EXHIBIT B-1

Habitat Assessment

Trust Vineyard Partners
APN 027-490-006
St. Helena Highway
Oakville, Napa County, CA

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Prepared for
Trust Vineyard Partners
Care of: Bruce Phillips & Bill Kelham
Post Office Box 2066
Yountville, California 94599

Prepared by
Wildlife Research Associates
1119 Burbank Avenue
Santa Rosa, CA 95407

And

Jane Valerius Environmental Consulting
2893A Scotts Right of Way
Sebastopol, CA 95472

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SUMMARY

The Trust Vineyard Partners proposed vineyard planting project is located adjacent to 7353 St. Helena Highway, on the west side of the Town of Oakville, northwest of the Town of Yountville, Napa County. The proposed project includes development of approximately 13.8 acres into a vineyard, based on information provided by Mike Muelrath, with Applied Civil Engineering Inc.

The vineyard design was created based on the findings of this habitat assessment to reduce the potential for impacts. The 42.9-acre study area includes 38 acres of coast live oak woodland, 4.0 acres of non-native grassland, 0.5 acres of chamise chaparral, and 0.4 acres existing developed areas. The total disturbed area proposed is 13.8 acres, which represents 32% of the 42.9-acre parcel. This leaves 68% of the study area as undisturbed. A total of 9.4 acres of coast live oak woodland would be removed, leaving 28.6 acres in place, representing 75% of the oak woodland on the parcel, with a slightly greater than 3:1 preservation to loss ratio. The areas of oak woodland to be preserved have equal or greater habitat values for wildlife and plants as do those areas that are being removed with similar slope, aspect, soils, flora and fauna. All potential wetlands and streams will be avoided with setbacks.

This Habitat Assessment presents the findings of our review of scientific literature and reports detailing previous studies conducted in the area, and the California Department of Fish and Wildlife's (CDFW) Natural Diversity Data Base (CNDDB) and Napa County's Baseline Data Report (Jones & Stokes 2005) for reported occurrences of special status vegetation communities, plants and animals.

As part of this Habitat Assessment, we conducted a site visit of all habitats on the 42.9-acre parcel to evaluate the potential for occurrence of 57 special status plant species, and 64 special status wildlife species. Seasonal protocol-level surveys for special status plants were conducted in March, April, May and June 2018 to cover the flowering period for all potential special status plants, including mosses and lichens, known to occur in the area. No special status plants, mosses or lichens were found during the 2018 protocol level plant surveys.

Five vegetation community types, corresponding to *The Manual of California Vegetation Second Edition* (Sawyer, et. al. 2009), and/or vegetation types described in the Napa County Baseline Data Report for Napa County (Jones & Stokes 2005), occur on the property: 1) coast live oak woodland 2) non-native annual grassland; 3) chamise chaparral; 4) developed (existing old vineyard) and 5) potential seasonal wetlands. One intermittent blue-line drainage and two ephemeral drainages were also mapped within the study area/property boundaries that qualify as waters of the U.S. and state.

Full development of the 42.9-acre property into vineyard will not occur. As a result, no impacts to movement corridors for wildlife will occur. The two vineyard blocks will be fenced to connect to the existing wildlife exclusion fencing on the north and west, but there will be sufficient space for wildlife to move through the area. In addition, fencing will be used so that smaller animals can move through the fence-line.

Invertebrate pollinators have potential to occur on the site, but a sufficient amount of habitat will remain after the proposed vineyard planting. As a result, there will be no decrease in the number of individual pollinators in this portion of Napa County.

The parcel is located within the range of northern spotted owl (*Strix occidentalis caurina*), listed both federally and by the State as Threatened with a Recovery Plan and Critical Habitat. An individual was reported 0.35 miles northwest of the site and belongs to the spider nesting diagram of NAP 0030 pair of spotted owls (CNDDB 2019). Of the 13.8 acres of habitat to be removed, 9.4 acres provide suitable foraging habitat.

We reviewed all areas proposed for tree removal, assessing the suitability of trees as potential habitat for colonial bat species that roost in cavity, crevice, exfoliating bark, and foliage habitat features, as well as suitable foliage for solitary, obligate tree-roosting bats, also referred to in this report as foliage-roosting bats.

Overall, less suitable potential bat roost habitat for either colonial or foliage-roosting bats was available in Block 1 compared to Block 2. A larger number of snags with suitable colonial bat roost features occurred along the access road east of Block 2, and we observed more variation in tree communities and availability of suitable potential habitat along edge habitat within Vineyard Block 2.

Suitable potential bat roost habitat features for colonial bats and foliage habitat for solitary tree-roosting species will be removed to develop Vineyard Blocks 1 and 2, although not all portions of each block contain the same amount of suitable potential habitat. Some Survey Locations within each Vineyard Block contained as little as about 5% suitable colonial bat roost habitat, with the highest amount of potential habitat for both colonial and solitary bat species (about 30%) occurring in Survey Location H, Vineyard Block 2 (Figure 10).

Based on the literature review, the habitats present on the site, the seasonal periods of bird nesting and bat roosting, and the limitations of the surveys conducted for this assessment, the following table identifies the biological resources and their seasons of occupancy to be addressed prior to ground breaking.

Biological Resource	**Actions/Seasons to determine occupancy**	**Action/Seasonality to prevent take of individuals**
Waters of the U.S. and Potential Wetlands		65-foot setback – blue line drainage 25-foot setback - waters of the U.S. and state drainages
Nesting birds	February 1- August 31	September 1- January 31
Roosting bats	Habitat assessment of specific trees conducted year-round	Two-step removal of trees containing occupied bat roosts or providing suitable bat habitat, must only be conducted during seasonal periods of bat activity, between March 15 (or after evening temperatures rise above 45F and/or no more than 0.5" of rainfall within 24 hours occurs), and April 30, or between August 15 and about October 1 (or before evening temperatures fall below 45F and/or more than 0.5" of rainfall within 24 hours occurs) Artificial habitat replacement

The Impacts and Mitigation Measures, starting on page 25 of this report, provide details on preventing take of individuals.

INTRODUCTION

Mr. Bruce Phillips and Mr. Bill Kelham, representing the owners of Trust Vineyards Partners, contracted with Jane Valerius Environmental Consulting and Wildlife Research Associates to conduct a Habitat Assessment of the 42.9-acre property (APN: 027-490-006) located at 7535 St. Helena Highway, Oakville, in the central portion of Napa County, California. This habitat assessment was conducted to determine the potential for special status vegetation communities, plant and animal species to occur within the proposed project and to identify the limitations to potential development of the project, such as habitat removal.

The total disturbed area proposed is 13.8 acres, which represents 32% of the 42.9-acre parcel. The vineyard design was created based on the findings of this habitat assessment in order to minimize the amount of impacts. The oak woodland areas that will be impacted are less dense, with trees more widely spaced, than the areas to be preserved. The areas designated for preservation for the study area are the same or similar in species, slope, aspect, soils, flora and fauna to what is being removed and represent a high-quality oak woodland community. The grasslands on site are highly disturbed and dominated by weedy plants, specifically yellow star thistle (*Centaurea solstitialis*), a highly noxious and invasive weed.

Areas outside of the study area were also evaluated as potential preservation areas but the habitats changed from coast live oak woodland to woodlands dominated by black oak, madrone and Douglas fir with different aspects and soils so were deemed to have different habitat values than the coast live oak woodland. The preservation areas selected are also contiguous with the areas to be removed so provide the same habitat functions and values.

This Habitat Assessment is part of the preliminary analysis of both the existing environment and potential impacts from the proposed project as required under the California Environmental Quality Act (CEQA) for new projects. Federal and state agencies that have purview over biological resources include the following:

- U.S. Army Corps of Engineers (USACE) - regulates the discharge of dredged or fill material into waters of the United States,
- U.S. Fish and Wildlife Service (USFWS) - authority over federally listed plant and animal species,
- National Marine Fisheries Service (NMFS) - authority over essential fish habitat, which is habitat necessary to maintain sustainable fisheries,
- California Regional Water Quality Control Board (RWQCB) - protects all waters with special responsibility for wetlands, riparian areas, and headwaters, and the
- California Department of Fish and Wildlife (CDFW) - authority over state listed plants and animals as well as streams and lakes within the State.
- Napa County Baseline Data Report (BDR) (Jones & Stokes 2005)
- Napa County General Plan (Napa County 2008)

Napa County Open Space and Conservation Element

The Napa County General Plan Policy Con-24, within the Open Space and Conservation Element, addresses removal of oak woodlands (Napa County 2008). In addition, the Napa County General Plan directs the County to retain existing oaks to the extent feasible as part of residential, commercial, industrial and agricultural land division approvals. Projects should include management plans for fishery and wildlife including provisions to employ supplemental planting and maintenance of trees to provide adequate vegetation cover to keep watersheds in good condition and provide shelter and food for wildlife. The Oak Woodland Conservation Program in the Open Space and Conservation Element requires hardwood cutting to maintain adequate stands of oaks for wildlife, slope stabilization, soil protection, and acorn production (Napa County 2008).

Napa County General Plan Conservation Goal CON-3 and Policy CON-13 also obligates the County to protect the continued presence of special status species and their habitat and provide protection for habitat supporting special status species through buffering or other means. These conservation goals have been addressed in this habitat assessment.

Site Location

The approximately 42.9-acre parcel is located on the west side of Highway 29, in the Town of Oakville, and north of the City of Yountville, on the west side of Napa Valley. The project site is located within the Yount Mill Creek watershed (Napa County 2009), within the larger Napa River watershed (Figure 1).

The site is situated on a generally south-facing slope. Previous activities on the parcel have included vineyards and no action. The property is used by the family for recreation such as camping and hiking. Surrounding land uses include vineyards and rural residences.

Proposed Project

The proposed project consists of converting approximately 13.8-acres of land into 2 vineyard blocks (Table 1). Please refer to the attached Vineyard Planting Exhibit for more details. Activities include the removal of 9.4 acres of native oak trees, 3.5 acres of non-native grasslands and 0.5 acres of chamise chaparral, replanting of 0.4 acres of existing (developed) old vineyard, installation of drip irrigation, associated roadways and turnarounds and vineyard maintenance.

The Project includes minimization measures to prevent obstructing wildlife movements across the property by configuring the vineyard block fencing to allow for buffers and movement areas between blocks, corner fence gates, and geographic connection to larger open space areas within and adjacent to the Project site. To reduce mortality of wildlife over the life of the Project, wildlife fence gates (to allow animals to leave), as proposed in the ECP, will be placed in the corners of each block, not along straight sections of vineyard fencing, so that animals will naturally escape from the fenced areas. Fencing will remain along the southern riparian corridor to allow unimpeded movement along that riparian corridor. The drainage between the two vineyard blocks will be fenced off from deer but not from the smaller mammals. Fencing mesh will be the largest possible so small animals are not excluded or entrapped.

Table 1: Acreages per Vineyard Block to be Converted

Vineyard Block	Acreages
1 Northwest	4.1
2 Southeast	9.7
Total Removed	13.8
Total on Parcel	42.9
% Retained	67.8%

METHODS

Information on special status plant and animal species was compiled through a review of the literature and database search. Database searches for known occurrences of special status species focused on the Rutherford, Yountville, Napa, and Sonoma U.S. Geologic Service 7.5-minute topographic quadrangles, which provided a five-mile radius around the proposed project area. The following sources were reviewed to determine which special status plant and wildlife species have been documented in the vicinity of the project site:

- U.S. Fish and Wildlife Service (USFWS) Information on Planning and Conservation (IPaC) (USFWS 2019)
- California Natural Diversity Database records (CNDDB) (CDFW 2019)
- California Department of Fish and Wildlife's (CDFW) Special Animals List (CDFW 2019)
- State and Federally Listed Endangered and Threatened Animals of California (CDFW 2019)
- California Native Plant Society (CNPS) Electronic Inventory records (CNPS 2019)
- California Department of Fish and Game (CDFG) publication "California's Wildlife, Volumes I-III" (Zeiner, et al., 1990)
- Napa County Baseline Data Report (BDR) (Jones & Stokes 2005)
- Napa County General Plan (Napa County 2008)

Botanical nomenclature used in this report conforms to Baldwin, et al. (2012) for plants and to Sawyer, et al. (2009) for vegetation communities and/or the Napa County Baseline Data Report (Jones & Stokes 2005). Nomenclature for special status animal species conforms to CDFW (2019). Appendix A presents a list of special status plant species reviewed for this project. There were no recorded of occurrences for any special status mosses, lichens, liverworts or hornworts for Napa County based on the CNDDB and CNPS data base searches and for the Napa County Baseline Data Report. However, a list of lichens and mosses observed on the property is provided in Appendix C. Identification of mosses and lichens was provided by David Toren, independent consultant and bryologist. Mosses and lichens were collected and sent to David Toren for identification. A *Field Guide to California Lichens* (Sharnoff 2014) was also used by Jane Valerius. Appendix B presents a list of special status animal species reviewed for this project.

Site Survey: Jane Valerius, botanist and wetland specialist of Jane Valerius Environmental Consulting, and Trish Tatarian, Wildlife Research Associates, conducted an initial site visit on March 6, 2018, when the weather was clear and cool, increasing to warm (~61° - 75° Fahrenheit). A list of plant species (Appendix C and D) and wildlife species (Appendix E) observed were recorded.

The project area was evaluated for suitable bird nesting habitat using 8 x 42 roof-prism binoculars, noting presence of old bird nests and cavities. The March 6, 2018 reconnaissance-level site visit was intended only as an evaluation of on-site and adjacent habitat types for wildlife species. A single day nesting bird survey was conducted on March 6 to ascertain early season nesting by sensitive bird species within the vineyard blocks. The survey provided a list of nesting birds per vineyard block, but did not provide specific nesting areas or numbers of individual birds nesting per block. The scope of work for this proposed project would not benefit by having focused bird surveys per block because it is unclear when the development would go through, and conditions will likely change before the development proceeds. Measures to prevent "take" of individuals (including harm, harass or kill), as required under the federal Migratory Bird Treaty Act and the California Department of Fish and Wildlife Code 3503 and 3503.5 have been included under the Impacts and Mitigation Measures section. A second survey was conducted on July 24, 2018 for purposes of planning and conserving within the overall 42.9-acre parcel.

To evaluate wildlife movement corridors, we noted areas that were used in the field. Much of the forested areas within and adjacent to the project area were too dense to determine whether a movement corridor was present using aerial photos, other than to show forest connections.

An initial survey for special status plants was conducted by Jane Valerius, botanist, on March 6, 2018 with additional surveys conducted on April 10, May 22 and June 28, 2018. As required by CDFW and County of Napa protocols, the areas proposed for vineyard development along with the adjacent areas to be preserved, were walked and all species identifiable at the time of the site visits were recorded (Appendix C). Additional areas were surveyed when in proximity and observations of plants surrounding the vineyard blocks was also recorded. However, detailed surveys were conducted specifically for the areas proposed for development with incidental occurrences recorded for areas outside of the proposed development areas sufficient to allow a determination of whether the areas to be preserved provide habitat for any special status plants.

As required by Napa County and CDFW, surveys for special status plants were conducted during the time of year when special status plants were in flower and therefore identifiable to species. The surveys were floristic in nature meaning that every plant, including mosses and lichens, observed was identified to the extent necessary to determine its rarity and listing status. The site visits were timed to be conducted throughout the growing season to cover the flowering period of the plants identified as potentially occurring in the area. Areas proposed for vineyard development and surrounding environments were walked. Species observed were recorded and are provided in Appendix C. Identification of mosses and lichens was supplemented by David Toren, bryologist, who identified specimens sent to him from on-site collections.

The 2018 flowering season started off as a relatively dry year. The timing for the site visit was selected to capture the flowering of all special status plants with the potential to occur. This included an early spring survey (March) into the summer season (June). Many native plants were observed and although the spring to summer 2018 was a somewhat dry year it did not compromise the validity of the surveys or data collected.

In response to Napa County request for additional information, Greg and Trish Tatarian conducted a site visit on July 9, 2019 of the two proposed vineyard sites, shown in Figure 10 to better characterize and quantify the suitable potential bat roosting habitat features of the trees proposed to be removed. We reviewed all areas proposed for tree removal, assessing the suitability of trees as potential habitat for colonial bat species that roost in cavity, crevice, exfoliating bark, and foliage habitat features, as well as suitable foliage for solitary, obligate tree-roosting bats, also referred to in this report as foliage-roosting bats. (For more detailed information on the species potentially occurring in the project area, please see below). We also surveyed a portion of the proposed preservation area for a less detailed assessment of suitable potential habitat features in that location.

We did not conduct a tree by tree analysis and mark all bat habitat trees at this time, because tree markings would not persist, and tree conditions are highly likely to change between this assessment and when trees are to be removed in several years. This would result in the need to repeat a detailed tree by tree survey and mark trees with suitable habitat features a second time. Instead, using an all-terrain vehicle where possible, and on foot, we surveyed all trees that were accessible along and within 50-200+ feet of access roads and trails, for presence of suitable potential habitat features.

We conducted the visual surveys using 10 x 42 and 8 x 42 roof-prism binoculars, and where potential roost features such as cavities, crevices or exfoliating bark were accessible, we used an 815-Lumen spotlight to illuminate these features, some of which were then determined to be inadequate as roost habitat. We also used binoculars to examine trees in less accessible areas, which provided some additional data on presence of colonial bat habitat features, and especially, canopy suitability for foliage-roosting bats.

Some survey locations were small and/or accessible enough for us to visually survey all trees, while for larger survey locations, we surveyed all accessible areas, resulting in a sample percentage of trees that contained suitable potential bat habitat features. We then extrapolated this percentage across the entire survey location to arrive at a close approximation of currently available suitable potential roost habitat features.

