area of 1600 square feet, and does not permit tastings by appointment as the prior owner did not request them. The subject property is 27.13 acres, 6 acres of which is planted to vineyards that Anthem Winery and Vineyards, LLC has been harvesting to produce its own wines since 2009. Additionally, Anthem Winery and Vineyards, LLC has an approved erosion control plan to plant an additional 3.72 acres of vineyards on the subject property, and adjoining parcel (3123 Dry Creek Rd.), which it purchased in April 2010.

In addition to the existing winery facility, there is currently an existing residence, two barns, and two accessory buildings on the subject property. There is also a 0.6 mile access road from Redwood Rd., across Redwood Creek, and to the residence and winery facility that is 10 feet wide and has four turnouts.

The property is in an area with very few visible neighbors and is very difficult to see from the floor of the Napa Valley although parts of it are located on a minor ridgeline overlooking Dry Creek Road.

The Project:

Winery: Anthem Winery is proposing to build an 11,350 square foot state of the art wine making facility, along with a 1000 square foot mechanical building. The winery, which has been designed by renowned Napa Valley architects Howard Backen and John Taft, will be divided into two buildings with a round bottle room connecting the two buildings. The crush pad will be located in front of the winery buildings. This application requests to produce 50,000 gallons of wine per year. All of the grapes grown on the property will be crushed at the winery.

Hospitality: Anthem Winery's tasting room and guest relations building is separate from the winery building. This 1800 square foot structure will offer guests the opportunity to taste Anthem Winery's wines in a beautiful, natural, and relaxed setting. As allowed by law, wine purchased at the winery may be consumed on premises.

Anthem Winery plans to entertain 60 people per day on weekends, and 40 people per day on weekdays. In addition, the winery plans to host 4 food and wine events per month with a maximum of 30 people, and 2 events per month with a maximum of 100 people. Additionally, the winery plans to host 2 larger events with 300 people per year. Parking for events will be in front of the winery, on site next to the vineyard blocks, and off site utilizing shuttle service.

Administration/Office Building: The administrative offices for the winery will be adjacent to the tasting room. This 1600 square foot office structure will house the offices for the winery's staff and owners, and will include a commercial kitchen where food for events can be prepared.

Caves: Anthem Winery plans to store the wine produced at the winery in barrels located in underground caves that connect to the back of the winery's bottle room. The caves will total 22,000 square feet, including two 635 square foot private tasting rooms for guests.

Parking: Employees and guests will park in front of the winery. There will be several parking spaces, 2 new ADA parking spaces, and 1 new parking space for electric vehicles only with an electric vehicle charging station.

Employees: Anthem Winery will employ 7 full time and 5 part time employees.

Site Improvements: Anthem Winery will utilize its existing wells for water, but will construct a new waste water/septic system. The entry road for the winery, tasting room and offices will be re-routed to the existing driveway at 3123 Dry Creek Rd., which has better visibility and access for emergency vehicles. The existing driveway at 3123 Dry Creek Rd. will be updated and improved with additional turnouts. Additionally, Anthem Winery will install solar panels on the rooftops of the winery production buildings, as well as a rainwater collection system to supply electricity and water to the winery facilities.

Variance(s) Requested: Anthem Winery will request a variance from the setback of 300 feet from any shared driveway on the grounds that: (1) it owns both parcels that will share the 3123 Dry Creek Rd. driveway, thus the driveway is not actually shared with any neighbor and the setback's purpose of protecting neighbors who share a driveway serving a winery would not be served; and (2) the topography of and existing vineyards and structures on the subject property make it unfeasible to comply with a setback of 300 feet. Instead, Anthem Winery will request winery placement within the 300 foot driveway setback.

Additionally, Anthem Winery will request a variance from the winery driveway width standard based on: (1) the property boundary lines, topography, and existing trees prohibit widening the Dry Creek Rd. driveway to 18 feet, but where feasible, Anthem Winery will construct turnouts and widen the driveway to 18 feet; and (2) Anthem Winery's existing already approved 10 foot wide Redwood Rd. driveway provides substantially inferior access and lines of site to the winery than the proposed Dry Creek Rd. driveway will provide.

Winery Entrance and Signage: Anthem Winery will request a new winery sign and entrance off of 3123 Dry Creek Rd.

FIELD SURVEY

Field reviews were on 11 May 2014 by Stephen P. Rae, PhD of MUSCI, and Ellen Dean, PhD curator of University of California Davis Center for Plant Diversity. Stephen Rae returned 21 May 2014 for additional field reviews. The survey area (see Figure 1, outlined in yellow) encompasses lands of Arbuckle, includes acreage already impacted by previous activities (subject to erosion control plan), residential uses and native vegetation. The survey area also extends along the existing paved access route and the proposed winery access extension to the proposed winery and cave sites.