EXISTING CONDITIONS

The project area is located within the North Coast Province (CDFW 2015). This province is located along the Pacific coast from the California-Oregon border to the San Francisco Bay watershed in the south (CDFW 2015). The eastern boundary includes the Cascade Range along the northern portion of the province and the transition to the Sacramento Valley along the southern portion. The coastal mountain ranges within the province are aligned somewhat parallel and rise from low to moderate elevation (i.e., up to about 7,500 feet) (CDFW 2015). The climate varies considerably across the province, with high precipitation levels and moderate temperatures in many coastal areas, and dry conditions with rain shadow effects and more extreme temperatures in some inland valleys. Overall, the province has a fairly wet climate and receives more rainfall than any other part of the state, feeding more than ten river systems (CDFW 2015).

The North Coast Province vegetation consists predominantly of conifer and mixed-conifer forests dissected by chaparral stands, riparian forests, and wetlands (CDFW 2015). Valley and foothill grassland and woodland communities emerge along the central and southern eastern border of the province, while coastal wetlands and marshes appear along the coastline (CDFW 2015). Specifically, Douglas-fir, mixed-evergreen, western hardwoods, and chaparral-mountain shrub dominate the province (CDFW 2015).

The proposed project site is located within the southeastern portion of the Rutherford topographic quadrangle, in Section 34, Township 7N and Range 5W. It is situated in the Western Mountains Evaluation Area, as stated in the Napa County Baseline Data Report (Jones & Stokes 20005). Despite covering only 10% of the county, 40% of the Western Mountains area is oak woodland (Jones & Stokes 2005). No other sensitive biotic communities typical of this Evaluation Area (i.e., coast redwood forest, Oregon white oak, California bay woodland) occur in the project area. Topographically, the parcel is located on a generally south-facing slope, between 442 feet in elevation in the north and 235 feet in elevation in the south.

Vegetation Communities

Five vegetation community types have been mapped for the 42.9-acre property (see Vineyard Planning Exhibits and Table 2). Nomenclature for the vegetation communities is based on *The Manual of California Vegetation*, 2nd Edition (Sawyer et al. 2009) and/or the *Napa County Baseline Data Report* (Jones & Stokes 2005). Each of the vegetation types is described in more detail below Table 2. Figures 2 - 7 provide photographs of the vegetation communities.

Table 2: Total Acreages of Vegetation Types Present on Parcel

Vegetation Type	Total Acreages on Parcel
Coast Live Oak Woodland	38
Non-Native Annual Grassland	4.0
Chamise chaparral	0.5
Developed areas (Old Vineyard)	0.4
Potential Seasonal wetland	(0.01 acres – included in non-native grassland cover type)

Quercus agrifolia Woodland Alliance or Coast Live Oak Woodland. Approximately 38 acres of coast live oak woodland were mapped for the entire property (see attached Vineyard Planning Exhibits). Areas mapped as coast live oak woodland had 50% or greater relative cover in the tree canopy of coast live oak so that coast live oak was the dominant species (Fig. 2 and 3). Other trees that may also be included in this type are individuals of Oregon oak (*Quercus garryana*), interior live oak (*Quercus wislizeni*), black oak (*Quercus kelloggii*) and madrone (*Arbutus menziesii*), California bay laurel (*Umbellularia californica*) and a few small Douglas fir (*Pseudotsuga menziesii*). Understory shrubs include poison oak (*Toxicodendron diversilobum*), coyote brush (*Baccharis pilularis*), snowberry (*Symphoricarpos albus*), and common manzanita (*Arctostaphylos manzanita* ssp. *manzanita* and *A. manzanita* ssp. *glaucescens*). Understory herbaceous plants include non-native grassland that also includes native species as described below. Stands of coast live oak woodland can vary from upland savannas and woodlands to bottomland, riparian forests (Sawyer, et. al.). In Napa County coast live oak woodland typically occurs at low elevations in the southern Napa watershed (Jones and Stokes 2005). As described in the Baseline Data Report (Jones & Stokes 2005), coast live oak woodland is characterized by an open to nearly closed canopy of coast live oak with madrone and California bay laurel typically comprising less than 10 to 15% relative cover.

There is a small grouping, or copse, of Douglas fir trees within the coast live oak woodland located west of Block 1. This area has been identified as a potential white-tailed kite (*Elanus leucurus*) nesting area based on a siting of the kite and feathers in this area (see below, under Special Status Animal Species, for more

details). Although the area is predominantly oak woodland, the fir trees provide potential nesting habitat and occur in a north-facing aspect that is more suitable to the fir trees.

Several species of native grasses were observed in the study area. None of these occur as a separate grassland type but occur within the overall oak woodland and/or non-native grassland areas. Native grasses noted include blue wildrye (*Elymus glaucus*), purple needlegrass (*Stipa pulchra*), California brome (*Bromus carinatus*), narrow-flowered brome (*Bromus laevipes*), California fescue (*Festuca californica*), and melic grass (*Melica calfornica*). Most of these grasses are associated with the oak woodland type but purple needlegrass is a grassland species and prefers open, sunny areas.

Many native forbs were also observed including yarrow (*Achillea millefolium*), soaproot (*Chlorogalum pomeridianum*), mule's ears (*Wyethia glabra*), honeysuckle (*Lonicera hispidula*), woodland madia (*Anisocarpus madioides*), milk maids (*Cardamine californica*), miner's lettuce (*Claytonia parviflora, C. perfoliata*), yellow mariposa lily (*Calochorus luteus*), elegant brodiaea (*Brodiaea elegans*), blue dicks (*Dichelostemma capitatum*), and lupines (*Lupinus bicolor, L. nanus*). Additional native forbs are noted in the non-native grassland section.

A small portion of a blue line drainage occurs within the southeast portion of the study area. There is a 65-foot setback for this drainage within the study area. The oak woodland community associated with this blue line drainage would quality as a coast live oak woodland riparian community. The trees and shrub species are the same as for the overall woodland area. This area will not be impacted by the vineyard project.

Two ephemeral drainages also occur in the study area. These occur primarily in the coast live oak woodland vegetation type. These drainages vary from 1 to 3 feet in width and do not have an associated riparian cover other than the oak woodland canopy.

Non-Native Annual Grassland: Approximately 4.0 acres of non-native annual grassland were mapped for the entire property (see Vineyard Planning Exhibits) (Fig. 4 - 6). This vegetation type on the project site is comprised of a combination of wild oats (*Avena barbata* and *A. fatua*), European hair grass (*Aira caryophyllea*), bromes (*Bromus hordaeceus, B. diandrus*), hare barley (*Hordeum murinum* ssp. *leporinum*), dogtail grass (*Cynosurus echinatus*), ryegrass (*Festuca perennis*), rattail fescue (*Festuca myuros*), large quaking grass (*Briza maxima*), and Harding grass (*Phalaris aquatica*). Non-native forb species include Italian thistle (*Carduus pycnocephalus*), yellow starthistle (*Centaurea solstitialis*), Queen Anne's lace (*Daucus carota*), filaree (*Erodium botrys, E. cicutarium*), vetch (*Vicia sativa, V. villosa*), English plantain (*Plantago lanceolata*), and wild radish (*Raphanus sativus*).

Native forb species noted include sanicles (*Sanicula crassicaulis, S. bipinnatifida*), miner's lettuce (*Claytonia perfoliata*), California poppy (*Eschscholzia californica*), dwarf lupine (*Lupinus bicolor*), California man-root (*Marah fabaceus*), yarrow, yellow mariposa lily, clarkias (*Clarkia amoena, C. affinis*), Chinese houses (*Collinsia heterophylla*), true baby stars (*Leptosiphon bicolor*) and shooting star (*Primula hendersonii*).

Chamise Chaparral: A small 0.5 acre area of chamise chaparral occurs within the study area and will be removed as part of the development of Vineyard Block 2 (Fig. 7). This is a relatively dense shrubland area with chamise (*Adenostoma fascicularis*) as the main shrub but also includes some buck brush (*Ceanothus cuneatus*), deer bush (*Ceanothus integerrimus*), scrub oak (*Quercus berberidifolia*), and poison oak. The understory is non-native grassland with a mixture of native and non-native species of grasses and forbs.

Developed/Old vineyard: A small area of approximately 0.4 acres of existing, old vineyard is included within the study area and is mapped as developed (Fig. 8). The vineyard consists of wine grapes (*Vitis vinifera*) and a non-native grassland understory that is mowed.

Wetlands and Other Waters of the U.S. and State. One small area, approximately 0.1 acres, was mapped as a potential seasonal wetland. Creeks and drainages in the study area were mapped as other waters of the U.S. and state (see Vineyard Planning Exhibits). The small 0.01-acre potential wetland is located in the ephemeral drainage that separates Vineyard Block 1 and 2. Wetland plants associated with this type include toad rush (*Juncus bufonius*), spreading rush (*Juncus patens*), Mediterranean barley (*Hordeum marinum* ssp. *gussomeanum*) and curly dock (*Rumex crispus*). A formal delineation of waters of the U.S. and state, including wetlands, was not conducted for the property so that any designation of wetlands is subject to verification by the USACE. However, areas that meet the criteria of waters and/or wetland were mapped based on the presence of wetlands plants and visual evidence of wetland hydrology.

The potential seasonal wetland occurs within the non-native grassland vegetation type and the other drainages occur primarily within the coast oak woodland vegetation type. The acreages for these features in included within the overall vegetation type.

Wildlife Habitats

The value of a site to wildlife is influenced by a combination of the physical and biological features of the immediate environment. Species diversity is a function of diversity of abiotic and biotic conditions and is greatly affected by human use of the land. The wildlife habitat quality of an area, therefore, is ultimately determined by the type, size, and diversity of vegetation communities present and their degree of disturbance. Wildlife habitats are typically distinguished by vegetation type, with varying combinations of plant species providing different resources for use by wildlife. Wildlife habitat classification for this report is based on the California Department of Fish and Wildlife's Wildlife Habitat Relationships (WHR) System (2016). The following is a discussion of the wildlife species supported by the on-site habitats, as described by *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer 1988). To show the relationship between the WHR and *The Manual of California Vegetation* (Sawyer et. al. 2009), we have created Table 3. A description of the wildlife species supported in each habitat is presented below.

Table 3: Vegetation Communities and Comparable Wildlife Habitats

Vegetation Community	Wildlife Habitat
Coast Live Oak Woodland	Coastal Oak Woodland
Non-Native Annual Grassland	Annual grassland
Chamise chaparral	Chamise
Developed areas (Old Vineyard)	Annual grassland
Seasonal wetland	Wet Meadow

Coastal Oak Woodland: The woodlands provide habitat for a variety of species, including refugia for reptiles, such as ring-necked snake (*Diadophis punctatus*), amphibians, such as the Pacific slender salamander (*Batrachoseps attenuatus*) and arboreal salamander (*Aneides lugubris*), foraging and nesting habitat for passerines, and roosting habitat for bats. Smaller passerines, such as chestnut-backed chickadee (*Poecile rufescens*), bushtit (*Psaltriparus minimus*), oak titmouse (*Baeolophus inornatus*) and acorn woodpecker (*Melanerpes formicivorus*) observed on the site may nest and forage in the woodlands, feeding on insects on the bark. A couple of large cavities that may support the larger raptors, such as great horned owl (*Bubo virginianus*), were observed in any of the trees in the mixed oak woodland. Other species observed nesting on the site include spotted towhee (*Pipilo maculatus*), dark eyed junco (*Junco hyemalis*) and California towhee (*Melozone crissalis*). Oak trees on the lower west-facing slopes provide potential nesting habitat for tree swallows (*Tachycineta bicolor*) and Coopers hawk (*Accipiter cooperii*). Mammals such as mule deer utilize the understory of this community, i.e. poison oak, and black berry bushes, in the form of shelter and food from the berries. The gray fox (*Urocyon cinereoargenteus*) also utilizes the poison oak and black berry bushes for food and shelter, foraging on small birds and mammals, insects, fungi and berries. Several of the trees were of a diameter large enough to support roosting bats species, such as long-eared myotis (*Myotis*

evotis), long-legged myotis (*Myotis volans*), Yuma myotis (*Myotis yumanensis*), California myotis (*Myotis californicus*), big brown bat (*Eptesicus fuscus*), silver-haired bat (*Lasionycteris noctivagans*) and pallid bat (*Antrozous pallidus*).

The Douglas fir copse, located outside the proposed planting area of Block 2, is comprised of a handful of trees and is not considered a forest but rather a copse of trees. This habitat supports a variety of wildlife species adapted to moist environments, such as black and arboreal salamanders (*Aneides lugubris*). This coniferous forest contains food, in the form of seeds for species such as chestnut-backed chickadee (*Poecile rufescens*) and Stellar's jay (*Cyanocitta stelleri*), and insects for species, such as pygmy nuthatch. Mammal species foraging in this habitat include gray fox (*Urocyon cinereoargenteus*) and spotted skunk (*Mephitis mephitis*). There are various guilds of avian insect eaters, such as northern flicker (*Colaptes auratus*), that glean insects from the bark, and others, such as Hutton's vireo (*Vireo huttoni*) and ruby crowned kinglet (*Regulus calendula*), which feed on insects while hovering. Woodpeckers (*Picoides* sp. and *Melanerpes* sp.) are some of the few birds that excavate into the bark to obtain insects. Steller's jay (*Cyanocitta stelleri*) and Bewick's wren (*Thryomanes bewickii*) may glean insects on the ground in this habitat. Northern spotted owl (*Strix occidentalis*) and Cooper's hawk (*Accipiter cooperi*) are often associated with this habitat. At the time of the March 2018 survey a white-tailed kite was observed in the copse and was heard calling to a mate, and a single primary feather was observed on the ground. Based on the presence of the white-tailed kite, it is highly unlikely that northern spotted owls are also using the trees for nesting, which would be predators of the white-tailed kite.

Annual Grasslands: Grassland habitat, including native and non-native grasslands, provides both primary habitat, such as nesting and foraging, and secondary habitat, such as a movement corridor. Small species using this habitat as primary habitat include reptiles, such as terrestrial garter snake (*Thamnophis elegans*), and amphibians, such as Pacific slender salamander (*Batrachoseps attenuatus*) and Sierra chorus frog (*Pseudacris sierra*), which feed on invertebrates found within and beneath vegetation and boulders within the vegetation community. This habitat also attracts seed-eating and insect-eating species of birds, such as savannah sparrows (*Passerculus sandwichensis*) and song sparrow (*Melospiza melodia*). Signs of wildlife using the grasslands include Botta's pocket gophers (*Thomomys bottae*), and striped skunk (*Mephitis mephitis*).

Chamise chaparral: This habitat, dominated by chamise, does not contain the same diversity of food for wildlife as coastal scrub does, due to the monotypic species in this habitat. This dense vegetation often forms closed canopies in older stands (25 years), thus prohibiting the growth of understory herbaceous plants. Senescence (death) is reached in 25 to 60 years, in the absence of fire.

Wildlife species will use chamise chaparral for nesting, cover and movement corridors. Often the canopy is too low, 3-6 feet, and dense for nesting raptors. Passerines typically observed in this habitat include white-crowned sparrow (*Zonotrichia leucophrys*), California quail (*Callipepla californica*), bushtit (*Psaltriparus minimus*), mourning dove (*Zenaida macroura*), western scrub jay (*Aphelocoma californica*), California towhee (*Melozone crissalis*) and spotted towhee (*Pipilo maculatus*), among others. Flowering scrub vegetation provides nectar for bird species such as Anna's hummingbird (*Calypte anna*). The size of the habitat on the site may support a single pair of nesting wrentit (*Chamaea fasciata*), a species that favors this habitat, although none were observed or heard during the surveys. Predators, such as gray fox (*Urocyon cinereoargenteus*) or bobcat (*Felis rufous*), might prey on small mammals along the edges of the habitat. Reptiles, such as western rattlesnake (*Crotalus viridis*) and western fence lizards (*Sceloporus occidentalis*), inhabit the warm, dry chaparral community.

Wet Meadow: None of the wetlands supported ponding water. Rather they provided an above-ground moisture that is important to amphibians as they move across a landscape. Amphibian species potentially using the fresh emergent wetland include the Sierran chorus frog (*Pseudacris sierra*) and western toad (*Bufo boreas*). Vertebrate species that may opportunistically forage within the fresh emergent wetland within the study area include great blue heron (*Ardea herodias*), and raccoon (*Procyon lotor*), among others, feeding on

amphibians. Aerial foraging species that hunt over marshy areas that supported winged insects include various swallow species, such as tree swallow (*Tachycineta bicolor*), and bat species, such as myotis (*Myotis* sp.).

Valley-Foothill Riparian. Riparian areas, located outside the proposed project area, provide nesting habitat and insect diversity attractive to a variety of migratory birds. Diverse foraging substrates, such as foliage, bark and ground substrates, increase feeding availability. Birds that forage for insects in the leaves of plants include Bewick's wren (*Thryomanes bewickii*), orange-crowned Warbler (*Oreothlypis celata*), bushtit (*Psaltriparus minimus*), and black-headed grosbeak (*Pheuticus melanocephalus*). Bark-insect foraging species, such as Bewick's wren (*Thryomanes bewickii*), downy woodpecker (*Picoides pubescens*), Nuttall's woodpecker (*Picoides nutallii*), oak titmouse (*Baeolophus inornatus*) and white-breasted nuthatch (*Sitta carolinensis*) forage for insects in the bark. There are a few species that are adapted to foraging for insects in flight, such as black phoebe (*Sayornis nigricans*), western wood pewee (*Contopus sordidulus*) and tree swallows (*Tachicyneta bicolor*). Generalist omnivores are species such as the scrub jay (*Aphelocoma caerulescens*) and European starling (*Sturnus vulgaris*) that eat a variety of different foods, from insects to seeds to fruits. Although insects are the primary food source for most species in the riparian habitat, ground dwelling species, such as California quail (*Callipepla californica*) and California towhee (*Melozone crissalis*), are also present in the riparian habitat feeding on seeds.

Individual Trees. Individual trees within the coast live oak woodland and along the riparian corridors are foraging and nesting habitat for passerines. Smaller passerines, such as chestnut-backed chickadee (*Poecile rufescnes*), bushtit (*Psaltriparus minimus*), oak titmouse (*Baeolophus inornatus*) and acorn woodpecker (*Melanerpes formicivorus*) may nest and forage in the larger trees, feeding on insects on the bark. If large cavities are present, they may support the larger raptors, such as great horned owl (*Bubo virginianus*). Smaller cavities in the oak trees may provide potential nesting habitat for tree swallows (*Tachycineta bicolor*) and white-breasted nuthatch (*Sitta carolinensis*) (Fig. 9).