Pre-survey preparation included consultation with knowledgeable professionals, examination of herbarium specimens of the target sensitive plant species and review of published references and agency occurrence databases. Additional information was obtained from published and unpublished sources. We examined aerial photographs of the project site using Google Earth, and consulted the National Resource Conservation Service Soil Survey for Napa County to better understand the soils of the project site (NRCS 2014). A list of special-status plant species with potential to occur on the project site was then compiled by performing database searches of the California Native Plant Society's (CNPS') Electronic Inventory of Rare and Endangered Vascular Plants of California (CNPS 2014). The Napa, Sonoma, Yountville, and U.S. Geological Survey (USGS) 7.5 minute quadrangles were included in the searches.

About eight hours were committed to field survey, with an additional eight hours spent identifying collected materials. Selected plant specimens were collected, in several developmental stages.

All plants encountered during the survey were identified to the highest taxonomic level necessary (Table 1). Nomenclature used follows *The Jepson Manual: Vascular Plants of California* (Baldwin 2012, ed.). The vegetation of the site was classified using *A Manual of California Vegetation* (Sawyer et al. 2009).

SURVEY RESULTS AND SITE DESCRIPTION

Soils

The soils on the project site are mapped as Fagan Clay Loam, 30-50 percent slopes and Felton Gravelly Loam, 30-50 percent slopes. Both soil types are derived from sedimentary sandstone and shale. No serpentinite-derived soils, volcanic-derived soils, or vernal pool clay soils – soil types that commonly support many of the special-status plants of Napa County – are found on the project site.

Vegetation Types

The project site is located northwest of the main part of the city of Napa on the lower and east slopes of the Mayacamas Mountains of the Inner Coast Ranges of California. Elevations on the project site range from approximately 375 to 450 feet above sea level. The areas of the project site where the winery and tunnels are to be constructed has open meadow, woody vegetation, a trailer pad with a trailer, a guesthouse, and vineyards. The vegetation types present on the project site are *Quercus lobata/Quercus agrifolia/Toxicodendron diversilobum* association, *Quercus agrifolia/Umbellularia californica/Toxicodendron diversilobum* association, *Quercus lobata/Quercus kelloggii* association, *Nassella pulchra* association, and Wild Oats Grasslands (Sawyer et al. 2009). In addition, there are vineyards and the remains of an old orchard. A description of the vegetation types follows, and the list of plant species documented on the project site is provided below (Table 1).

Woodland Alliances: Quercus lobata/Quercus agrifolia/Toxicodendron diversilobum association, Quercus agrifolia/Umbellularia californica/Toxicodendron diversilobum association, Quercus lobata/Quercus kelloggii Association

In the northeastern corner of the project site where the winery is planned for construction, there is a woodland with an unusual mixture of native trees including valley oak (*Quercus lobata*), black oak (*Quercus kelloggii*), coast live oak (*Quercus agrifolia*), and California Bay (*Umbellularia californica*). The valley oaks are often the tallest trees of the overstory of this mixture, with the bay and black oak most common along the eastern edge of the woodland and the coast live oak present in the understory. The shorter woody understory has the natives poison oak (*Toxicodendron diversilobum*), climbing bedstraw (*Galium porrigens*), and pink honeysuckle (*Lonicera hispidula*), as well as the remains of an old orchard of cherry plum (*Prunus cerasifera*). The ground layer is dominated by nonnative grasses and forbs such as purple false brome (*Brachypodium distachyon*), ripgut brome (*Bromus diandrus*), and herb Robert (*Geranium purpureum*). However, there are numerous native plants present, such as blue wild rye (*Elymus glaucus*), gamble weed (*Sanicula crassicaulis*), abundant soap plant (*Chlorogalum pomeridianum*), roughleaf aster (*Eurybia radulina*), western buttercup (*Ranunculus occidentalis*), yarrow (*Achillea millefolium*), and ookow (*Dichelostemma congestum*).

Nassella pulchra Alliance: Nassella pulchra Association

The open meadow at the northern end of the project site (to the west of the footprint of the proposed winery buildings) is dominated by the native, perennial, bunchgrass purple needle grass (*Nassella pulchra,* now called *Stipa pulchra*). Also growing in this meadow are dozens of plants of chick lupine (*Lupinus microcarpus*). Between the lupines and the purple needle grass, typical nonnatives such as hairy cats ear (*Hypochaeris radicata*), rose clover (*Trifolium hirtum*), foothill filaree (*Erodium brachycarpum*), and soft chess (*Bromus hordeaceus*) are present. A smaller stand of this alliance is also present on the eastern side of the meadow at the southern side of the project site. Both stands of needle grass had been mowed before our visit, making it difficult to identify all the plants that were present at the time of our visit. The occurrence of purple needle grass throughout onsite meadows and within associated vineyards is due to seed mixtures used to control runoff subject to County of Napa Erosion Control Plan.