Bats that use trees fall into three categories: 1) solitary, obligate tree-roosting bats that roost in the foliage or bark such as Western red-bat (*Lasiurus blossevillii*), a California Species of Special Concern (SSC), or hoary bat (*Lasiurus cinereus*); 2) colonial tree-roosting bats that form groups of varying size in tree cavities or beneath exfoliating bark, such as Yuma myotis (*Myotis yumanensis*), Brazilian free-tailed bat (*Tadarida brasiliensis*), big brown bat (*Eptesicus fuscus*), several other *Myotis* species, and silver-haired bats (*Lasionycteris noctivagans*), and 3) more versatile bat species that will use a wide variety of roosts from buildings to bridges to trees, such as various *Myotis* species, pallid bat (*Antrozous pallidus*), another SSC species, Townsend's big-eared bats (*Corynorhinus townsendii*), and others.

Solitary-roosting bats consist either of females either alone or with young, or solitary males. Colonial-roosting bats may form maternity colonies in tree cavities or crevices, caves, mines, bridges, or other man-made structures. During the day, these roosts provide shelter and protection for adult females and their young, which remain in the roost while females forage at night, returning to nurse and care for their young. Greater impacts to bats can occur as a result of removal of trees that support cavity-roosting bat species than those that provide habitat for solitary foliage-roosting species.

The suitability of potential bat roost features for colonial bat species is characterized in this report as high, medium or low based on presence of snags and live trees containing suitable roost habitat features, and considering the size and quantity of trees with roost features as well as the quality of those roost features.

Suitability of potential canopy roost habitat for foliage-roosting bats has been characterized as high, medium and low based on tree species, tree height, canopy density, prevalence of lower-story shrubs – all relative to proximity to survey locations with higher or lower values of each of these habitat characteristics.

For the purposes of this report, we have further refined the designation of coast live oak habitat into the following: Savanna, with less than 50% canopy cover; Woodland, with 50 – 70% canopy cover, and; Forest, with >70% canopy cover.

Movement Corridors

Wildlife movement includes migration (i.e., usually one way per season), inter-population movement (i.e., long-term genetic flow) and small travel pathways (i.e., daily movement corridors within an animal's territory). While small travel pathways usually facilitate movement for daily home range activities such as foraging or escape from predators, they also provide connection between outlying populations and the main corridor, permitting an increase in gene flow among populations.

These linkages among habitat types can extend for miles between primary habitat areas and occur on a large scale throughout California. Habitat linkages facilitate movement among populations located in discrete areas and populations located within larger habitat areas. The mosaic of habitats found within a large-scale landscape results in wildlife populations that consist of discrete sub-populations comprising a large single population, which is often referred to as a meta-population. Even where patches of pristine habitat are fragmented, such as occurs with coastal scrub, the movement between wildlife populations is facilitated through habitat linkages, migration corridors and movement corridors. Depending on the condition of the corridor, genetic flow between populations may be high in frequency, thus allowing high genetic diversity within the population, or may be low in frequency. Potentially low frequency genetic flow may lead to complete isolation, and if pressures are strong, potential extinction (McCullough 1996; Whittaker 1998).

As described in the *California Essential Connectivity Project* (Spencer, et al. 2010), the study area is located in the North Coast Ecoregion (Spencer et al. 2010). The natural drainages in the area (e.g., the unnamed creek on the parcel) flow southwest into the Napa River and south into the Carquinez Bay and into the Pacific Ocean. The Study Area is not within a Natural Landscape Block (defined as relatively natural habitat blocks that support native biodiversity). The study area is located in an Essential Connectivity Area (#39) (defined as areas that are essential for ecological connectivity between blocks) (Spencer et al. 2010). This Essential Corridor connects the east side of the Coast Ranges with the western portion of Marin along the San Pablo Bay (Spencer et al. 2010). Lands within an essential corridor should be managed in ways that promote functional ecological connectivity between the highly protected parks, wildlife reserves, and wilderness areas (Spencer et al. 2010).

Wildlife connectivity of this site to other open lands in the area occurs within the grasslands and the oak woodlands. The proposed vineyard fencing will allow for wildlife movement between the vineyard blocks.

SPECIAL STATUS BIOLOGICAL RESOURCES

Regulatory Setting

Certain vegetation communities, and plant and animal species are designated as having special status based on their overall rarity, endangerment, restricted distribution, and/or unique habitat requirements. In general, special status is a combination of these factors that leads to the designation of a species as sensitive. The Federal Endangered Species Act (FESA) outlines the procedures whereby species are listed as endangered or threatened and established a program for the conservation of such species and the habitats in which they occur. The California Endangered Species Act (CESA) amends the California Fish and Wildlife Code to protect species deemed to be locally endangered and essentially expands the number of species protected under the FESA. Below are the specifics of each regulatory act the protects biological resources in California.

Clean Water Act (CWA)

The Federal Clean Water Act (CWA) is the primary federal law protecting the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands. As such, the CWA empowers the U.S. Environmental

Protection Agency to set national water quality standards and effluent limitations, and establishes permit review mechanisms to enforce them. The CWA operates on the principle that all discharges into the nation's waters are unlawful unless specifically authorized by a permit.

Most CWA provisions are at least indirectly relevant to the management and protection of biological resources because of the link between water quality and ecosystem health. The portions that are most directly relevant to biological resources management are contained in Section 404, which regulates the discharge of dredged and fill materials into waters of the United States (comprising wetlands and other waters of the United States), which include:

- All areas within the ordinary high-water mark of a stream, including non-perennial streams with a defined bed and bank and any stream channel that conveys natural runoff, even if it has been realigned; and
- Seasonal and perennial wetlands, including coastal wetlands.

Wetlands are defined for regulatory purposes as areas "inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 Code of Federal Regulations [CFR] 328.3, 40 CFR 230.3). To qualify as a wetland the area must have a dominance of wetland plants, presence of wetland soils and wetland hydrology. These parameters are further defined in the 1987 Corps of Engineers *Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (U.S. Army Corps of Engineers (2008).

Section 404 requires project proponents to obtain a permit from the U.S. Army Corps of Engineers (USACE) for all discharges of dredged or fill material into waters of the United States, including oceans, bays, rivers, streams, lakes, ponds, and wetlands, before proceeding with a proposed activity. These permits may be issued only for the least environmentally damaging practicable alternative (i.e., authorization of a proposed discharge is prohibited if there is a practicable alternative that would have less-adverse impacts and lacks other significant adverse consequences).

CWA Section 401 requires that applicants for a federal license or permit to authorize activities that may result in the discharge of a pollutant into waters of the United States, obtain certification from the state in which the discharge would originate that the discharge not violate state water quality standards. Section 401 certification in this region is provided by the San Francisco Regional Water Quality Control Board (RWQCB).

Federal Endangered Species Act (FESA)

The Federal Endangered Species Act (FESA) was enacted in 1973 for the purpose of protecting fish and wildlife species (and their habitats) that have been identified by USFWS or National Oceanic and Atmospheric Administration Fisheries Service (NOAA Fisheries) as threatened or endangered. Endangered refers to species, subspecies, or distinct population segments in danger of extinction throughout all or a significant portion of their range; threatened refers to species, subspecies, or distinct population segments likely to become endangered in the future. USFWS and NOAA Fisheries administer the federal ESA. In general, NOAA Fisheries is responsible for protection of FESA-listed marine and anadromous fish species, while other listed species are under USFWS jurisdiction. Specific portions of the geographical area occupied by the species at the time of listing may require special management considerations or protections. These areas are designated as "Critical Habitat". Section 9 of FESA prohibits the "take" of species listed under FESA, except when authorized by a permit. Take is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Private project sponsors are required to consult with USFWS and NOAA Fisheries on actions that may have direct or indirect impacts on species listed under FESA, and to obtain a permit under Section 10 of FESA for any "take" of such a species that might result from implementing the proposed project.

Migratory Bird Treaty Act (MBTA)
The federal Migratory Bird Treaty Act (16 USC, Section 703, Supp. I, 1989) prohibits killing, possessing, or trading in migratory birds, except in accordance with regulations prescribed by the Secretary of the Interior. The act encompasses whole birds, parts of birds, and bird nests and eggs. The Migratory Bird Treaty Act (MBTA) is administered by the USFWS Division of Migratory Bird Management, which makes it unlawful, unless expressly authorized by permit pursuant to federal regulations, to "pursue, hunt, take, capture, kill, attempt to take, capture or kill, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export at any time, or in any manner, any migratory bird, or any part, nest, or egg of any such bird." This includes direct and indirect acts, with the exception of harassment and habitat modification, which are not included unless they result in direct loss of birds, active nests, or eggs. Most bird species occurring in California fall under the protection of the MBTA, except those species that belong to the families not listed in any of the four treaties, such European starling (*Sturnus vulgaris*).

California Endangered Species Act (CESA)
The California Endangered Species Act (CESA (FGC §§ 2050–2116) is administered by DFG. The CESA prohibits the "taking" of listed species except as otherwise provided in state law. The CESA includes FGC Sections 2050–2116, and policy of the state to conserve, protect, restore, and enhance any endangered species or any threatened species and its habitat. The CESA requires mitigation measures or alternatives to a proposed project to address impacts to any State listed endangered, threatened or candidate species, or if a project would jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of habitat essential to the continued existence of those species, if there are reasonable and prudent alternatives available consistent with conserving the species or its habitat which would prevent jeopardy. Section 86 of the FGC defines take as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Unlike the ESA, CESA applies the take prohibitions to species under petition for listing (state candidates) in addition to listed species. Section 2081 of the FGC expressly allows DFG to authorize the incidental take of endangered, threatened, and candidate species if all of the following conditions are met:

- The take is incidental to an otherwise lawful activity.
- The impacts of the authorized take are minimized and fully mitigated.
- Issuance of the permit will not jeopardize the continued existence of the species.
- The permit is consistent with any regulations adopted in accordance with §§ 2112 and 2114 (legislature-funded recovery strategy pilot programs in the affected area).
- The applicant ensures that adequate funding is provided for implementing mitigation measures and monitoring compliance with these measures and their effectiveness.

The CESA provides that if a person obtains an incidental take permit under specified provisions of the ESA for species also listed under the CESA, no further authorization is necessary under CESA if the federal permit satisfies all the requirements of CESA and the person follows specified steps (FGC § 2080.1).

California Fish and Game Code
The California Constitution establishes the California Fish and Game Commission (Commission) (CA Constitution Article 4, § 20). The California Fish and Game Code (FGC) delegates the power to the Commission to regulate the taking or possession of birds, mammals, fish, amphibian and reptiles (FGC § 200). The Commission has adopted regulations setting forth the manner and method of the take of certain fish and wildlife in the California Code of Regulations, Title 14.

California Fish and Game Code- Species Protection
The FGC establishes DFG (FGC § 700) and states that the fish and wildlife resources of the state are held in trust for the people of the state by and through DFG (FGC § 711.7(a)). All licenses, permits, tag reservations

and other entitlements for the take of fish and game authorized by FGC are prepared and issued by DFG (FGC § 1050 (a)).

Provisions of the FGC provide special protection to certain enumerated species such as:

§ 3503 protects eggs and nests of all birds.
§ 3503.5 protects birds of prey and their nests.
§ 3511 lists fully protected birds.
§ 3513 protects all birds covered under the federal Migratory Bird Treaty Act.
§ 3800 defines nongame birds.
§ 4700 lists fully protected mammals.
§ 5050 lists fully protected amphibians and reptiles.
§ 5515 lists fully protected fish species.

California Fish and Game Code—Lake or Streambed Alteration
Fish and Game Code § 1602 states that it is unlawful for any person to "substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake" without first notifying DFG of that activity. All diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake in California that supports wildlife resources are subject to regulation by DFG under § 1602 of the FGC. Lake or Streambed Alteration Agreements are typically required for activities such as excavation or placement of fill within a stream channel, vegetation clearing, installation (and sometimes operation) of structures that divert the flow of water, installation of culverts and bridge supports, cofferdams for construction dewatering, and bank reinforcement.

Special Status Vegetation Communities
Sensitive natural communities are those that are considered rare in the region, may support special status plant or wildlife species, or may receive regulatory protection (i.e., through Section 404 of the CWA and/or Sections 1600 et seq. of the California Fish and Wildlife Code). In addition, sensitive natural communities include plant communities that have been identified as having highest inventory priority in the California Natural Diversity Database (CNDDB). *A Manual of California Vegetation* (Sawyer, et al. 2009) also provides the rarity ranking status of these communities.

The property does not have any of the sensitive biotic communities listed in the *Baseline Data Report* (BDR) (Jones and Stokes 2005) or listed by CDFW. The non-native annual grassland on the site is dominated by non-native grasses and forbs and does not meet the definition in the BDR for California annual grasslands alliance even though individuals of blue wildrye, purple needlegrass and other native grasses were noted on the property. None of these grasses form their own community type and are very minor components of the grassland on the site.

The wetland and the drainages on the property are under the jurisdiction of the USACE, the Regional Water Quality Control Board (RWQCB) and CDFW. Wetlands and drainages provide valuable wildlife habitat and other functions and values and are therefore by definition sensitive. These areas will be avoided and no development will occur in these areas. In addition, any riparian woodland vegetation associated with the creeks is considered to be sensitive due to its association with the creek channel and for wildlife habitat.

Napa County Definition for a Defined Drainage is a watercourse designated by a solid line or dash and three dots symbol on the largest scale of the United States Geological Survey maps most recently published, or any replacement to that symbol, and or any watercourse that has a well-defined channel with a depth greater that four feet and banks steeper than 3:1 and contains hydrophilic vegetation, riparian vegetation or woody-vegetation including tree species greater that ten feet in height.

The Napa County General Plan Policy Con-24 addresses removal of oak woodlands. In addition, the Napa County General Plan Open Space and Conservation Element directs the County to retain existing oaks to the extent feasible as part of residential, commercial, industrial and agricultural land division approvals. Projects should include management plans for fishery and wildlife including provisions to employ supplemental planting and maintenance of trees to provide adequate vegetation cover to keep watersheds in good condition and provide shelter and food for wildlife. The Oak Woodland Conservation Program in the Napa County Open Space and Conservation Element requires hardwood cutting to maintain adequate stands of oaks for wildlife, slope stabilization, soil protection, and acorn production. Therefore, the loss of oak woodland habitat will be addressed during the vineyard permitting (Erosion Control Plan (ECP) process. In addition, Napa County General Plan Conservation Goal CON-3 and Policy CON-13 obligates the County to protect the continued presence of special status species and their habitat and provide protection for habitat supporting special status species through buffering or other means. Measure to protect special status species and their habitats are discussed in detail in the following sections.

Special Status Plant Species

Special status plant species are those species that are legally protected under the FESA and/or the CESA as listed or proposed for listing as threatened or endangered, as well as species that are considered rare by the scientific community. For example, the California Native Plant Society (CNPS) has identified some species as List 1 or 2 species and may be considered rare or endangered pursuant to Section 15380(b) of the State California Environmental Quality Act (CEQA) Guidelines. The CDFW has compiled a list of "Special Plants" (CDFW 2019), which include California Special Concern species. These designations are given to those plant species whose vegetation communities are seriously threatened. Although these species may be abundant elsewhere they are considered to be at some risk of extinction in California. Although Special Concern species are afforded no official legal status under FESA or CESA, they may receive special consideration during the planning stages of certain development projects and adverse impacts may be deemed significant under CEQA. In addition, Napa County General Plan Conservation Goal CON-3 and Policy CON-13 obligates the County to protect the continued presence of special status species and their habitat and provide protection for habitat supporting special status species through buffering or other means. The protection of special status plants known to occur, or with the potential to occur, is further discussed below.

A total of 57 special status plant species have been reported to occur on the four topographic quadrangles (CNDDB 2019). Please refer to Appendix A for a list of these species and their potential for occurrence. Many species were considered to have no potential to occur either because these species are restricted to areas with serpentinite or alkaline substrates which are lacking within the study area, or the species occurs in habitats not present within the study area such as lower montane coniferous forest, closed-cone coniferous forest, North Coast coniferous forest, bogs and fens, freshwater marsh, brackish or saltwater marshes and swamps, coastal bluff scrub, coastal prairie, coastal scrub, playas and vernal pools. Species that occur in cismontane (oak) woodland or valley and foothill grassland were considered to have the potential to occur. The plants survey dates were selected to ensure that the flowering period for all potential special status plants were covered. No special status plants were observed during the March to June plant surveys. The grassland habitats on the site are highly disturbed and dominated by weedy plants, mostly yellow star-thistle. Many native species were observed in the overall study area but none of them were special status plants.

The plant surveys included a survey for mosses and lichens. David Toren, bryologist, assisted in the identification through specimens sent to him by Jane Valerius from on-site collections. Collections were taken from all substrates (rocks, soils, trees, etc.), from various woody plant species and from different aspects. No special status lichens and mosses are recorded to occur in Napa County and none were found during the 2018 survey for the Trust Vineyards study area.

Below is a description of the eight special status plants that are considered to have a low to moderate potential to occur within the study area. However, none of these plants were observed during the March to June 2018 surveys so they are determined to not be present in the study area.

Franciscan onion (*Allium peninsulare* var. *franciscanum*)
CNPS Rank 1B

General Ecology and Distribution: This species is a member of the onion family or Alliaceae. It is a perennial bulbiferous herbaceous plant that flowers from May to June, and sometimes in April. Habitat for this species is on clay, volcanic and often serpentine substrates in cismontane woodland and valley and foothill grasslands.

Project Area Occurrence: In the study area this species could potentially occur within the oak woodland and grassland areas. CNDDB occurrences for the search area include near the City of Sonoma and along Highway 12 on the Di Rosa preserve. However, this species was not observed during the surveys conducted in March, April, May and June. No further action required.

Narrow-anthered brodiaea (*Brodiaea leptandra*)
CNPS 1B.2

General Ecology and Distribution: Narrow-anthered brodiaea is a perennial bulbiferous herbaceous species in the Brodiaea Family or Themidaceae. It occurs in volcanic soils in broadleafed upland forests, chaparral, cismontane woodland, lower montane coniferous forest and valley and foothill grassland at elevations ranging from 110 to 915 meters. It typically flowers from May to July.

Project Area Occurrence: In the study area this species could potentially occur within the oak woodland and grassland areas. CNDDB occurrences for the search area include Arrowhead Mountain, Devil's Canyon, Cavedale Road in Sonoma, Milliken Canyon, Stuart Canyon, Skyline Wilderness Park, along Highway 128 near Moskowite Corner, and near Lake Hennessey. However, this species was not observed during the surveys conducted in March, April, May and June. No further action required.

Hayfield Tarplant (*Hemizonia congesta* ssp. *congesta)*
CNPS Rank 1B

General Ecology and Distribution: This species is a member of the Sunflower Family or Asteraceae . It is an annual herbaceous plant that flowers from April to November. Habitat for this species is in valley and foothill grassland, sometimes along roadsides.

Project Area Occurrence: In the study area this species could potentially occur the grassland areas. CNDDB occurrences for the search area include near Sonoma and in El Verano. However, this species was not observed during the surveys conducted in March, April, May and June. No further action required.

Bristly Leptosiphon (*Leptosiphon acicularis*)
CNPS Rank 4

General Ecology and Distribution: This species is a member of the Phlox Family or Polemoniaceae . It is an annual herbaceous plant that flowers from April to July. Habitat for this species includes chaparral, cismontane woodland, coastal prairie and foothill grassland.

Project Area Occurrence: In the study area this species could potentially occur within the oak woodland and grassland areas. The CNDDB does not provide records for CNPS Rank 4 species. However, this species was not observed during the surveys conducted in March, April, May and June. No further action required.

Broad-lobed leptosiphon (*Leptosiphon latisectus*)
CNPS Rank 4

General Ecology and Distribution: This species is a member of the Phlox Family or Polemoniaceae . It is an annual herbaceous plant that flowers from April to June. Habitat for this species includes broadleafed upland forest and cismontane woodland.

Project Area Occurrence: In the study area this species could potentially occur within the oak woodland areas. However, this species was not observed during the surveys conducted in March, April, May and June. No further action required.

Jepson's leptosiphon (*Leptosiphon jepsonii*)
CNPS Rank 1B.2

General Ecology and Distribution: Jepson's leptosiphon is an annual herbaceous plant in the Phlox Family or Polemoniaceae. It usually occurs in volcanic substrates in chaparral, cismontane woodland and valley and foothill grassland communities in elevations ranging from 100 to 500 meters. The microhabitat for this species is open to partially shaded grassy slopes on volcanics or the periphery of serpentine substrates (CNDDB 2018). It flowers from March to May.

Project Area Occurrence: In the study area this species could potentially occur within the oak woodland and grassland areas. CNDDB occurrences for the search area include 1.5 miles west of Yountville, Westwood Hills Park west of the City of Napa, near Lake Hennessey and near Kenwood. However, this species was not observed during the surveys conducted in March, April, May and June. No further action required.

Green Monardella (*Monardella viridis*)
CNPS Rank 4

General Ecology and Distribution: Green monardella is a perennial herbaceous plant in the Mint Family or Lamiaceae. It usually occurs on rocky soils in broadleafed upland forest, chaparral and cismontane woodland in elevations ranging from 100 to 1010 meters.

Project Area Occurrence: In the study area this species could potentially occur within the oak woodland areas. However, this species was not observed during the surveys conducted in March, April, May and June. No further action required.

Two-Fork Clover (*Trifolium amoenum*)
Federally Listed Endangered, CNPS Rank 1B

General Ecology and Distribution: Two-fork clover is an annual herbaceous plant in the Legume Family or Fabaceae. It sometimes occurs on serpentine soils and prefers open, sunny sites and swales in grassland and costal bluff scrub habitats. It occurs in elevations ranging from 5 to 415 meters. It flowers from April to June.

Project Area Occurrence: In the study area this species could potentially occur within the oak woodland and grassland areas. CNDDB occurrences for the search area include near Napa. However, this species was not observed during the surveys conducted in March, April, May and June. No further action required.

Special Status Animal Species
Special status animal species include those listed by the USFWS (2019) and the CDFW (2019). The USFWS officially lists species as either Threatened or Endangered, and as candidates for listing. Additional species receive federal protection under the Bald Eagle Protection Act *(e.g*., bald eagle, golden eagle), the MBTA, and state protection under CEQA Section 15380(d). In addition, many other species are considered by the

CDFW to be species of special concern; these are listed in Shuford and Gardali (2008), Williams (1986), and Thomson et al. 2016). Although such species are afforded no official legal status, they may receive special consideration during the planning and CEQA review stages of certain development projects. The CDFW further classifies some species under the following categories: "fully protected", "protected fur-bearer", "protected amphibian", and "protected reptile". The designation "protected" indicates that a species may not be taken or possessed except under special permit from the CDFW; "fully protected" indicates that a species can be taken for scientific purposes by permit only.

Of the 25 special status animal species identified as potentially occurring in the vicinity of the project area, including a 5-mile radius (CNDDB 2019), several additional species were evaluated for their potential to occur within the study area, based on: 1) review of the IPaC (USFWS 2019), 2) the "Special Animals" list (CDFW 2019) that includes those wildlife species whose breeding populations are in serious decline, and 3) the habitat present on site. See Appendix B for a list of the 64 species evaluated.

Several of these species are prominent in today's regulatory environment and are discussed below. This document does not address impacts to species that may occur in the region but for which no habitat occurs on site, such as saltmarsh habitat, or brackish marshes, vernal pools or saline water bodies. See Appendix E for a list of species observed during the 2018 surveys.

Western bumblebee (*Bombus occidentalis occidentalis*)
Status: State Candidate Endangered

General Ecology and Distribution. This species occurs from the Channel Islands to the northern extent of the state, primarily in the coastal and Sierra Nevada ranges and mostly excluding the Central Valley and drier, warmer areas (CDFW 2019). Western bumble bees primarily nest in underground cavities such as old squirrel burrows or other animal nests on open west-southwest slopes bordered by trees, although a few nests have been reported in above-ground locations (CDFW 2019). This species nests, forages, and overwinters in meadows and grasslands with abundant floral resources and may be found in some natural areas within urban environments (Williams et al, 2014). They have been reported visiting a wide variety of flowering plants, but they require plants that bloom and provide adequate nectar and pollen throughout the colony's flight period from as early as February to late November (CDFW 2019).

Potential for Occurrence: No focused surveys were conducted for this Biological Resource Assessment. The site is within the range of the species. The closest reported sighting is more than 5 miles north on Cobb Mountain, Lake County (CNDDB 2019). Although grasslands occur on the site, the diversity of flowering plants are not enough to provide nectar and pollen between February and November. Therefore, it is unlikely that these bumble bees occur on the parcel. No further action is required.

Obscure Bumble Bee (*Bombus caliginosus*)
Status: S1S2 (critically imperiled in State but is currently only on watchlist)

Geographic Range: This species occurs along the Pacific Coast, from southern California to southern British Columbia, with scattered records from the east side of California's Central Valley.

General Ecology and Distribution: Analyses suggest very high population decline range-wide, including range size reductions, persistence reductions, and relative abundance declines. *Bombus caliginosus* inhabits open grassy coastal prairies and Coast Range meadows. Nesting occurs underground as well as above ground in abandoned bird nests. Males patrol circuits in search of mates. This species is classified as a medium long-tongued species, whose food plants include *Ceanothus, Cirsium, Clarkia, Keckiella, Lathyrus, Lotus, Lupinus, Rhododendron, Rubus, Trifolium,* and *Vaccinium* (Williams et al. 2014). Nests are often located underground in abandoned rodent nests, or above ground in tufts of grass, old bird nests, rock piles, or cavities in dead trees.

Project Area Occurrence. No surveys were conducted for this species as part of this habitat assessment. The closest reported sighting is more than 5 miles northwest in Cloverdale, Sonoma County (CNDDB 2019). Although suitable food plants occur within the vineyard panting area, the removal of 3.5 acres of grassland habitat will not affect the overall population associated with grassland in the Napa County area. No further action is required.

California Red-legged Frog (*Rana draytonii*) (CRF)
Status. Federally listed Threatened with Critical Habitat, California Species of Special Concern.

General Ecology and Distribution. California red-legged frogs breed primarily in ponds, but will also breed in slow moving streams, or deep pools in intermittent streams. Inhabited ponds are typically permanent, at least 2 feet (0.6 meters) in depth, and contain emergent and shoreline vegetation. Sufficient pond depth and shoreline cover are both critical, because they provide means of escape from predators of the frogs (Stebbins 1985, Tatarian 2008). Non-breeding CRF have been found in both aquatic and upland habitats. Although the majority of individuals prefer dense, shrubby or emergent vegetation, closely associated with deep (>0.7 meters) still, or slow moving water, some individuals use habitats that are removed from aquatic habitats (Tatarian 2008).

Project Area Occurrence. No surveys were conducted for this species as part of this habitat assessment. No suitable breeding habitat for CRF occurs on the parcel. The proposed project is within the species range. Review of occurrences within a one-mile radius, as required by the *Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog* (USFWS 2005), reveals no populations reported in this portion of Napa County. Two populations have been reported in this portion of western Napa County, but are more than 5 miles north in ponds located near Sulphur Creek (CNDDB 2019). The limitation of the CNDDB however, is that not all private lands have been surveyed for this species. Nevertheless, the lack of suitable breeding habitat on the site and the known occurrences of the species more than 5 miles from the project negates the potential for the species to be impacted by the proposed project. No further action is required.

Nesting Passerines – including California quail, common poorwill, and woodpeckers, among others
Status: Individuals, their occupied nests and eggs are protected under the Federal Migratory Bird Treaty Act and CDFW Code 3503.

General Ecology and Distribution: As early as February, passerines begin courtship and once paired, they begin nest building, often around the beginning of March. Nest structures vary in shapes, sizes and composition and can include stick nests, mud nests, matted reeds and cavity nests. For example, black phoebes may build a stick nest under the eaves of a building. Depending on environmental conditions, young birds may fledge from the nest as early as May and, if the prey base is large, the adults may lay a second clutch of eggs.

Project Area Occurrence: No surveys were conducted for these species as part of this habitat assessment. Several passerine (perching birds) species may nest on the site in the various habitats, including, but not limited to, common poorwill on bare ground the grasslands, and white-breasted nuthatch and western bluebirds in cavities in the trees. Approximately 4.0 acres of non-native grasslands, 0.5 acres of chamise chaparral and 9.4 acres of coast live oak woodland are proposed for removal at this time. Removal /development of the 0.5 acres of chamise chaparral habitat may result in a removal of habitat suitable for one breeding pair of wrentits. This may result in a localized edge effect, but not one that will impact the wrentit population, which is unknown at this time, in Napa County. However, the eastern portion of Napa County provides better and larger acreages of suitable nesting habitat than the western area of Napa County. See below for further details.

Nesting Raptors –red-shouldered hawk (*Buteo lineatus*), Cooper's hawk (*Accipiter cooperi*), great horned owl (*Bubo virginianus*) and white-tailed kite (*Elanus leucurus*)
Status: Individuals, their occupied nests and eggs are protected under the Federal Migratory Bird Treaty Act and CDFW 3503.5 and the kite is protected under CDFW 5311, a fully protected species

General Ecology and Distribution: Raptors nest in a variety of substrates including, cavities, ledges and stick nests. For example, Cooper's hawks are small bird hunters, hunting on the edges of forests in broken forest and grassland habitats where passerines forage for seeds and insects. Nests occur in heavily forested areas near a water source. Research sites on nesting Cooper's hawks rarely show the nests more than a quarter of a mile away from water, whether it is a cattle tank, stream or seep (Snyder and Snyder 1975). Trees typically used by Cooper's hawks include coast live oaks, cottonwoods, and black oaks (Call 1978), as well as second growth conifer stands or deciduous riparian areas. White-tailed kites nest in oak woodlands, valley oak or live oak, or trees along marsh edges. The nest made by this species is a frail platform of sticks, leaves, weed stalks, and similar materials located in tree or bush. This species nests during the months of February through October, with peak from May to August, typically in dense tree groves. In general, the breeding season for raptors occurs in late March through June, depending on the climate, with young fledging by August or October.

Project Area Occurrence: No surveys were conducted for these species as part of this habitat assessment. A cooper's hawk was observed foraging in the southern portion of the parcel outside of the proposed development area. A white-tailed kite was observed on the northwest side of the parcel in the tall conifer trees located outside the planting area but in the designated Douglas fir trees to be saved. This sighting was sent to the CNDDB. Foraging habitat for raptors, such as red-shouldered hawk, among others, occurs throughout the project area. Please refer to the Impacts and Mitigation Measures for details on avoidance measures of nesting birds on this site.

Northern Spotted Owl (*Strix occidentalis caurina*)
Status: federally listed Threatened species (1990), with critical habitat (2012) and a Recovery Plan (2011) and is State listed Threatened (2016)

Description: This species is medium sized, approximately 16.5-19 inches in height with a 40-50 inch wingspan, and lacks ear tufts, typically seen in great horned owls (*Bubo virginianus*). The head and upper parts are an overall brown with irregular white spots. The under parts are buff with brown and white ovals or barring. This species lacks the vertical chest and flank streaking of its close relative the Barred owl (*Strix varia*).

General Ecology and Distribution: This species is an uncommon permanent resident in heavily forested areas in the northwestern portion of California, west of the Cascade Range, within the California Coast, the California Klamath and the California Cascades provinces (CDFW 2016). Within the California Coast province, typical habitats for this species include dense, old-growth, multi-layered mixed conifer, redwood, and Douglas-fir habitats (CDFW 2016). Northern spotted owls are heat-intolerant and select cool summer roost sites to help thermoregulate, and may relieves heat stress through bathing and, therefore, requires a permanent water source (CDFW 2016). Spotted owls nest in platforms built by other animals, requiring a minimum area ranging from 81 to 121 hectares for a nest stand (Laymon, et al. 1985). An understory vegetation layer is important for young fledglings as they leave the nest before they can fly and perch on small trees and shrubs. Prey species include flying squirrels, woodrats, mice and voles, as well as small birds and bats. Habitats that support these species, such as those that are a mixture of hardwood and shrubland (i.e., within 6-30 year old clearcuts) that contain woody debris, scattered conifers and snags, and that are adjacent to older forest will support foraging northern spotted owls (CDFW 2016). The majority of foraging occurs within a 2.0 mile radius of the nest site.

Project Occurrence: The project site is located within the range of the species but is located outside the critical habitats identified by the USFWS (USFWS 2012). The spotted owl predicted habitat layer (CNDDB 2019) shows the project area to be located east and outside of the predicted habitat for spotted owl. An individual spotted owl is reported approximately 1,880 feet (0.35 miles) northwest of the site and belongs to the spider nesting diagram of NAP 0030 pair of spotted owls (CNDDB 2019). This pair was last observed in 2009, with a visit in 2012, and is considered a valid site (CNDDB 2019). Other reported spotted owl observations (NAP 0015) and associated spider diagrams are more than 1 mile to the west of the proposed project site and are within the predicted habitat layer for the species (CNDDB 2019).

The vegetation used by NAP0030 is conifer forest on the edge of hardwood woodland (CNDDB 2019). Movements of individuals from the nest sites are into conifer forest or hardwood forests. Hardwood forests are typically associated with higher elevations and mountainous areas compared to hardwood woodlands which typically occur on lower elevations. Based on the CALFIRE FRAP mapping, the proposed project site supports hardwood woodland with hardwood forest and conifer forest located outside the project area (CNDDB 2019).

No loss of nesting habitat will occur from the proposed project based on the types of habitats being removed. See below for more details on preventing take of individuals (direct effects) and loss of foraging habitat (indirect effects).

Roosting bats – including pallid bat (*Antrozous pallidus*), western red bat (*Lasiurus blossevillii*) and hoary bat (*Lasiurus cinereus*).

Status: Of the 25 bats species occurring in California, 12 are classified as SSC (CDFW 2018). In addition to the Proposed Endangered and SSC bat species above, non-SSC species are also afforded consideration under the California Environmental Quality Act (CEQA), primarily when significant local breeding populations may be impacted. In addition, many bat species will roost together, including special-status bats that may form smaller colonies that are less easily detected or observed than their more commonly occurring cohorts (Tatarian, personal observations). For these reasons, protections for special-status bat species are generally also best applied to non-special-status bat species.

General Ecology and Distribution: Bat species that could occur in the project area can be separated into two categories based on social structure. The first category consists of colonial species that roost in groups of dozens to 10s or 100s or thousand throughout the year in natural and anthropogenic (human-made) habitat including caves, rock outcrops and crevices, mines, culverts, buildings, bridges, and trees. Colonial bats found in and around the project include Brazilian free-tailed bat (*Tadarida brasiliensis*), Yuma myotis (*Myotis yumanensis*), big brown bat (*Eptesicus fuscus*), silver-haired bat (*Lasionycteris noctivagans*) and several other *Myotis* species. Colonial species with potential to occur in the Project area that will also roost in trees include California myotis (*Myotis californicus*), Yuma myotis, long-eared myotis (*Myotis evotis*), big brown bat, and pallid bat.

In addition, pallid bat (*Antrozous pallidus*), an SSC, occurs in the project area and will utilize tree cavities. Another SSC, Townsend's big-eared bat (*Corynorhinus townsendii*), is known to rarely or occasionally use very large basal hollows in redwood trees, and so is unlikely to use any of the trees within Vineyard Blocks 1 or 2.