Wild Oats Grasslands Alliance

The meadow at the southern end of the project site is dominated by a mixture of nonnative grasses. This vegetation type is best described as Wild Oats Grasslands Alliance. Dominant nonnative grasses in this grassland are ripgut brome (*Bromus diandrus*), slender wild oats (*Avena barbata*), and Italian ryegrass (*Festuca/Lolium perenne*). Many different nonnative forbs are present, such as hairy catsear (*Hypochaeris radicata*), bristly oxtongue (*Picris echioides*), scarlet pimpernel (*Anagallis arvensis*), and narrow-leaved plantain (*Plantago lanceolata*). This vegetation is also found between the rows of grapevines in the vineyards on the project site. In all cases, this vegetation type had been mowed prior to our visit, making it difficult to identify all the plants present at the time of our visit.

Significant Non-Native Trees

A line of Scarlet Oaks (*Quercus coccinea*) defines the parcel boundary between the proposed winery site and the existing cave. Over 24 inches in diameter, these trees comprise a significant overstory along the fence line. The winery footprint within the woodland alliance along the ridge crest includes an abandoned cherry plum (*Prunus cerasifera*) stand. Taken together, the presence of the two introduced tree species suggest intensive prior use of the site.

Special-Status Plants

We evaluated the property for its potential to support occurrences of special-status plants. Special-status plants are defined as plants that are legally protected or that are otherwise considered sensitive by federal, state, or local resource conservation agencies and organizations. Special-status plant taxa are species, subspecies, or varieties that fall into one or more of the following categories, regardless of their legal or protection status: 1) officially listed by California or the federal government as endangered, threatened, or rare; a candidate for state or federal listing as endangered, threatened, or rare; 2) taxa that meet the criteria for listing, even if not currently included on any list, as described in Section 15380 of the California Environmental Quality Act (CEQA) Guidelines; 3) taxa designated as a special-status, sensitive, or declining species by other state or federal agencies or non-governmental organizations; and 4) taxa considered by CNPS and the DFG to be “rare, threatened, or endangered in California” (for purposes of this document, the relevant inventories include California Rare Plant Rank List 1A, 1B, 2A and 2B).

We examined soil maps and confirmed that the soils on the project site are not derived from serpentinite or igneous/volcanic rock types which support many of the special-status plants found in Napa County. In addition, there are no vernal pools, marshes, and plants typical of saline habitats found on the project site. The following is a list of special-status plants that could grow on the project site but were not encountered during our May 11 visit:

Amorpha californica var. napensis Napa false indigo
Trifolium amoenum Two fork clover
Hemizonia congesta ssp. congesta Pale yellow hayfield tarplant
Horkelia tenuiloba Thin-loabed horkelia
Viburnum ellipticum Oval-leaved viburnum

RESOURCE-AT-RISK ISSUES AND MITIGATION RECOMMENDATIONS

Based on field survey results, there are no sensitive plant resource-at-risk issues associated with the proposed winery development and associated access improvements. However, sensitive plant species are reported within this portion of Napa County. Multi-year surveys may provide additional confidence that such species, including the five listed above, do not occur here.

There are no significant native bunch grass or woodland vegetation stands associated with the proposed winery development or associated access improvements.

There are no recommended mitigation measures pertinent to the winery development and proposed access improvements.

SURVEY LIMITATIONS

In the absence of comprehensive floristic research and a published flora for Napa County there may still be potential for discovery of new species and range extensions.

However, we do not recommend any additional surveys (animal or plant) relative to this proposed project.

STEPHEN P. RAE, Ph.D.
MANAGING PARTNER

REFERENCES AND CONTACTS

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NRCS. 2014. Soil Survey of Napa County, available from the Natural Resources Conservation System at:http://websoilsurvey.nrcs.usda.gov/app/ WebSoilSurvey.aspx.

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Table 1. Plants Observed on the Project Site During the May 11, 2014 Survey