Colonial bats roost together in maternity roosts to raise young beginning in spring months into summer, and concluding in early fall. Some bat species migrate to regions where they can remain active throughout the winter, but other species remain nearby or make smaller seasonal movements to winter roosts where they spend cold, rainy months in hibernation or in torpor (a light form of hibernation interspersed with occasional activity when weather conditions permit). In some cases, bat dispersing from maternity roosts may use dispersal roosts that differ from either maternity or winter roosts. Reproductive males generally roost separately from females and young during maternity season, either individually or in small groups in roosts referred to as bachelor

roosts. Roosting activity in trees may occur throughout the year for many bat species (Pierson 1998; Cryan and Veilleux 2007).

The second category of bats that occur in the project area consists of solitary, obligate tree-roosting species that include western red bat (*Lasiurus blossevillii*) in California and hoary bat (*Lasiurus cinereus*). These species typically roost exclusively or almost exclusively alone in trees, with the exception of females when raising their young. Although solitary, obligate tree-roosting bat species do not typically form colonies, females often raise multiple pups (California Department of Fish and Game 1998) that may remain with the mother after self-sufficient volancy (flight). These species generally select trees and sometimes shrubs that provide relatively high canopy densities, that include cottonwoods, oaks, sycamores, and walnuts (Harvey et al. 1999).

Bats are dependent on roost sites for protection from predators and weather, and bats spend most of their lives in roosts. Availability and selection of roosts influence distribution, population density, reproduction, foraging, social structure, seasonal movements, and more (Altringham 1996). Because of the importance of suitable roosts, bats typically show strong site fidelity to permanent roost sites, both natural and anthropogenic, and maternity roost sites elicit very high site fidelity (Kunz 1982), although roost fidelity is variable among species (Lewis 1995). Bats are the longest-living mammal for their size (Wilkinson and South 2002), with records of individuals in the wild of 30 years – and the oldest bat, a male Brandt's myotis (*Myotis brandtii*) reaching at least 41 years of age.

As a result, bats have a long individual and colonial memory of roost sites, further driving roost fidelity behavior. Because of this high site fidelity behavior by bats, signs of usage are often well established. Typical signs of roosting bats in buildings include urine staining on exterior landing surfaces, fecal pellet accumulation, and characteristic odor. These signs are also usually present to varying degrees in natural roost sites such as trees, rocks, and caves.

Bats use trees much like other types of roosts; for day roosting in more protected features that shelter them from light, wind, and predators, and to raise young, and as temporary roosts during nightly foraging for insects. In trees, however, roost-switching may occur more frequently than in larger, more stable roosts, although in general, bats are very site-faithful to roosts.

Habitat value of trees depends on availability of suitable roost features (cavities, crevices, exfoliating bark, foliage), which can vary depending on tree species, stem or limb diameter, and tree height. Suitable habitat is not limited to large trees.

Project Area Occurrence: Overall, less suitable potential bat roost habitat for either colonial or foliage-roosting bats was available in Block 1 compared to Block 2. A larger number of snags with suitable colonial bat roost features occurred along the access road east of Block 2, and we observed more variation in tree communities and availability of suitable potential habitat along edge habitat within Vineyard Block 2, which is why we separated that block into more Survey Locations (4 for Vineyard Block 1 vs. 7 for Vineyard Block 2) (Figure 10).

Colonial Bat Species Habitat Suitability - Survey locations containing coast live oak woodland habitat contained more suitable potential habitat features for colonial species compared to locations comprised of savannah. Woodland survey locations were mostly bounded by edge habitat that contained more live trees and snags that contained suitable potential colonial bat roost habitat features, and suitable potential habitat was present within oak woodland portions of survey locations.

Habitat suitability for colonial species was higher in the survey locations compared to the off-site preservation areas which were mostly forested, and contained fewer snags and trees with suitable potential habitat features, taller canopy, and greater clutter.

We observed 14 snags across both Vineyard Blocks and all Survey Locations. Extrapolated percentage of total suitable potential colonial bat habitat features in live trees and snags ranged from 0% to 30%, and we characterized the habitat suitability from low to high for each Survey Location within each Vineyard Block. Foliage habitat suitability for obligate tree-roosting bats also varied from low to high, but did not necessarily correspond to suitability of colonial bat habitat.

Snags were found to be distributed through many of the Survey Locations, however a majority were either small in diameter, lower than 10 feet from the ground, contained roost features that were either exposed to light and airflow from above (snapped off at cavity), or were either partially obstructed by poison ivy, or clutter from nearby trees and vegetation. A few snags were prominent, had suitable sun exposure, and were of suitable size to provide habitat for colonial bats, such as in Survey Location A, Vineyard Block 1.

Solitary, Obligate Tree-Roosting Species - Within the project site, woodland survey locations where coast live oak trees occurred with madrones, suitable potential foliage habitat suitability for obligate tree roosting species was highest, due to tree diameter, height, density, and canopy cover in these survey locations. Suitable potential habitat for foliage-roosting bats was lowest in savannah survey locations.

Off-site, the denser canopy cover of the largely forested preservation areas could potentially provide abundant foliage habitat for obligate tree-roosting bat species. Table 4 provides a list of survey locations (as shown in Figure 10), a characterization of the tree community within each survey location by vineyard block, and an estimate of the canopy cover percentage.

Table 4: Tree Community and Canopy Cover for Each Survey Location

Survey Location	Bat Habitat Characterization	Percent Canopy Cover (estimate)
Vineyard Block 1		
A	Coast live oak forest with madrone	70 - 80
B	Coast live oak forest with madrones with bay tree understory, with fallen trees on other trees, with clutter	85 - 90
C	Coast live oak savanna (with smaller trees) with buckeye, toyon and manzanita	40
D	Coast live oak woodland (with taller trees)	40
Vineyard Block 2		
A	Old vineyard and associated coast live oak woodland	70
B	Coast live oak woodland	80
C	Coast live oak woodland with madrone trees	70
D	Coast live oak savannah	40
E	Coast live oak savannah (with moss) with manzanita and buckeye and old fruit trees	40
F	Coast live oak savannah (with moss) along creek with manzanita, olive trees	40

G	Coast live oak woodland with manzanita, madrone with bay trees	70
H	Coast live oak woodland with madrones E of old vineyard along existing roadway	60

Table 5 provides the availability and suitability of bat roost habitat including number of snags observed for colonial species, and foliage habitat for tree-roosting bat species by survey location and vineyard block.

Table 5: Bat Roost Habitat Suitability and Availability

Survey Location	Colonial Bat Habitat Suitability (Potential)	Approx. Percentage of Colonial Habitat (snags and live trees)	No. of Snags Observed	Solitary Foliage Bat Habitat Suitability (Potential)
Vineyard Block 1				
A	Moderate	5-10%	3	Moderate - High
B	Low-Moderate	<5%	3	High
C	Low	0	0	Low - None
D	Low	5-10%	0	Low
Vineyard Block 2				
A	High	20%	6	Moderate
B	Moderate	10%	0	Moderate - High
C	High	20%	1 with 6 stems	Moderate
D	Low-moderate	5-10%	0	Low
E	Low	5%	0	Low -None
F	Low	5%	0	Moderate
G	Moderate-high	15%	2	High
H	High	30%	10	High

Please refer to the Impacts and Mitigation Measures for details on avoidance measures of roosting bats in trees on this site.

Critical Habitat

California Red-legged Frog: The site is located outside the Critical Habitat in Napa for this species, which occurs on the east side of the County of Napa.

Northern Spotted Owl: There is no designated Critical Habitat for this species in this portion of Napa County.

IMPACTS AND MITIGATION MEASURES

This section summarizes the potential temporary biological impacts from activities related to the development of a new vineyard within the study area. The analysis of these impacts is based on a single reconnaissance-level survey of the study area, a review of existing databases and literature, and personal professional experience with biological resources of the region.

CEQA Guidelines Sections 15206 and 15380 were used to determine impact significance. Impacts are generally considered less than significant if the habitats and species affected are common and widespread in the region and the state.

A species may be treated as rare or endangered even if it has not been listed under CESA or FESA. Species are designated endangered when it survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, disease or other factors.

For the purposes of this report, three principal components in the evaluation were considered:

- Magnitude of the impact (e.g., substantial/not substantial)
- Uniqueness of the affected resource (rarity)
- Susceptibility of the affected resource to disturbance (sensitivity)

The evaluation of significance must consider the interrelationship of these three components. For example, a relatively small-magnitude impact (e.g., disturbing a nest) to a state or federally listed species would be considered significant because the species is at low population levels and is presumed to be susceptible to disturbance. Conversely, a common habitat such as non-native grassland is not necessarily rare or sensitive to disturbance. Therefore, a much larger magnitude of impact (e.g., removal of extensive vegetation) would be required for it to be considered a significant impact.

Waters of the U.S. and State, Including Wetlands

One blue-line intermittent drainage and two ephemeral drainages were mapped for the property/study area (see Vineyard Planning Exhibit). A 65-foot setback will be maintained for the blue-line drainage and a 25-foot setback will be maintained for the ephemeral drainages. All the drainages also qualify as waters of the U.S. and state. A total of 0.02 acres of ephemeral drainages and 0.01 acres of blue drainage occur within the study area. The 0.01 acre potential seasonal wetland will also be avoided. A 50-foot setback from the potential wetland will be maintained between the potential wetland area and the vineyard planting area. A portion of which of the 50-foot setback (25-feet or less) will be used as a mowed, vegetated vineyard access road.

The 0.01 acre of potential seasonal wetland occurs adjacent to an existing dry land crossing over the ephemeral drainage channel that bisects Vineyard Blocks 1 and 2. At this time no improvements are planned for this crossing and the potential wetland area will be avoided. However, if improvements are required by the County or for future access to the vineyard block, such as placement of a culvert or rock riprap, then permits will be required from the USACE, RWQCB and CDFW. This portion of the drainage channel does not have any riparian tree or shrub cover. It is all non-native grassland and there is no identifiable ordinary high-water mark or bed and bank at the current crossing location. The drainage channel flattens at the crossing location and then reestablishes itself downstream of the crossing as an incised channel, so this is a "natural" crossing location. The crossing is also located adjacent to and downstream of the seasonal wetland area which also developed as a result of the flattening out of the upstream portion of the drainage channel. Upstream and downstream of this area the channel is incised and somewhat steep.

Mitigation Measure: Any alteration to the ordinary high-water mark of the drainage channel, or alteration of the bed or bank to the drainage channel, would require a Section 404 permit from the USACE, a 401 water quality certification from the RWQCB and a Streambed Alteration Agreement from CDFW. Depending on the amount of impact the agencies may require some mitigation in the form of planting native trees and

shrubs along portions of the drainage. There is more than sufficient area upstream and downstream of the crossing to implement a riparian habitat mitigation plan as compensation for any impacts. If required, as part of the permit application a mitigation plan would be developed and approved by the agencies prior to implementing any improvements to the crossing.

Special Status Plants

No special status plants, mosses or lichens were found during the appropriately time spring to summer surveys. Surveys were conducted on March 6, April 10, May 22, and June 28, 2018 to cover the flowering period for all potential special status plants. Many native species were found but none were special status. No further studies are required.

Special Status Vegetation Community

The coast live oak woodland on the site does not have a formal ranking as special status vegetation communities. However, the Napa County General Plan Policy Con-24 addresses removal of oak woodlands. In addition, the Napa County General Plan Open Space and Conservation Element directs the County to retain existing oaks to the extent feasible as part of residential, commercial, industrial and agricultural land division approvals. Projects should include management plans for fishery and wildlife including provisions to employ supplemental planting and maintenance of trees to provide adequate vegetation cover to keep watersheds in good condition and provide shelter and food for wildlife. The Oak Woodland Conservation Program in the Napa County Open Space and Conservation Element requires hardwood cutting to maintain adequate stands of oaks for wildlife, slope stabilization, soil protection, and acorn production. Table 4 and the attached Vineyard Planning Exhibits shows the acreage of each vegetation type that will be removed as part of the proposed vineyard development.

Mitigation Measure: Compensation for the loss of oak woodland would be in the form of preservation of oak woodland and other habitats on the site. Table 6 presents the amount of acreage preserved per community.

Table 6: Vegetation Community and Acreages Removed and Preserved as a Percentage of the Total Acreage of Each Vegetation Type on the Parcel.

	Acreages				Percentage of Total Acreage
Vegetation Community	**Vineyard Block 1**	**Vineyard Block 2**	**Total Removed**	**Total on Parcel**	**% Retained**
Non-native grassland	1.1	2.4	3.5	4.0	13.0
Chamise chaparral	0.0	0.5	0.5	0.5	0
Coast live oak woodland	3.0	6.4	9.4	38	75
Existing development	0.0	0.4	0.4	0.4	0
Wetlands and Waters of the U.S. (acreages are included in the non-native grassland and oak woodland types)					100
Total	4.1	9.7	13.8	42.9	

Overall 68%, or 29.1 acres, of the vegetation on the site would be preserved with a conversion of 32%, or 13.8 acres, into vineyard. Of the 13.8 acres that will be developed for vineyard, 38 acres or 88% of that is coast live oak woodland which has less density of oak trees and much more grassland than the other oak

woodland types, resulting in fewer trees being removed. It is also the most common oak woodland type in the County based on the BDR (Jones & Stokes 2005). The oak woodlands to be preserved are the same or greater value for wildlife and plant habitat and also include a small copse of Douglas Fir trees where a white-tailed kite was observed. This area is shown as a potential nesting area for this species. A Cooper's hawk was also observed in the study area. The nesting habitat for these birds, and other wildlife, will be preserved under the proposed project and shows the high value of the areas proposed for preservation.

The grassland habitat on site is highly disturbed and dominated by yellow star thistle. There is a small area of chamise chaparral that will be developed. There are other areas of this shrubland type in the overall area. The loss of the 0.5 acres will not have an adverse impact to the local flora or fauna of the area. No compensation is required for the loss of the non-native grassland, chamise chaparral or developed areas.

Wildlife Movement Corridors
Full development out of this site into vineyard will not occur. The proposed vineyard blocks, with associated fencing, will only be up to a total of 13.8 acres in size and will be easily circumnavigated if fences are installed around the perimeter of the two vineyard blocks as provided in the ECP. The unnamed tributary on the southern boundary of the southern parcel is currently deer fenced and will be maintained as such. As a result, no impacts to movement corridors for wildlife will occur. Thus, no impediment to movement corridors or habitat fragmentation will occur from the proposed project and, no species exclusion, isolation, extinction will occur.

Special Status Animals

Invertebrates
Although two native bee pollinators have a moderate potential to occur on the site, based on the habitats present, a sufficient amount of habitat will remain after the proposed vineyard planting that will not cause a decrease in the number of individuals in this portion of Napa County.

Recommendation
Planting of native hedgerows will benefit native bees. Species to be used include blue elderberry (*Sambucus nigra*) and Western redbud (*Cercis occidentalis*) along riparian corridors, and California fuchsia (*Epilobium canum*) and coyote bush (*Baccharis pilularis*), among others, in the upland habitats (Vaughan, et al. 2015). The native manzanitas, madrones and toyons are also bee food.

Birds
Project Direct Impacts: Several passerine (perching birds) species observed on site, such as woodpeckers and western bluebirds, build nest in cavities in the oak trees. Other species, such as the blue-gray gnatcatcher will build stick nests. None of these species are federal or State listed species or State fully protected. Disturbance during the nesting season (February 15- August 15) may result in the potential nest abandonment and mortality of young, which is considered a "take" of an individual.

Mitigation Measure: The following mitigation measures should be followed in order to avoid or minimize impacts to passerines that may potentially nest in the trees:

1) Removal of nesting trees should be conducted outside the nesting season, which occurs between approximately February 15 and August 15.
2) If removal between August 15 and February 15 is infeasible and removal must occur within the nesting season, a pre-construction nesting bird survey of the trees shall be performed by a qualified biologist within 7 days of ground breaking. If no nesting birds are observed no further action is required and tree removal shall occur within one week of the survey to prevent "take" of individual birds that could begin nesting after the survey.

3) If active bird nests are observed during the pre-construction survey, a disturbance-free buffer zone shall be established around the nest tree(s) until the young have fledged, as determined by a qualified biologist.

4) The radius of the required buffer zone can vary depending on the species, (i.e., 75-100 feet for passerines), with the dimensions of any required buffer zones to be determined by a qualified biologist in consultation with CDFW.

5) To delineate the buffer zone around a nesting tree, orange construction fencing shall be placed at the specified radius from the base of the tree within which no machinery or workers shall intrude.

6) After the fencing is in place there will be no restrictions on grading or vineyard development outside the prescribed buffer zones.

Project Direct Impacts: The site is located within the range of the **northern spotted owl** and the proposed project may create a disturbance to potential foraging habitat during the nesting season (March 1 to August 31) which may result in potential mortality of young when they are fledging in the later part of the summer, which is considered a "take" of an individual.

Mitigation Measure: The following mitigation measures should be followed in order to avoid or minimize impacts to northern spotted owl that may potentially nest in the trees:

1) Removal of foraging habitat (i.e., coast live oak woodland) should be conducted outside the nesting season, which occurs between approximately March 15 and August 31.

2) If removal between September 1 and March 1 is infeasible and removal must occur within the nesting season, spotted owl surveys of the habitat to be removed shall be performed by a qualified biologist prior to ground breaking. The surveys shall be conducted between March 15 and August 31 and shall follow the USFWS survey protocol (USFWS 2012).

3) To meet the objectives of the USFWS (2012) survey protocol, 2 years of surveys with 6 complete visits per year are required to determine the presence or absence of spotted owls.

Project Indirect Impacts: The loss of approximately 9.4 acres of hardwood woodland (Coast live oak woodland – Table 6) of potential foraging habitat for northern spotted owl may cause an indirect effect for the species.

However, this portion of Napa County, the Western Mountains Evaluation Area, supports 20,640 acres of oak woodland (Jones and Stokes 2005). Loss of 9.4 acres in this area is not considered a significant loss of habitat. No further action is required.