Scientific Name	Common Name[2]
Achillea millefolium	yarrow
*Anagallis arvensis**	scarlet pimpernel
Aster radulinus	roughleaf aster
*Avena barbata**	slender oats
Baccharis pilularis	coyote bush
*Brachypodium distachyon**	purple false brome
*Briza minor**	little quaking grass
*Bromus diandrus**	riggut brome
*Bromus hordeaceus**	soft chess
*Bromus sterilis**	sterile brome
*Carduus pycnocephalus**	Italian thistle
Chlorogalum pomeridianum	soap plant
*Cirsium vulgare**	bull thistle
Claytonia parviflora	miner's lettuce
Croton setiger	turkey mullein
*Cynosurus echinatus**	bristly dogtail grass
Danthonia californica var. *californica*	California oatgrass
Dichelostemma congestum	ookow
Elymus glaucus	blue wild rye
Epilobium brachycarpum	panicle willowherb
*Erodium brachycarpum**	foothill filaree
*Erodium cicutarium**	redstem filaree
Eurybia radulina	roughleaf aster
*Festuca arundinacea**	tall fescue
*Festuca perenne**	Italian ryegrass
Galium aparine	bedstraw
Galium porrigens	climbing bedstraw
*Geranium dissectum**	cutleaf geranium
*Geranium molle**	dovefoot geranium
*Geranium purpureum**	herb Robert
*Hordeum murinum**	foxtail barley
*Hypochaeris glabra**	smoot cat's ear
*Hypochaeris radicata**	hairy cat's ear
Juncus occidentalis	western rush
Kickxsia elatine	sharp-pointed fluvellin
Lonicera hispidula var. *vacillans*	pink honeysuckle
Lupinus microcarpus	chick lupine
*Malva parviflora**	cheeses
*Matricaria discoidea**	pineapple weed
*Medicago polymorpha**	burclover
*Olea europaea**	olive
*Picris echioides**	bristly oxtongue
*Plantago lanceolata**	English plantain
*Prunus cerasifera**	cherry plum
Quercus douglasii	blue oak
Quercus kelloggii	black oak
Quercus lobata	valley oak
Quercus wislizeni	interior live oak

Table 1. Plants Observed on the Project Site During the May 11, 2014 Survey

Scientific Name	Common Name[2]
Ranunculus occidentalis	western buttercup
*Rhagadiolus stellatus**	endive daisy
*Rubus armeniacus**	Himalayan blackberry
Rubus ursinus	California blackberry
*Rumex acetosella**	sheep sorrel
Rumex salicifolia	willow dock
Sanicula crassicaulis	gamble weed
Sanicula bipinnatafida	purple sanicle
Scandix pectin-veneris	shepard's needles
Sisyrinchium bellum	blue-eyed grass
*Sonchus asper**	spiny sowthistle
*Sonchus oleraceus**	sowthistle
Stachys rigida var. *quercetorum*	hedge nettle
Stipa pulchra	purple needle grass
*Stellaria media**	chickweed
*Torilis arvensis**	hedge parsley
Toxicodendron diversilobum	poison oak
*Trifolium hirtum**	roseclover
*Trifolium subterranean**	subterranean clover
Triteleia hyacinthina	wild hyacinth
Triteleia laxa	Ithurial spear
*Triticum aestivum**	wheat
Umbellularia californica	California bay
*Veronica arvensis**	common speedwell
*Vicia sativa**	common vetch
*Vicia villosa**	hairy vetch
*Vitis vinifera**	cultivated grape

SYMBOLS:

(*) Species is not native to California (CalFlora 2014)
(2) Source for common names: CalFlora 2014

Table 2. Special-Status Plants with Potential to Occur on the Project Site							
Scientific Name		Rare Plant Rank	CESA	FESA	Habitat	Blooming time	Potential to Occur on Project Site
Allium peninsulare var. franciscanum Franciscan onion		1B.2	None	None	Valley and foothill grassland, cismontane woodland. Clay, volcanic, often serpentinite. 52-300 m.	May-June	Unlikely. Preferred habitat not present on the project site.
Alopecurus aequalis var. sonomensis Sonoma alopecurus		1B.1	None	FE	Marshes and swamps (freshwater), riparian scrub. 5-365 m.	May - July	None. No marshes or swamps occur on the project site.
Amorpha californica var. napensis Napa false indigo		1B.2	None	None	Broadleafed upland forest. Cismontane woodland. Chaparral. 120-2000 m.	April-July	Possible, but this species was not encountered during the survey.
Amsinckia lunaris bent-flowered fiddleneck		1B.2	None	None	Cismontane woodland, grassland. Sometimes serpentine. 3-500 m.	March-June	Unlikely. Preferred habitat not present on the project site.
Anomobryum julaceum slender silver moss		2.2	None	None	Broadleaf upland forest. Lower montane coniferous forest. North Coast coniferous forest. Damp rock and soil on outcrops, usually on roadcuts. 100-1000 m.		Unlikely. Preferred habitat not present on the project site.
Antirrhinum virga twig-like snapdragon		4.3	None	None	Chaparral, lower montane coniferous forest. Rocky openings, serpentinite, 100-2015 m.	June-July	Unlikely. Preferred habitat not present on the project site.
Arctostaphylos bakeri ssp. bakeri Baker's manzanita		1B.1	CR	None	Broadleaved upland forest, chaparral. Often serpentinite. 75-300 m.	February-April	None. No manzanitas were encountered during the survey.
Arctostaphylos canescens ssp. sonomensis Sonoma canescent manzanita		1B.2	None	None	Chaparral, lower monante coniferous forest. Often serpentinite. 180-1675 m.	January-June	None. No manzanitas were encountered during the survey.
Arctostaphylos manzanita ssp. elegans Konocti manzanita		1B.3	None	None	Chaparral, cismontane woodland, lower montane coniferous forest. Volcanic. 395-1615 m.	March-May	None. No manzanitas were encountered during the survey.
Arctostaphylos stanfordiana ssp. decumbens Rincon Ridge manzanita		1B.1	None	None	Chaparral, cismontane woodland. Rhyolite. 75-370 m.	February-May	None. No manzanitas were encountered during the survey.
Asclepias solanoana serpentine milkweed		4.2	None	None	Chaparral, cismontane woodland, lower montane coniferous forest. Serpentine barrens. 230-1860 m.	May-August	None. Serpentine barrens habitat does not occur on project site.
Astragalus breweri Brewer's milk-vetch		4.2	None	None	Chaparral, cismontane woodland, grassland. Often serpentine or volcanic seeps, open,	April-June	None. Preferred gravelly habitat of this species does not occur on the project site.