Project Direct Impacts: Two raptor (birds of prey) species were observed on the parcel but outside the vineyard blocks, Cooper's hawk (*Accipiter cooperii*) and white-tailed kite (*Elanus leucurus*). Both of these species build stick nests. The white-tailed kite is a State fully protected species. Disturbance during the nesting season (February 15- August 15) may result in the potential nest abandonment and mortality of young, which is considered a "take" of an individual.

Mitigation Measure: The following mitigation measures should be followed in order to avoid or minimize impacts to raptors that may potentially nest in the trees:

1) Removal of nesting trees should be conducted outside the nesting season, which occurs between approximately February 1 and August 31.

2) If removal between September 1 and February 1 is infeasible and removal must occur within the nesting season, a pre-construction nesting bird survey of the trees shall be performed by a qualified biologist within 7 days of ground breaking. If no nesting birds are observed no

further action is required and tree removal shall occur within one week of the survey to prevent "take" of individual birds that could begin nesting after the survey.

3) If active bird nests are observed during the pre-construction survey, a disturbance-free buffer zone shall be established around the nest tree(s) until the young have fledged, as determined by a qualified biologist.

4) The radius of the required buffer zone can vary depending on the species, (i.e., 200-500 feet for raptors), with the dimensions of any required buffer zones to be determined by a qualified biologist in consultation with CDFW.

5) To delineate the buffer zone around a nesting tree, orange construction fencing shall be placed at the specified radius from the base of the tree within which no machinery or workers shall intrude.

6) After the fencing is in place there will be no restrictions on grading or vineyard development outside the prescribed buffer zones.

Bats

Project Direct Impacts: Removal of trees may cause direct mortality of roosting bats, if the trees provide suitable roosting habitat and are removed during seasonal periods of inactivity (maternity season or winter).

Preventing Take of Tree-roosting Bats – General Discussion

As with other types of roosts such as caves, mines, buildings bridges, etc., colonial and solitary bat species that roost in trees in this region are seasonally inactive. Unlike these other types of roosts however, bats cannot readily be humanely evicted from trees. This is because many trees have numerous cavities, crevices, or large areas of exfoliating bark suitable for colonial species that cannot be fitted with one-way exits, or cannot even be safely worked on due to poor condition. This is particularly true of snags due to their extremely poor condition; however, snags provide some of the most preferred and substantial bat tree roost habitat. Evicting solitary tree bat species from trees containing suitably dense foliage also poses significant challenges.

Conducting visual surveys of tree habitat features is generally highly problematic due to difficulties with access to the entire tree, number of trees, inability to survey entire cavities, or visual clutter from foliage. Emergence surveys of potential roost trees is only feasible where a few habitat trees occur, because only 1-2 trees can be surveyed each night per observer. Importantly, because bats tend to switch tree roosts more frequently than more stable roosts such as caves, mines, rock outcrops, buildings, bridges, or culverts, negative results have extremely limited temporal validity (24-48 hours), which would result in multiple mobilizations by tree cutters in order to remove trees immediately after a negative survey. In the event a tree is found to be occupied, a method for safely getting the bats out of the tree will still be needed.

Because of these challenges when conducting focused surveys, it is recommended to presume presence of bats where suitable roost features occur, rather than conducting focused presence or absence surveys, then removing trees only during **seasonal periods of bat activity** using a two-step process *conducted over two consecutive days* that Wildlife Research Associates has developed, as described below. Two-step removal is conducted only during seasonal periods of bat activity because it relies on the ability of bats to fly, precluding seasonal periods when non-volant young or overwintering adults are present. This method provides the most reasonable and feasible opportunity for bats that could be present to abandon the roost tree prior to cutting and has been acceptable to CDFW for many previous tree removal projects.

Dates for parturition, weaning, flight, and self-sufficiency of bat pups varies widely by locale and species. The dates shown below are based on our observations of these variations in this region.

Two-step removal of bat habitat trees must be conducted only during seasonal periods of bat activity. In this region, two seasonal periods of bat activity occur:

1) between about March 1 (or after evening temperatures 1-2 hours before sunset rise above 45F and/or no more than 1/2" of rainfall occurs 24 hours before or after planned habitat removal), and April 15, or;

2) between September 1 and about October 15, but only when evening temperatures 1-2 hours before sunset are above 45F and/or no more than 1/2" of rainfall occurs 24 hours before or after planned habitat removal.

Note that rain periods during these seasonal periods of bat activity will delay 2-step tree removal, but that these activities may resume when suitable conditions are met, until the end of the seasonal period of bat activity. Also, seasonal periods may be different for other locations, based on elevation, latitude, or other factors.

Two-Step Bat Habitat Tree Removal Procedure

Two-step habitat tree removal is conducted over two consecutive days and relies on creating noise and vibration by *first* cutting adjacent non-habitat trees, as well as non-habitat branches and limbs from habitat trees first (Day 1) by using chainsaws only (no excavators or other heavy machinery). The noise and vibration disturbance, together with the visible alteration of the tree, is very effective in causing bats that emerge nightly to feed, to not return to the roost that night. The remainder of the habitat tree is removed the following day (Day 2).

A bat biologist qualified in two-step tree removal is required on Day 1 to supervise and instruct the tree-cutters who will be on the site conducting the work for sufficient time to train all tree cutters who will conduct two-step removal of habitat trees. The bat biologist is generally not required on Day 2, unless a very large cavity is present and a large colony is suspected, or multiple tree cutting crews will be working on several different days.

In some situations, tree conditions may make visual surveys conducted from a ladder, man lift or boom truck feasible and possible. This can occur when roost features such as cavities, crevices or exfoliating bark can be completely surveyed, or when all areas of foliage can be viewed at eye-level. If these visual surveys can be conducted and results are negative, the trees can be removed outside of seasonal periods of bat activity.

To reduce potential direct mortality of solitary foliage-roosting bats such as *L. blossevillii* and *L. cinereus*, removal of understory and non-habitat trees should precede removal of habitat trees, to produce noise disturbance that will help to cause bats to abandon roost trees. This is not effective when non-volant young are present during maternity season, because females may not be able to carry all young as they develop in size, prior to volancy.

Preventing Potential Take of Bats Resulting from Disturbance (Not Removal) of Roost Trees

With many projects, trees with suitable potential bat roost habitat will not be removed, but may occur within an area that will be disturbed by construction activities. Direct mortality could result if non-volant young are abandoned by mothers during maternity season, or if bats abandon the tree during daytime hours, making them subject to predation by birds, raptors, or other predators.

It is difficult to generalize about or quantify the level of disturbance required to cause roost abandonment, because there are many factors, such as duration and intensity of noise or other disturbance (e.g. visual), tolerance of bat species using the roost, distance from roost to disturbance, intervening structures or trees, or elevational differences that could mitigate the effects of noise, etc.

In situations where night emergence surveys or daytime visual surveys of roost features are possible and feasible, and results are negative, no impacts would be expected to occur. However, it may be necessary to presume presence, and then establish a suitable no-disturbance buffer around habitat trees. Alternatively, wherever possible, construction activities could be scheduled to begin outside maternity season or winter torpor months. Other strategies could include beginning work in areas with little or no suitable potential

habitat, or beginning work close to the end of maternity season (mid-August), when young bats would be volant, even if they are not yet completely self-sufficient.

Project Mitigation: Measures to prevent or minimize direct mortality of roosting colonial or solitary bats are comprised of two strategies; 1) conducting tree removal during seasonal periods of bat activity, and 2) using a two-step process, detailed below, to allow bats to abandon any tree roosts prior to removal of the tree. Some portions of Vineyard Block Survey Locations that do not provide suitable potential roosting habitat (i.e., sagebrush and grasslands) may be removed outside the seasonal periods of bat activity. However, if work will occur during periods of non-seasonal bat activity, a no-disturbance buffer zone of 75 feet should be established from the edge of the clearing area to the trees, which may be only be removed during seasonal periods of bat activity, which are detailed below.

Suitable potential bat roost habitat features for colonial bats and foliage habitat for solitary tree-roosting species will be removed to develop Vineyard Blocks 1 and 2, although not all portions of each block contain the same amount of suitable potential habitat. Some Survey Locations within each Vineyard Block contained as little as about 5% suitable colonial bat roost habitat, with the highest amount of potential habitat for both colonial and solitary bat species (about 30%) occurring in Survey Location H, Vineyard Block 2.

Measures to compensate for loss of available roost habitat should include snag retention along the eastern access road between the vineyard and the houses to the north of the reservoir; snag retention wherever feasible along the periphery of cleared areas adjacent to preservation areas and riparian areas, and; installation of suitable artificial bat roosts within, and/or around the periphery of the cleared areas, adjacent or just within the edge of preservation and riparian areas. Compensation for loss of suitable potential habitat in Survey Location H, Vineyard Block 2 can be compensated for by installing bat house along the northwestern portion of Survey Location H (See Figure 10).

Foliage habitat for solitary species appears to have higher habitat suitability within the preservation areas, which consists of large trees with dense overall canopy. Along with measures to prevent or minimize direct mortality during tree removal described above, measures to compensate for loss of available habitat for solitary, obligate tree-roosting species are limited to establishment of the preservation areas, and retention of trees along riparian areas, both of which will provide long-term available habitat.

Specific recommendations for each Vineyard Block are provided below. As stated above, more suitable potential roost habitat features including canopy occur in Vineyard Block 2 compared to Vineyard Block 1.

Take Avoidance Measures – Trees: To prevent take of individuals roosting in trees, the following measures are required:

1. Two-step removal of trees containing occupied bat roosts or providing suitable bat habitat, must only be conducted during seasonal periods of bat activity, which are in this region, between March 15 (or after evening temperatures rise above 45F and/or no more than 1/2" of rainfall within 24 hours occurs), and April 30, or between August 15 and about October 1 (or before evening temperatures fall below 45F and/or more than 1/2" of rainfall within 24 hours occurs).

2. ***Two-step tree removal of bat habitat trees is conducted over two consecutive days*** (e.g. Day 1 = Tuesday and Day 2 = Wednesday for a given tree). The first day entails removal of non-habitat features on bat habitat trees (branches without cavities, crevices, or exfoliating bark), ***using chainsaws only for cutting, and chippers wherever possible*** to cause a level of noise and vibration disturbance sufficient to cause bats to choose not to return to the tree for a few days after they emerge to forage.

3. ***No*** excavators, grinders, or other heavy equipment can be used for first day trimming of habitat trees; these cannot precisely remove non-habitat features without damaging habitat features, and are

generally too efficient to provide a suitable duration of noise and vibration at the habitat tree to be effective.

4. A qualified bat biologist experienced with two-step removal procedures is required to instruct and provide initial supervision of tree cutting crews on Day 1 so that they do not accidentally remove potential habitat features, which could result in direct mortality of bats. On Day 2, the day following trimming and removal of non-habitat roost features on habitat trees, the tree is removed. Any new tree cutting crew members added to the crew will require instruction and initial supervision by a qualified bat biologist, so maintaining the same crews would be the most cost-effective, and prevent potential scheduling delays.

Table 7 provides specific recommendations for avoiding direct mortality of roosting bats that may potentially occur in each survey location and vineyard block, as well as recommendations for replacement habitat, where appropriate.

Table 7: Measures to Avoid Direct Mortality of Bats, and Replacement Habitat Recommendations by Vineyard Block and Survey Area

Area	Habitat Characterization	Mortality Avoidance	Habitat Replacement
Vineyard Block 1			
A	Coast live oak forest	During seasonal periods of bat activity (see text): 1) First remove fallen trees, ground vegetation and non-bat habitat trees (e.g. manzanita, etc.), then; 2) Conduct 2-step bat habitat tree removal (see text). Outside seasonal periods of bat activity: 1) A 75' buffer must be maintained between the treeline and any sagebrush or grasslands to be removed.	1) Provide 8 Rocket-box bat houses (see Appendix F) at BHR-1 (see Figure 10 for location); 2) Retain snags wherever safe, feasible, and where they will not impede vineyard planting.
B	Coast live oak forest		
C	Coast live oak savanna (with smaller trees)		
D	Coast live oak woodland (with taller trees)		
Vineyard Block 2			
A	Coast live oak woodland	During seasonal periods of bat activity (see text): 1) First remove fallen trees, ground vegetation and non-bat habitat trees (e.g. manzanita, etc.), then; 2) Conduct 2-step bat habitat tree removal (see text). Outside seasonal periods of bat activity:	1) Provide 6 Rocket-box bat houses (see Appendix F) at BHR-2 (see Figure 10 for location); 2) Provide 6 Rocket-box bat houses (see Appendix F) at BHR-3 (see Figure 10 for location); 3) Retain snags wherever safe, feasible, and
B	Coast live oak woodland		
C	Coast live oak woodland		
D	Coast live oak savannah		

Area	Habitat Characterization	Mortality Avoidance	Habitat Replacement
E	Coast live oak savannah (with moss)	3) A 75' buffer must be maintained between the treeline and any sagebrush or grasslands to be removed.	where they will not impede vineyard planting.
F	Coast live oak savannah (with moss)		
G	Coast live oak woodland		
H	Coast live oak woodland		

Two-step removal of bat habitat trees must be conducted only during seasonal periods of bat activity. In this region, two seasonal periods of bat activity occur:

1) between about March 1 (or after evening temperatures 1-2 hours before sunset rise above 45F and/or no more than 1/2" of rainfall occurs 24 hours before or after planned habitat removal), and April 15, or;

2) between September 1 and about October 15, but only when evening temperatures 1-2 hours before sunset are above 45F and/or no more than 1/2" of rainfall occurs 24 hours before or after planned habitat removal.

Note that rain periods during these seasonal periods of bat activity will delay 2-step tree removal, but that these activities may resume when suitable conditions are met, until the end of the seasonal period of bat activity. Also, seasonal periods may be different for other locations, based on elevation, latitude, or other factors.

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QUALIFICATIONS OF BIOLOGISTS

Jane Valerius is a plant ecologist and wetlands specialist with more than 30 years of highly professional experience both in conducting field studies and in managing projects. Ms. Valerius is proficient in conducting vegetation and biotic surveys, rare plant surveys, and wetland delineations. Ms. Valerius has designed mitigation monitoring plans for wetlands, habitat restoration plans for endangered species and prepared environmental impact assessments to support development of public works projects, residential communities, landfill and mining expansion, and energy and water resource facilities.

⇒ Master of Science, Range Ecology, Colorado State University, Fort Collins, CO, May 1982
⇒ Bachelor of Arts, Environmental Biology, University of Colorado, Boulder, CO, December 1977

- Conducted ecological, botanical and wetland studies in California, Oregon, Nevada, Idaho, Colorado, Wyoming, Utah, Arizona, and North Dakota.
- Specialize in flora of the western United States; conducted special status plant surveys according to California Department of Fish and Game protocol for Marin, Sonoma, Mendocino, Napa, Solano, Contra Costa, Alameda, San Joaquin, Merced, Fresno, Butte, Eldorado, Amador, Sacramento, Yolo, San Bernardino, San Mateo, Siskiyou and other counties.
- Extensive experience with wetland delineations, permitting, mitigation plans, creation and construction of wetlands, including vernal pools.
- Work with the San Francisco, Sacramento and Los Angeles U. S. Army Corps of Engineers districts. Experience with NEPA/CEQA.
- Prepare restoration, revegetation, and reclamation plans. Prepare exotic pest plant control plans.
- Monitor environmental compliance of mining operations, transmission line, and residential development projects.
- Active in professional organizations including past Director-at-Large for the Society for Ecological Restoration (1994-1997), member of the California Native Plant Society, California Exotic Pest Plant Council and California Botanical Society.

Trish Tatarian is a seasoned biologist, with 26 years of experience working as project manager and technical biologist for consulting firms in the environmental consulting field. Co-founder of Wildlife Research Associates, Trish has been an independent wildlife consultant since 2001. She has built consensus with agency personnel and a variety of clients ranging from federal agencies to independent developers. Trish is a widely-experienced general ecologist, who focuses on conducting surveys for special status amphibians, birds, and mammals, conducting vegetation community and wildlife habitat characterization, and aerial photograph interpretation.

◊ M.Sc., Biology, Sonoma State University 2005
◊ B.S., Ecology, San Francisco State University 1992

- Holder of a 10(A)1(a) USFWS permit, since 1998, and a CDFW Scientific Collecting permit, since 1992, holds a permit for foothill yellow-legged frog (*Rana boylii*)
- Conducts research on the federally-listed Threatened California red-legged frog (*Rana draytonii*) and the Endangered Sonoma County population of the California tiger salamander (*Ambystoma californiense*).
- Between 2013 and 2018 taught 16 Workshops on California Red-legged Frog Biology in Santa Cruz, Livermore, Elkhorn Slough and Auburn
- Conducts presence absence surveys for California red-legged frog, California tiger salamander, foothill yellow-legged frog, western pond turtle, as well as construction monitoring. Has prepared numerous site Assessments, Biological Assessment, Mitigation and Monitoring plans and Habitat Conservation Plans
- Conducts nesting passerine and raptor surveys, bat habitat assessments and emergence surveys
- Experienced with CEQA/NEPA and has strong working relationship with various divisions of the USFS, USFWS and CDFW.

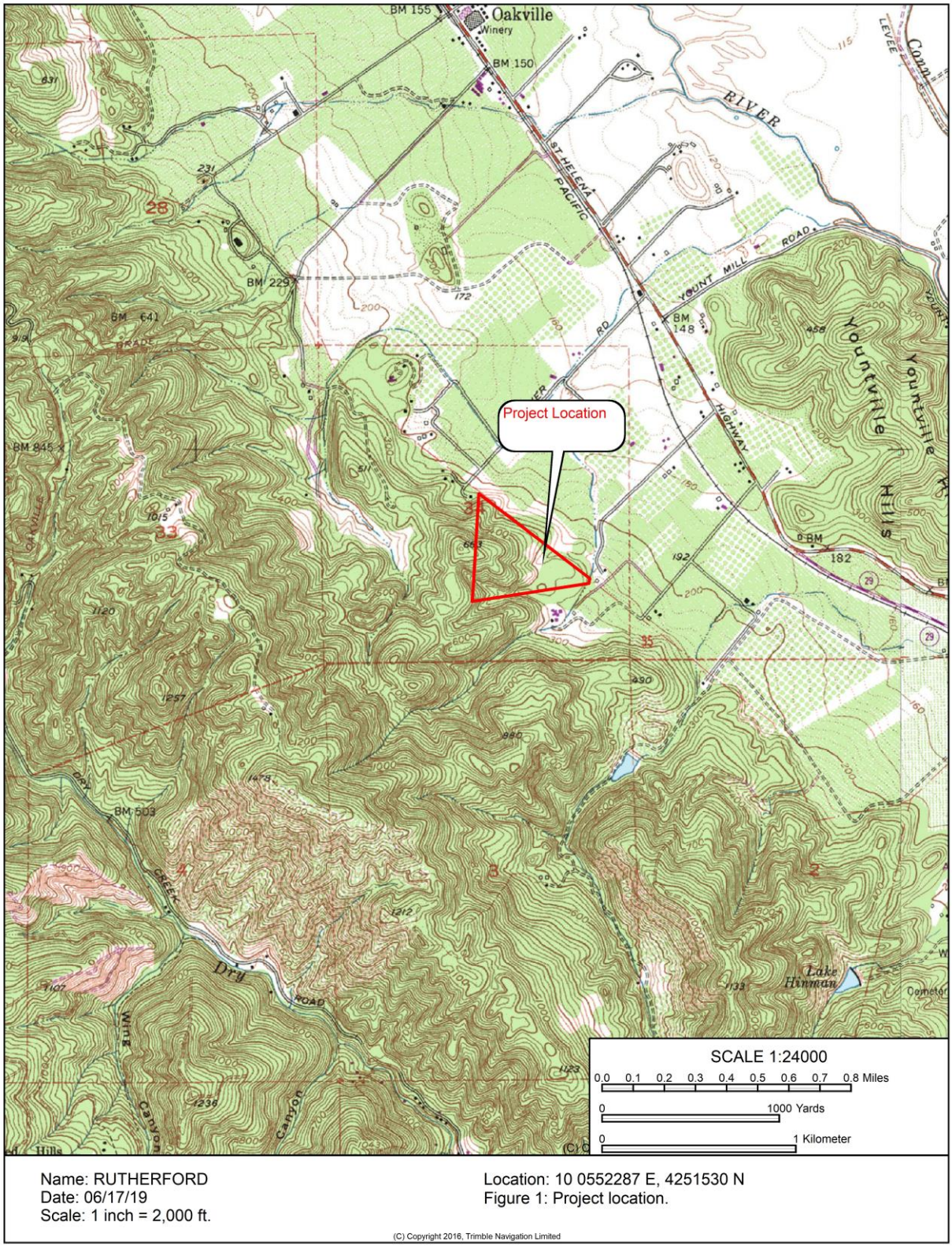


Figure 1: Project Location.

Figure 2: Coast live oak woodland Block 2.

Figure 3: Coast live oak woodland Block 1.

Figure 4: Grassland in Block 2.

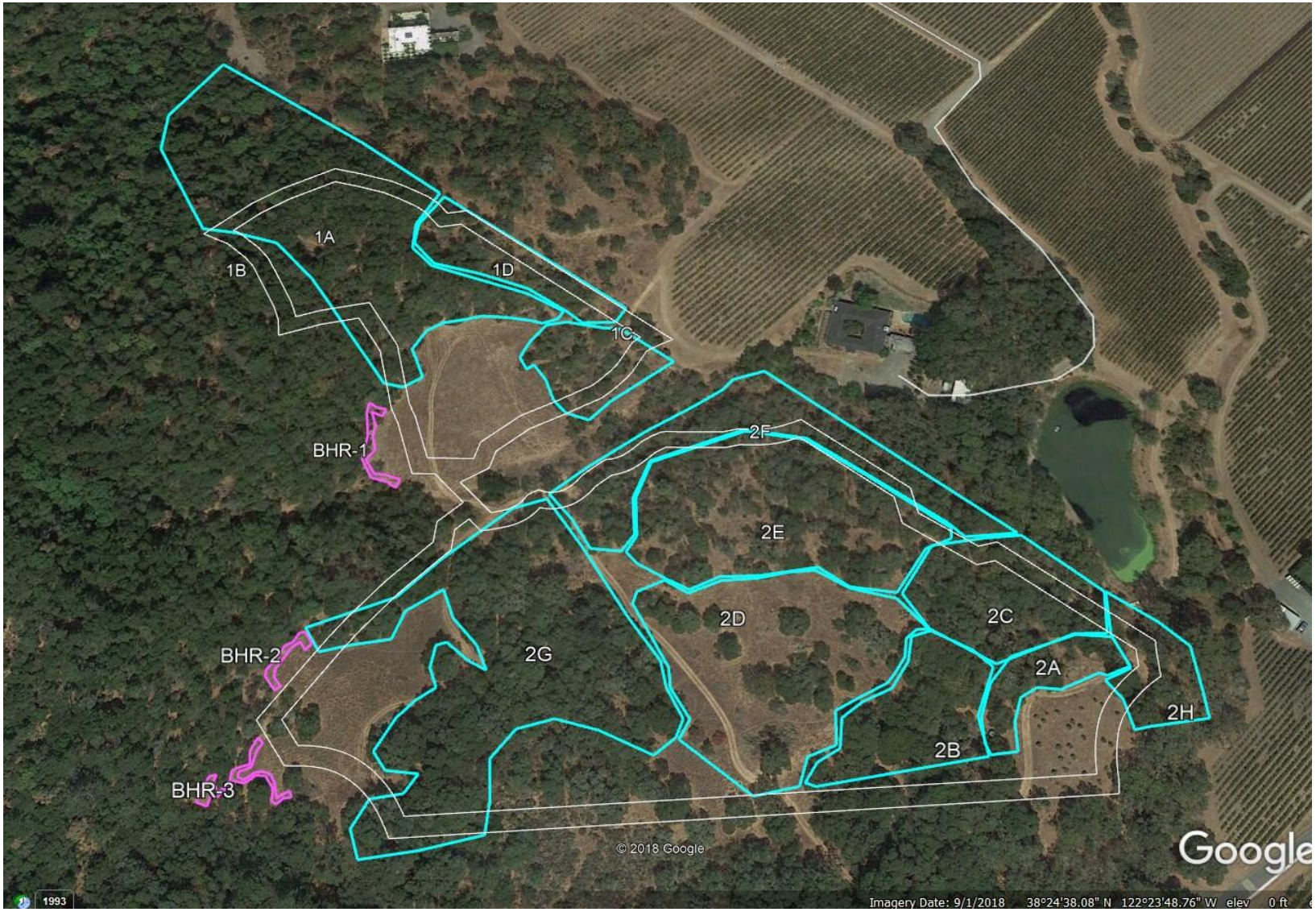
Figure 5: Grassland in Block 1.

Figure 6: Grassland in Block 1 showing drainage.

Figure 7: Chamise chaparral with grassland edge in Block 2.

Figure 8: Existing fallow vineyard in Block 2.

Figure 9: Example of tree cavity in Block 2.



Note: Turquoise perimeters with 1A, etc. = bat habitat characterizations within Vineyard Blocks 1 and 2 (outlined in white).
Pink perimeters with BHR = Locations for bat habitat replacement with artificial roosts

Appendix A: Potentially Occurring Special Status Plant Species in the Study Area

Scientific Name **Common Name**	**Status USFWS/ CDFW/ CNPS Rank**	**Habitat Affinities and Blooming Period/Life Form**	**Habitat Present/Absent**	**Observed During Survey?**	**Potential for Occurrence**
Allium peninsulare var. *franciscanum* Franciscan onion	-/-/1B	Cismontane woodland, valley and foothill grassland on clay, volcanic soils; often on serpentinite. Blooms May to June. Elevation 52-300m.	Present	No	None. Potential grassland and woodland habitat on site but no serpentinite. Not observed during surveys.
Amorpha californica var. *napenis* Napa false indigo	-/-/1B	Broadleafed upland forest openings, chaparral, cismontane woodland. 120-2000m elevation. Blooms April- July.	Present	No	None. Typical habitat not present on site.
Amsinckia lunaris Bent-flowered fiddleneck	-/-/1B	Coastal bluff scrub, cismontane woodland, valley and foothill grassland. Blooms March to June. Elevation: 3-500m.	Present	No	None. Potential grassland and woodland habitat on site but not observed during survey.
Antirrhinum virga Twig-like snapdragon	-/-/4	Chaparral, lower montane coniferous forest in rocky openings often on serpentinite. Blooms June to July. Elevation: 100-2015m.	Absent	No	None. No serpentine on site.
Arctostaphylos bakeri ssp. *bakeri* Baker's manzanita	-/-/1B	Broadleafed upland forest, chaparral, often on serpentinite. Blooms February to April.	Absent	No	None. Not observed during survey. Typical habitat not on site.
Arctostaphylos stanfordiana ssp. *decumbens* Rincon Ridge manzanita	-/-/1B	Chaparral on rhyolitic soils and cismontane woodland. Blooms February to April (sometimes May). Elevation: 75-370m.	Absent	No	None. No habitat on site. No rhyolitic soils.
Astragalus claranus Clara Hunt's milk-vetch	FE/CT/1B	Openings in chaparral, cismontane woodland, valley and foothill grassland on serpentinite or volcanic, rocky or clay	Present	No	None. Potential habitat on site. No recorded occurrences for this species within 5 or more

Scientific Name Common Name	Status USFWS/ CDFW/ CNPS Rank	Habitat Affinities and Blooming Period/Life Form	Habitat Present/Absent	Observed During Survey?	Potential for Occurrence
		soils. Blooms March to May. Elevation: 75-275m.			miles. Not observed during surveys.
Astragalus clevelandii Cleveland's milk-vetch	-/-/4	Serpentine seeps, chaparral, cismontane woodland, riparian forest. 200-1500m elevation. Blooms June-September.	Absent	No	None. No serpentine on site.
Astragalus tener var. *tener* Alkali milk-vetch	-/-/1B	Playas, grassland (adode clay), vernal pools (alkaline). Blooms March-June. Elevation: 1-60m.	Absent	No	None. No habitat on site.
Balsamorhiza macolepis Big-scale balsamroot	-/-/1B	Chaparral, cismontane woodland, valley and foothill grassland/sometimes serpentinite. Blooms March to June. Elevation 90-1555m.	Absent	No	None. Typical habitat not present on site.
Blennosperma bakeri Sonoma sunshine	FE/CE/1B	Valley and foothill grassland (mesic), vernal pools. Blooms March to May. Elevation: 10-110m.	Absent	No	None. No habitat present on site.
Brodiaea leptandra Narrow-anthered brodiaea	-/-/1B	Broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland on volcanic soils. 110-915m elevation. Blooms May-July.	Present	No	None. Potential grassland and woodland habitat. Not observed during surveys.
Calandrinia breweri Brewer's calandrinia	-/-/4	Chaparral and coastal scrub on sandy or loam soils and in disturbed sites and burns. Blooms March to June. Elevation: 10-1220m.	Absent	No	None. Typical habitat not present on site. Not observed during surveys.

Scientific Name **Common Name**	**Status USFWS/ CDFW/ CNPS Rank**	**Habitat Affinities and Blooming Period/Life Form**	**Habitat Present/Absent**	**Observed During Survey?**	**Potential for Occurrence**
Calycadenia micrantha Small-flowered calycadenia	-/-/1B	Chaparral, meadows and seeps (volcanic), valley and foothill grassland on roadsides, rocky talus, scree, sometimes serpentinite and sparsely vegetated areas. 5-1500m elevation. Blooms June-September.	Absent	No	None. Typical habitat not on site. Not observed during surveys.
Castilleja ambigua var. *ambigua* Johnny-nip	-/-/4	Coastal bluff scrub, coastal prairie, coastal scrub, marshes and swamps, valley and foothill grassland, vernal pools margins. Blooms March to August. Elevation: 0-435m.	Absent	No	None. Typical habitat not on site. Not observed during surveys.
Castilleja ambigua var. *meadii* Mead's owls-clover	-/-/1B	Meadows and seeps, vernal pools on gravelly, volcanic or clay soils. Prefers soils of volcanic origin that tend to have a high clay content and be gravelly. Blooms April-May. Elevation: 450-475m.	Absent	No	None. No habitat on site.
Ceanothus confusus Rincon Ridge ceanothus	-/-/1B	Closed-cone coniferous forest, chaparral, cismontane woodland on volcanic or serpentinite. Blooms February to June. Elevation: 75-1065m.	Absent	No	None. Typical habitat not on site. Not observed during surveys.
Ceanothus divergens Holly-leaved ceanothus	-/-/1B	Chaparral on serpentinite or volcanic, rocky soils. Blooms February to April. Elevation 170-950m.	Absent	No	None. Typical habitat not on site. Not observed during surveys..
Ceanothus purpureus Holly-leaved ceanothus	-/-/1B	Chaparral, cismontane woodland on volcanic or rocky soils. 120-640m elevation. Blooms February-June.	Present	No	None. Potential chaparral and woodland habitat on site. Not observed during surveys.

Scientific Name **Common Name**	**Status USFWS/ CDFW/ CNPS Rank**	**Habitat Affinities and Blooming Period/Life Form**	**Habitat Present/Absent**	**Observed During Survey?**	**Potential for Occurrence**
Ceanothus sonomensis Sonoma ceanothus	-/-/1B	Chaparral on sandy, serpentinite or volcanic soils. Blooms February to April. Elevation: 215-800m.	Absent	No	None. Typical habitat not on site. Not observed during surveys.
Chorizanthe valida Sonoma spineflower	-/-/1B	Coastal prairie, sandy. Blooms June to August. Elevation: 10-305m.	Absent	No	None. Typical habitat not on site. Not observed during surveys.
Clarkia breweri Brewer's clarkia	-/-/4	Chaparral, cismontane woodland, coastal scrub, often on serpentinite. 215-1115m. Blooms April-June.	Absent	No	None. Typical habitat not on site. Not observed during surveys. No serpentinite in study area.
Clarkia gracilis ssp. *tracyi* Tracy's clarkia	-/-/4	Openings in chaparral, sometimes on serpentinite. 65-650m elevation. Blooms April-July	Present	No	None. Typical habitat not on site. Not observed during surveys. No serpentinite in study area.
Downingia pusilla Dwarf downingia	-/-/2B	Mesic valley and foothill grassland, vernal pools. 1-445m elevation. Blooms March-May.	Absent	No	None. Typical habitat not on site. Not observed during surveys.
Erigeron biolettii Streamside daisy	-/-/3	Broadleafed upland forest, cismontane woodland, North Coast coniferous forest on rocky and mesic sites. Blooms June-October. Elevation 30-1100m.	Absent	No	None. Typical habitat not on site. Not observed during surveys.
Erigeron greenei Greene's narrow-leaved daisy	-/-/1B	Chaparral on serpentinite or volcanic soils. 80-1005m elevation. Blooms May-September.	Absent	No	None. Typical habitat not on site. Not observed during surveys.
Eryngium jepsonii Jepson's coyote thistle	-/-/1B	Valley and foothill grassland, vernal pools on clay soils. Blooms April to August. Elevation: 3-300m.	Absent	No	None. Typical habitat not on site. Not observed during surveys.

Scientific Name **Common Name**	**Status USFWS/ CDFW/ CNPS Rank**	**Habitat Affinities and Blooming Period/Life Form**	**Habitat Present/Absent**	**Observed During Survey?**	**Potential for Occurrence**
Etriplex joaquinana San Joaquin spearscale	-/-/1B	Chenopod scrub, meadows and seeps, playas, valley and foothill grassland in alkaline soils. Blooms April to October. Elevation: 1-835m.	Absent	No	None. No habitat on site.
Harmonia nutans Nodding harmonia	-/-/4	Chaparral, cismontane woodland on rocky, gravelly or volcanic soils. 75-975m elevation. Blooms March-May.	Present	No	None. Potential chaparral and woodland habitat on site. Not observed during surveys.
Hemizonia congesta ssp. *congesta* Congested-head hayfield tarplant	-/-/1B	Valley and foothill grassland, sometimes roadsides. Blooms April to November. Elevation: 20-560m.	Present	No	None. Potential grassland habitat on site. Not observed during surveys.
Hesperolinon bicarpellatum Two-carpellate western flax	-/-/1B	Chaparral on serpentinite. 60-1005m elevation. Blooms May-July.	Absent	No	None. No serpentine on site.
Hesperolinon sharsmithiae Sharsmith's western flax	-/-/1B	Chaparral on serpentinite. Blooms May to July. Elevation: 270-300m.	Absent	No	None. No serpentine on site.
Horkelia tenuiloba Thin-lobed horkelia	-/-/1B	Broadleafed upland forest, chaparral, valley and foothill grassland/mesic openings, sandy. Blooms May to July (August). Elevation: 50-500m.	Absent	No	None. Typical habitat not present on site. Not observed during surveys.
Juglans hindsii Northern California black walnut	-/-/1B	Riparian forest, riparian woodland. Blooms April to May. Elevation: 0-440m.	Absent	No	None. No walnut observed in study area.
Lasthenia conjugens Contra Costa goldfields	FE/-/1B	Cismontane woodland, alkaline playas, valley and foothill grassland, vernal pools. 0-470m elevation. Blooms March-June.	Absent	No	None. Typical habitat for this species not present on site. Not observed during surveys.