					gravelly. 90-730 m.		
Astragalus claranus Clara Hunt's milk-vetch		1B.1	CT	FE	Chaparral, cismontane woodland, grassland. Often serpentine or volcanic clay. 75-275 m.	March-May	Unlikely. Preferred soil types for this species not present on the project site.
Astragalus clevelandii Cleveland's milk-vetch		4.3	None	None	Chaparral, cismontane woodland, riparian forest. Serpentine riparian zones. 200-1500 m.	June-September	None. No serpentine riparian zones occur on the project site.
Astragalus rattanii var. jepsonianus Jepson's milk-vetch		1B.2	None	None	Chaparral, cismontane woodland, valley and foothill grassland. Often serpentine. 320-700 m.	March-June	Unlikely. This species prefers rocky serpentine soils not found on the project site.
Balsamorhiza macrolepis var. macrolepis big-scale balsamroot		1B.2	None	None	Chaparral, cismontane woodland, valley and foothill grassland. Sometimes serpentine soil. 90-1555 m.	March-June	None. Species was not encountered during the survey (and would have been obvious).
Blennosperma bakeri Sonoma sunshine		1B.1	CE	FE	Vernal pools. 10-110 m.		None. Preferred vernal pool habitat of this species does not occur on the project site.
Brodiaea leptandra narrow-anthered California brodiaea		1B.2	None	None	Chaparral, cismontane woodland, lower montane coniferous forest, broadleaved forest, valley and foothill grassland. Volcanics. 110-915 m.	May-July	Unlikely. Preferred soil type does not occur on project site.
Calamagrostis ophitidis serpentine reed grass		4.3	None	None	Chaparral, cismontane woodland, valley and foothill grassland, lower montane coniferous forest. Meadows and seeps. Rocky, serpentine soil. 90-1065 m.	April-July	None. This species prefers rocky serpentine soils not found on the project site.
Calandrinia breweri Brewer's calandrinia		4.2	None	None	Chaparral. Disturbed sites and burns. 10-1220 m.	March-June	Unlikely. Area has not been burned recently, and species not encountered during survey.
Calycadenia micrantha Small-flowered calycadenia		1B.2	None	None	Chaparral, valley and foothill grassland, meadows and seeps, rocky talus, scree, roadsides. 5-1500 m.	June-September	Unlikely. Rocky habitat not present on project site.
Calystegia collina ssp. oxyphylla Mt. Saint Helena morning-glory		4.2	None	None	Chaparral, valley and foothill grassland, lower montane coniferous forest. Serpentine. 279-1010 m.	April-June	None. Preferred serpentine habitat not present on the project site.
Carex albida Sonoma white sedge		1B.1	CE	FE	Freshwater marsh. 15-90 m.	May-July	None. Preferred marsh habitat of this species does not occur on the project site.
Castilleja ambigua vars. Ambigua and meadii Rincon Ridge ceanothus		4.2/ 1B.1	None	None	Coastal prairie/scrub, mesic sites/vernal pools. 0-475 m.	March-May	None. Mesic vernal pool areas do not occur on the project site.
Ceanothus confusus Rincon Ridge		1B.1	None	None	Chaparral, cismontane woodland, serpentine or	February-June	None. No Ceanothus shrubs were encountered during

ceanothus					volcanics. 75-1065 m.		survey.
Ceanothus divergens Calistoga ceanothus		1B.2	None	None	Chaparral. Serpentine or volcanic, rocky. 170-950 m.	February-May	None. No Ceanothus shrubs were encountered during survey..
Ceanothus purpureus holly-leaved ceanothus		1B.2	None	None	Chaparral, cismontane woodland, serpentine or volcanics. 120-640 m.	February-June	None. No Ceanothus shrubs were encountered during survey.
Ceanothus sonomensis Sonoma ceanothus		1B.2	None	None	Chaparral. Sandy, serpentine or volcanic. 215-800 m.	February-April	None. No Ceanothus shrubs were encountered during survey.
Centromadia parryi ssp. parryi pappose tarplant		1B.2	None	None	Chaparral, meadows and seeps, valley and foothill grassland (vernally mesic). Often on alkaline soils. 2 - 420 m.	May - November	None. Preferred alkaline soil habitat of this species does not occur on the project site.
Chorizanthe valida Sonoma spineflower		1B.1	CE	FE	Coastal prairie, sandy soils. 10-305 m.	June- August	None. Preferred sandy habitat not present on the project site.
Clarkia breweri Brewer's clarkia		4.2	None	None	Chaparral, woodland, coastal scrub, often on serpentine. 215-1115 m.	April-June	Unlikely. Serpentine soils not present on project site.
Clarkia gracilis ssp. tracyi Tracy's clarkia		4.2	None	None	Chaparral. Openings in serpentine. 65-650 m.	April-July	Unlikely. Serpentine soils not present on project site.
Cryptantha dissita serpentine cryptantha		1B.1	None	None	Chaparral. Serpentinite soils. 395 - 580 m.	April-June	None. Rocky serpentine soils not present on the project site.
Downingia pusilla dwarf downingia		2.2	None	None	Vernal pools. 1-445 m.	April-May	None. Vernal pool habitat not present on the project site.
Erigeron biolettii streamside daisy		3	None	None	Broadleafed upland forest, cismontane woodland, and north Coast coniferous forest. Rocky mesic soils. 30 - 1100 m.	June-October	Unlikely. Very mesic habitat preferred by this species does not occur on the project site.
Erigeron greenei Greene's narrow-leaved daisy		1B.2	None	None	Chaparral. Serpentinite or volcanic soils. 80 - 1005 m.	May-September	None. Preferred habitat and soils of this species do not occur on the project site.
Eriogonum nervulosum Snow Mountain buckwheat		1B.2	None	None	Chaparral. Rocky serpentine barrens. 300-1005 m.	June-September	None. Rocky serpentine soil habitat of this species does not occur on the project site.
Eryngium constancei Loch Lomond button-celery		1B.1	CE	FE	Vernal pools. 460-855 m.	May-June	None. Preferred vernal pool habitat of this species does not occur on the project site.
Eryngium pinnatisectum Tuolumne button-celery		1B.2	None	None	Vernal pools. 70-915 m.	May-June	None. Preferred vernal pool habitat of this species does not occur on the project site.
Erythronium helenae St. Helena fawn lily		4.2	None	None	Chaparral, cismontane woodland, valley and foothill grassland, lower montane coniferous forest. Serpentine or volcanic soil. 350-1220 m.	March-May	None. Preferred soils of this species do not occur on the project site.
Fritillaria liliacea fragrant fritillary		1B.2	None	None	Cismontane woodland, valley and foothill grassland. Often on serpentine. 3-410 m.	February-April	Unlikely. Preferred soils of this species not found on the project site.
Fritillaria pluriflora adobe-lily		1B.2	None	None	Chaparral, cismontane woodland, valley and	February-April	None. Deep clay alluvial or colluvial soils preferred by

					foothill grassland. Adobe clay soil. 60-705 m.		this species not present on the project site.
Fritillaria purdyi Purdy's fritillary		4.3	None	None	Chaparral, cismontane woodland, lower montane coniferous forest. Serpentine soil. 175-2255 m.	March-June	None. Serpentine soils not found on project site.
Harmonia hallii Hall's harmonia		1B.2	None	None	Chaparral. Rocky serpentine. 500-975 m.	April-June	None. Preferred rocky habitat of this species does not occur on the project site.
Harmonia nutans nodding harmonia		4.3	None	None	Chaparral, cismontane woodland, rocky gravelly soil. 75-975 m.	March-May	None. Preferred rocky habitat of this species does not occur on the project site.
Hemizonia congesta ssp. congesta pale yellow hayfield tarplant		1B.2	None	None	Valley and foothill grassland. Roadsides. 20-560 m.	April-Nov.	Possible, but species not encountered during survey.
Hesperolinon bicarpellatum two-carpellate western flax		1B.2	None	None	Chaparral. Rocky serpentine soils. 60 - 1005 meters.	May-July	None. Preferred rocky, serpentine habitat of this species does not occur on the project site.
Hesperolinon serpentinum Napa western flax		1B.1	None	None	Chaparral, cismontane woodland, valley and foothill grassland. Usually rocky serpentinite soils. 30 - 900 meters.	May-July	None. Preferred rocky, serpentine habitat of this species does not occur on the project site.
Hesperolinon tehamense Tehama western flax		1B.3	None	None	Chaparral, cismontane woodland,. Serpentinite soils. 100 - 1250 meters.	May-July	None. Preferred rocky, serpentine habitat of this species does not occur on the project site.
Horkelia tenuiloba Thin-lobed horkelia		1B.2	None	None	Chaparral, broadleaved upland forest, valley and foothill grassland. Mesic, sandy soils. 50-500 m.	May-August	Possible. But not encountered during survey
Iris longipetala coast iris		4.2	None	None	Lower montane coniferous forest, meadows and seeps. 0-600 m.	March-May	Unlikely. Wet seeps and preferred habitat do not occur on the project site.
Juncus luciensis Santa Lucia dwarf rush		1B.2	None	None	Vernal pools. 300-2040 m.		None. Preferred vernal pool habitat of this species does not occur on the project site.
Lasthenia burkei Burke's goldfields		1B.1	CE	FE	Vernal pools. 15-600 m.		None. Preferred vernal pool habitat of this species does not occur on the project site.
Lasthenia conjugens Contra Costa goldfields		1B.1	None	FE	Vernal pools. 0-470 m.		None. Preferred vernal pool habitat of this species does not occur on the project site.
Layia septentrionalis Colusa layia		1B.2	None	None	Chaparral, cismontane woodland, valley and foothill grassland. Sandy or serpentinite soils. 100-1095 m.	April-May	Unlikely. Based on survey botanist's experience, this species occurs on rocky slopes in undisturbed habitat.
Leptosiphon acicularis bristly leptosiphon		4.2	None	None	Chaparral, cismontane woodland. Usually on volcanic soils. 100 - 500 meters.	March-May	Unlikely. Volcanic soils do not occur on the project site.
Leptosiphon jepsonii Jepson's leptosiphon		1B.2	None	None	Chaparral, cismontane woodland. Often on serpentine soils. 55 - 1500 meters.	April-July	Unlikely. This species is often on serpentine soils, and it was not encountered during the survey.

Leptosiphon latisectus Broad-leaved leptosiphon		4.3	None	None	Cismontane woodland, broadleaved upland forest. Often on serpentine. 170 - 1500 meters.	April-June	Unlikely. This species is often on serpentine soils, and it was not encountered during the survey.
Lessingia hololeuca woolly-headed lessingia		3	None	None	Broadleafed upland forest, coastal scrub, lower montane coniferous forest, valley and foothill grassland. Clay or serpentinite soils. 15 - 305 m.	June-October	None. Preferred soil type of this species not found on the project site.
Lilium rubescens Redwood lily		4.2	None	None	Broadleafed upland forest, chaparral, lower and upper montane coniferous forest. Sometimes serpentinite soils. Sometimes roadsides. 30-1910 m.	April-September	None. Preferred soils and habitat do not occur on the project site.
Limnanthes floccosa ssp. floccose woolly meadowfoam		4.2	None	None	Vernal pools. 60-1095 m.	March-June	None. Preferred vernal pool habitat of this species does not occur on the project site.
Limnanthes vinculans Sebastopol meadowfoam		1B.1	CE	FE	Vernal pools. 15-305 m.	April-May	None. Preferred vernal pool habitat of this species does not occur on the project site.
Lomatium repostum Napa lomatium		4.3	None	None	Chaparral, cismontane woodland. Serpentine. 90-830 m.	March-June	None. Preferred soils and habitat do not occur on the project site.
Lupinus sericatus Cobb Mountain lupine		1B.2	None	None	Broadleafed upland forest, lower montane coniferous forest, chaparral, cismontane woodland, often on volcanics. 275-1525 m.	March-June	Unlikely. Elevations on project site are below those where the species occurs.
Micropus amphibolus Mt. Diablo cottonweed		3.2	None	None	Broadleafed upland forest, chaparral, cismontane woodland, valley and foothill grassland. Rocky soils. 45 - 825 meters. 45-825 m.	March-May	Unlikely. Rocky soils preferred by this species are not present on the project site.
Microseris paludosa marsh microseris		1B.2	None	None	Cismontane woodland, valley and foothill grassland. Moist drainages and vernal pools. 5-300 m.	April-July	Unlikely. Moist habitat not present on the project site.
Monardella viridis ssp. viridis green monardella		4.3	None	None	Cismontane woodland, broadleaved upland forest, chaparral. 100-1010 m.	June-September	None. Preferred habitat for this species not present on the project site.
Navarretia jepsonii Jepson's navarretia		4.3	None	None	Cismontane woodland, chaparral, valley and foothill grassland. Serpentine. 174-855 m.	April-June	None. Preferred soils for this species not present on the project site.
Navarretia leucocephala ssp. bakeri Baker's navarretia		1B.1	None	None	Vernal pools. 5-1740 m.		None. Preferred vernal pool habitat of this species does not occur on the project site.
Navarretia leucocephala ssp. plieantha		1B.2	CE	FE	Vernal pools. 30-950 m.		None. Preferred vernal pool habitat of this species does not occur on the project site.

many-flowered navarretia							
Navarretia myersii ssp. deminuta small pincushion navarretia		1B.1	None	None	Vernal pools. 355 m.	April-May	None. Preferred vernal pool habitat of this species does not occur on the project site.
Navarretia rosulata Marin County navarretia		1B.2	None	None	Chaparral. Rocky, serpentine. 200-635 m.	May-July	None. Preferred soil type of this species does not occur on the project site.
Orobanche valida ssp. howellii Howell's broomrape		4.3	None	None	Chaparral. Rocky, volcanic or serpentine. 180-1740 m.	June-September	None. Preferred soils of this species do not occur on the project site.
Penstemon newberryi var. sonomensis Sonoma beardtongue		1B.3	None	None	Chaparral. Rocky. 700-1370 m.	April-August	None. Preferred habitat of this species not present on the project site.
Plagiobothrys strictus Calistoga popcorn-flower		1B.1	CT	FE	Vernal pools. 90-160 m.	March-June	None. Vernal pool habitat not present on the project site.
Poa napensis Napa blue grass		1B.1	CE	FE	Alkaline, near thermal springs. 100-200 m.	May-August	None. No thermal springs occur on the project site.
Ranunculus lobbii Lobb's aquatic buttercup		4.2	None	None	Vernal pools. 15-470 m.	February-May	None. Vernal pool habitat of this species does not occur on the project site.
Senecio clevelandii var. clevelandii Cleveland's ragwort		4.3	None	None	Chaparral. Rocky serpentine seeps and drainages. 365-900 m.	June-July	None. Serpentine seeps and drainages do not occur on the project site.
Sidalcea hickmanii ssp. napensis Napa checkerbloom		1B.1	None	None	Chaparral. Rhyolitic soils. 415 - 610 m.	April-June	None. Preferred habitat and soils of this species not present on the project site.
Sidalcea oregana ssp. hydrophila marsh checkerbloom		1B.2	None	None	Riparian forest, meadows and seeps. 1100-2300 m.	July-August	None. The active seeps and streams required by this species are not present on the project site.
Sidalcea oregana ssp. valida Kenwood Marsh checkerbloom		1B.1	CE	FE	Freshwater marsh. 115-150 m.	June-September	None. Preferred marsh habitat of this species does not occur on the project site.
Streptanthus batrachopus Tamalpais jewel-flower		1B.3	None	None	Chaparral. Serpentine. 305-650 m.	April-July	None. Serpentine soils not present on the project site.
Streptanthus brachiatus ssp. brachiatus Socrates Mine jewel-flower		1B.2	None	None	Chaparral, woodland. Serpentine. 545-1000 m.	May-July	None. Serpentine soils not present on the project site.
Streptanthus brachiatus ssp. hoffmanii Freed's jewel-flower		1B.2	None	None	Chaparral, woodland. Serpentine. 490-1220 m.	May-July	None. Serpentine soils not present on the project site.
Streptanthus hesperidis green jewel-flower		1B.2	None	None	Chaparral, woodland. Serpentine, rocky. 130-760 m.	May-July	None. Serpentine soils not present on the project site.
Streptanthus morrisonii ssp. elatus Three Peaks jewel-flower		1B.2	None	None	Chaparral. Serpentine. 90-815 m.	May-June	None. Serpentine soils not present on the project site.

Streptanthus morrisonii ssp. kruckebergii Kruckeberg's jewel-flower		1B.2	None	None	Woodland, serpentine. 215-1035 m.	April-July	None. Serpentine soils not present on the project site.
Streptanthus vernalis early jewel-flower		1B.2	None	None	Chaparral. Serpentine. 610 m.	March-May	None. Serpentine soils not present on the project site.
Stuckenia filiformis slender-leaved pondweed		2.2	None	None	Freshwater marsh. 300-2150 m.	May-July	None. Preferred marsh habitat of this species does not occur on the project site.
Toxicoscordion fontanum marsh zigadenus		4.2	None	None	Chaparral, woodland, forest, freshwater marsh, seeps. 15-1000 m.	April-July	None. Marshes and seeps not present on the project site.
Trichostema ruygtii Napa bluecurls		1B.2	None	None	Vernal pools. 30-680 m.		None. Preferred habitat of this species does not occur on the project site.
Trifolium amoenum two-fork clover		1B.1	None	FE	Valley and foothill grassland. 5-415 m.	April-June	Possible but not encountered during the project survey.
Trifolium hydrophilum saline clover		1B.2	None	None	Vernal pools. 0-300 m.		None. Vernal pools not present on the project site.
Triquetrella californica coastal triquetrella		1B.2	None	None	Coastal bluffs and scrub. 10-100 m.		None. Preferred habitat not present on the project site.
Viburnum ellipticum oval-leaved viburnum		2.3	None	None	Cismontane woodland, lower montane coniferous forest. Chaparral. 215 - 1400 m.		Possible but not encountered during the project survey.