Scientific Name **Common Name**	**Status USFWS/ CDFW/ CNPS Rank**	**Habitat Affinities and Blooming Period/Life Form**	**Habitat Present/Absent**	**Observed During Survey?**	**Potential for Occurrence**
Lathyrus jepsonii var. *jepsonii* Delta tule pea	-/-/1B	Freshwater and brackish marshes and swamps. Blooms May to September. Elevation: 0-5m.	Absent	No	None. No habitat on site.
Leptosiphon acicularis Bristly leptosiphon	-/-/4	Chaparral, cismontane woodland, coastal prairie, valley and foothill grassland. Blooms April to July. Elevation: 55-1500m.	Present.	No	None. Potential chaparral, woodland and grassland habitat on site. Not observed during surveys.
Leptosiphon jepsonii Jepson's leptosiphon	-/-/1B	Chaparral, cismontane woodland, usually volcanic. 100-500m elevation. Blooms March-May.	Present	No	None. Potential chaparral and woodland habitat on site. Not observed during surveys.
Leptosiphon latisectus Broad-lobed leptosiphon	-/-/4	Broadleafed upland forest, cismontane woodland. Blooms April-June. Elevation: 170-1500m.	Present	No	None. Potential woodland habitat on site. Not observed during surveys.
Lilaeopsis masonii Mason's lilaeopsis	-/CR/1B	Brackish or freshwater marshes and swamps, riparian scrub. Blooms April to November. Elevation: 0-10m.	Absent	No	None. No habitat on site.
Lilium rubescens Redwood lily	-/-/4	Broadleafed upland forest, chaparral, lower montane coniferous forest, North Coast coniferous forest, upper montane coniferous forest, sometimes serpentinite, sometimes roadsides. Blooms April to September. Elevation: 30-1910m.	Absent	No	None. Typical habitat not on site. Not observed during surveys.
Limnanthes vinculans Sebastopol meadowfoam	FE/CE/1B	Meadows and seeps, valley and foothill grassland, vernal pools, vernally mesic. 15-305m elevation. Blooms April-May.	Absent	No	None. Typical habitat not present on site. Not observed during surveys.

Scientific Name **Common Name**	**Status USFWS/ CDFW/ CNPS Rank**	**Habitat Affinities and Blooming Period/Life Form**	**Habitat Present/Absent**	**Observed During Survey?**	**Potential for Occurrence**
Lomatium repostum Napa lomatium	-/-/4	Chaparral, cismontane woodland on serpentinite. 90-830m elevation. Blooms March-June.	Absent	No	None. No habitat on site. No serpentinite.
Lupinus sericatus Cobb Mountain lupine	-/-/1B	Broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest. Blooms March-June. Elevation: 275-1525m.	Present	No	None. Potential chaparral and woodland habitat on site. Not observed during surveys.
Micropus amphibolus Mt. Diablo cottonweed	-/-/3	Broadleafed upland forest, chaparral, cismontane woodland, valley and foothill grassland on rocky soils. Booms March-May. Elevation: 45-825m.	Present	No	None. Potential chaparral, woodland and grassland habitat on site. Not observed during surveys.
Monardella viridis Green monardella	-/-/4	Broadleafed upland forest, chaparral, cismontane woodland. 100-1010m elevation. Blooms June-September.	Present	No	None. Potential chaparral and woodland habitat on site. Not observed during surveys.
Navarretia leucocephala ssp. *pauciflora* Few-flowered navarretia	FE/CE/1B	Volcanic ash flow vernal pools. 400-855m elevation. Blooms May-June.	Absent	No	None. No habitat on site.
Penstemon newberryi var. *sonomensis* Sonoma beardtongue	-/-/1B	Chaparral on rocky soils. 700-1370m elevation. Blooms April-August.	Present	No	None. Not observed during surveys.
Ranunculus lobbii Lobb's aquatic buttercup	-/-/4	Cismontane woodland, North Coast coniferous forest, valley and foothill grassland, vernal pools. 15-470m elevation. Blooms February-May.	Absent	No	None. Typical habitat not present on site. Not observed during surveys.
Sagittaria sanfordii Sanfords' arrowhead	-/-/1B	Assorted shallow freshwater marshes and swamps. Blooms May to October (November). Elevation: 0-650m.	Absent	No	None. No habitat on site.

Scientific Name **Common Name**	**Status USFWS/ CDFW/ CNPS Rank**	**Habitat Affinities and Blooming Period/Life Form**	**Habitat Present/Absent**	**Observed During Survey?**	**Potential for Occurrence**
Streptanthus hesperidis Green jewel-flower	-/-/1B	Openings in chaparral, cismontane woodland, on serpentinite or rocky soils. 130-760m elevation. Blooms May-July.	Absent	No	None. No habitat onsite.
Symphyotrichum lentum Suisun Marsh aster	-/-/1B	Brackish and freshwater marshes and swamps. Blooms April to November. Elevation: 0-3m.	Absent	No	None. No habitat on site.
Trichosema ruygtii Napa bluecurls	-/-/1B	Chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland, vernal pools. Blooms June to October. Elevation: 30-680m.	Present	No	None. Potential chaparral, woodland and grassland habitat on site. Not observed during surveys.
Trifolium amoenum Two-fork clover	FE/-/1B	Coastal bluff scrub, valley and foothill grassland, sometimes on serpentinite. Elevation: 5-415m. Blooms April-June.	Present	No	None. Potential grassland habitat on site. Not observed during surveys.
Trifolium hydrophilum Saline clover	-/-/1B	Marshes and swamps, valley and foothill grassland (mesic, alkaline), vernal pools. April-June. Elevation: 0-300m.	Absent	No	None. Typical habitat not present in study area. No alkaline soils. Not observed during surveys.
Triteleia lugens Dark-mouthed triteleia	-/-/4	Broadleafed upland forest, chaparral, coastal scrub, lower montane coniferous forest. Blooms: April to June. Elevation: 100-1000 m.	Present	No	None. Potential chaparral habitat on site. Not observed during surveys.
Viburnum ellipticum Oval-leaved viburnum	-/-/2B	Chaparral, cismontane woodland, lower montane coniferous forest. Blooms May to June. Elevation: 215-1400m.	Present	No	None. Potential chaparral and woodland habitat on site. Not observed during surveys.
Special Status/Sensitive Natural Communities					
Valley Needlegrass Grassland			Absent	**No**	None. A small area of needlegrass was observed on site but of insufficient size to call out as a separate habitat type.

Scientific Name Common Name	Status USFWS/ CDFW/ CNPS Rank	Habitat Affinities and Blooming Period/Life Form	Habitat Present/Absent	Observed During Survey?	Potential for Occurrence
Northern Vernal Pool			Absent	**No**	**None**

NOTES:

U.S. FISH AND WILDLIFE SERVICE

FE = federally listed Endangered
FT = federally listed Threatened

CALIFORNIA DEPT. OF FISH AND WILDLIFE

CE = California listed Endangered
CR = California listed as Rare
CT = California listed as Threatened

CALIFORNIA NATIVE PLANT SOCIETY -

Rank 1B: Plants rare and endangered in California and elsewhere
Rank 2B: Plants rare and endangered in California but more common elsewhere.
Rank 3: Plants about which more information is needed – a review list.
Rank 4: Plants of limited distribution – a watch list.

Appendix B: Potentially Occurring Special Status Animal Species in the Project Area

Common Name *Scientific Name*	Status USFWS/ CDFW	Habitat Affinities and Reported Localities in the Project Area	Habitat Present/Absent	Observed During Survey?	Potential for Occurrence
Invertebrates					
Obscure bumblebee *Bombus calignosus*	-/-	Food plants include Baccharis, Circium, Lupinus, Lotus, Grindelia and Phacelia. Occurs in Coastal areas from northern Washington to southern California.	Present	No	**Low**: several food plants occur on site but site is drier than occupied habitats.
Western bumblebee *Bombus occidentalis*	-/SCE	Generalist foragers. They do not depend on any one flower type but they favor Melilotus, Cirsium, Trifolium, Centaurea, Chrysothamnus, Eriogonum. Historically from the Pacific coast to the Colorado Rocky Mountains; severe population decline west of the Sierra-Cascade Crest.	Present	No	**Moderate**: several food plants occur on site.
An isopod *Calasellus californicus*	-/-	Inhabits localized fresh-water ponds or streams with still or near still water.	Absent	No	None – no suitable habitat.
California freshwater shrimp *Syncaris pacifica*	FE/SE	Endemic to Napa, Sonoma and Marin Counties. Occurs in low elevation and low gradient streams with moderate to heavy riparian cover.	Absent	No	None – no suitable habitat.
Fish					
Delta smelt *Hypomesus transpacificus*	FT/-	Sacramento-San Joaquin delta. Seasonally in Suisun Bay, Carquinez Strait & San Pablo Bay. Seldom found at salinities > 10ppt. Most often at salinities <2ppt.	Absent	No	None – no suitable habitat.
steelhead - Central California Coast DPS *Onchorhynchus mykiss*	FT/SSC	Requires beds of loose, silt-free, coarse gravel for spawning. Also needs cover, cool water and sufficient dissolved oxygen.	Absent	No	None – no suitable habitat.

Common Name *Scientific Name*	Status USFWS/ CDFW	Habitat Affinities and Reported Localities in the Project Area	Habitat Present/Absent	Observed During Survey?	Potential for Occurrence
longfin smelt *Spirinchus thaleichthys*	FC/ST	Pacific coast of North America from Sacramento-San Joaquin estuary and (extirpated?). Well documented declines in California. Spawns in sandy-gravel, rock, or aquatic plants, Dec. – Feb. in CA, in coastal waters near shore, bays, estuaries, and rivers. Some populations anadromous close to ocean.	Absent	No	None – no suitable habitat.
Amphibians					
California giant salamander *Dicamptodon ensatus*	-/-	Known from wet coastal forests near streams and seeps. Larvae found in cold, clear streams and adults knowns from wet forests under rocks and logs near streams and lakes.	Present	No	None – no suitable habitat.
foothill yellow-legged frog *Rana boylii*	SC/ CCT	Inhabits permanent, flowing stream courses with a cobble substrate and a mixture of open canopy riparian vegetation.	Present	No	None – no suitable habitat.
California red-legged frog *Rana draytonii*	FT/SSC	Prefers semi-permanent and permanent stream pools, ponds and creeks with emergent and/or riparian vegetation. Occupies upland habitat especially during the wet winter months.	Absent	No	None – no suitable habitat on site.
Red-bellied newt *Taricha rivularis*	-/SSC	Spends dry season underground within root channels. Requires rapid streams with temps between 15°C and 26° C and rocky substrate for breeding and egg-laying.	Present	No	None – no suitable habitat
Reptiles					
western pond turtle *Emys marmorata*	SC/ SSC	Prefers permanent, slow-moving creeks, streams, ponds, rivers, marshes and irrigation ditches with basking sites and a vegetated shoreline. Requires upland sites for egg-laying.	Absent	No	None – no suitable habitat.
Birds (All birds are protected under the MBTA)					
Clark's grebe *Aechmophorus clarkii*	BCC	Breeds on large bodied freshwater lakes and marshes with emergent vegetation. Nest is built on floating plants or submerged snag, among emergent vegetation.	Absent	No	None – no suitable nesting habitat.

Common Name *Scientific Name*	Status USFWS/ CDFW	Habitat Affinities and Reported Localities in the Project Area	Habitat Present/Absent	Observed During Survey?	Potential for Occurrence
Tri-colored blackbird *Agelaius tricolor*	BCC/ CCE	Nests primarily in dense freshwater marshes with cattail or tules, but also known to nest in upland thistles. Forages in grasslands.	Absent	No	None – no suitable nesting habitat.
Rufous-crowned sparrow *Aimophila ruficeps*	BCC	Nests constructed on the ground or in a small depression; occasionally near the base of a shrub up to about 1.5 feet off the ground. Often well concealed under grass, leaves, or rocks. Habitat occurs in dry, open hillsides covered with grasses, rocks, and scattered shrubs, including coastal sagebrush, open chaparral, scrub oaks, pinyon pine, and other woody plants.	Present	No	**High**: suitable nesting habitat present. No individuals observed or heard in March 2017.
grasshopper sparrow *Ammodramus savannarum*	BCC/SSC	Typically found in tall, dense grass, nesting on the ground at the base of grass tuft.	Absent	No	None – no suitable nesting habitat.
Bell's sparrow *Amphispiza belli*	BCC	Nests in dense stands of chamise and chaparral.	Absent	No	None – no suitable nesting habitat.
golden eagle *Aquila chrysaetos*	-/FP	Forages in a variety of habitats including grasslands, chaparral and oak woodland supporting abundant mammals. Nests on cliffs and escarpments and tall trees.	Absent	No	None – no suitable nesting habitat.
Great egret *Ardea alba*	/ SSC	Nests colonially in large trees near water	Absent	No	None – no suitable nesting habitat.
Great blue heron *Ardea herodius*	/ SSC	Nests colonially in large trees near water	Absent	No	None – no suitable nesting habitat.
Black turnstone *Arenaria melanocephala*	BCC	Winters along high-energy rocky shorelines, on beaches near rocky coasts, and on jetties and piers	Absent	No	None – no suitable habitat
Short-eared owl *Asio flammeus*	BCC/SSC	Nests in open areas in grasslands, marshes, or dunes on the ground sheltered by tall grasses, reeds or bushes.	Absent	No	None – no suitable nesting habitat.
Burrowing owl *Athene cunicularia hypugea*	BCC/ SSC	Nests in open, dry grasslands, deserts, prairies, farmland and scrublands with abundant active and abandoned mammal burrows. Prefers short grasses and moderate inclined hills.	Absent	No	None – no suitable habitat.

Common Name *Scientific Name*	Status USFWS/ CDFW	Habitat Affinities and Reported Localities in the Project Area	Habitat Present/Absent	Observed During Survey?	Potential for Occurrence
Oak titmouse *Baeolophus inornatus*	BCC/ -	Breeds in cavities in oak woodlands, gleaning insects from the bark. Occurs from southern Oregon to northern Mexico along the Central Valley and xeric coastal foothills.	Present	Yes	**High**: suitable nesting habitat present. Several individuals heard.
Swainson's hawk *Buteo swainsoni*	BCC/ST	Nests in scattered trees in open areas, with nests usually high in the tree. Nests are reused annually and are made of sticks, with a diameter of 21-28 inches.	Absent	No	None – no suitable nesting habitat.
Lawrence's goldfinch *Carduelis lawrencei*	BCC/	Nests in open woodlands, chaparral and weedy fields in trees	Present	No	
Wrentit *Chamaea fasciata*	BCC	Nests in coastal scrub and chaparral.	Present	Yes	**Observed** – habitat suitable for one nesting pair.
mountain plover *Charadrius montanus*	C/SSC	Nests on arid plains and short-grass prairies in Western Great Plains and Great Basin. Winters in open, arid habitats, as well as fallow fields.	Absent	No	None – no suitable nesting habitat.
olive-sided flycatcher *Contopus borealis*	BCC/ SSC	Nests in open conifer or mixed oak woodland. Nests on horizontal branches, among a cluster of twigs and needles.	Present	No	**High**: suitable nesting habitat present.
Yellow rail *Coturnicops noveboracensis*		Breeds in Canada. May winter in California in drier freshwater and brackish marshes, as well as dense deep grass and rice fields.	Absent	No	None – no suitable habitat
black swift *Cypseloides niger*	BCC/SSC	Nests made of moss bound with mud or simply a cushion of grass or bare mud, are often built on small ledges with overhanging moss or grass near seashore and waterfalls.	Absent	No	None – no suitable habitat
White-tailed kite *Elanus leucurus*	MB/CFP	Inhabits low rolling foothills and valley margins with scattered oaks and river bottom- lands or marshes adjacent to deciduous woodlands. Prefers open grasslands, meadows and marshes for foraging close to isolated, dense-topped trees for nesting and perching.	Present	Yes	**High** –suitable nesting habitat in conifers in NW.

Common Name *Scientific Name*	Status USFWS/ CDFW	Habitat Affinities and Reported Localities in the Project Area	Habitat Present/Absent	Observed During Survey?	Potential for Occurrence
American peregrine falcon *Falco peregrinus anatum*	BCC/FP	Nests and roosts on protected ledges of high cliffs, usually adjacent to lakes, rivers or marshes. Forages on shorebirds and small passerines.	Absent	No	None – no suitable nesting habitat.
saltmarsh common yellowthroat *Geothylpis trichas sinuosa*	BCC/SSC	Nests in fresh and salt marshes in tall grasses, tule patches and willows and forages in thick, continuous cover down to the water surface.	Absent	No	None – no suitable nesting habitat.
bald eagle *Haliaeetus leucocephalus*	BCC/CE, CFP	Nests in tall snags near water and forages on fish. This species winters near large bodies of waters with fish.	Absent	No	None – no suitable nesting habitat.
Least bittern *Ixobrychus exilis*	BCC/-	Nests in freshwater or brackish marshes with tall emergent vegetation. Creates nesting platform in dense stands of vegetation.	Absent	No	None – no suitable nesting habitat.
California black rail *Laterallus jamaicensis coturniculus*	-/ST	Inhabits saltwater, brackish, and freshwater marshes. Known from the San Francisco Bay area and the delta of the Sacramento and San Joaquin rivers south along the coast to northern Baja California and in Yuba County.	Absent	No	None – no suitable nesting habitat.
Marbled godwit *Limosa fedoa*	BCC	Breeds in marshes and flood plains on the ground.	Absent	No	None – no suitable habitat
Short-billed dowitcher *Limnodromus griseus*	BCC/-	Winters on coastal mud flats and brackish lagoons. In migration prefers saltwater tidal flats, beaches, and salt marshes. Found in freshwater mud flats and flooded agricultural fields	Absent	No	None – no suitable habitat.
Lewis's woodpecker *Melanerpes lewis*	BCC/SSC	Found in open forest and woodland, often logged or burned, including oak, coniferous forest, riparian woodland, orchards, less often pinyon-juniper. Closely associated with open ponderosa pine forest in western North America. Most commonly uses pre-made or natural cavities. Wintering areas must provide storage sites for grain or mast.	Present	No	**High**: suitable nesting habitat present. No individuals observed or heard in March 2018.

Common Name *Scientific Name*	Status USFWS/ CDFW	Habitat Affinities and Reported Localities in the Project Area	Habitat Present/Absent	Observed During Survey?	Potential for Occurrence
San Pablo song sparrow *Melospiza melodia samuelis*	/SSC	Inhabits tidal sloughs in the Salicornia marshes, nesting in Grindelia bordering slough channels along the north side of the San Francisco and San Pablo bays.	Absent	No	None – no suitable habitat
long-billed curlew *Numenius americanus*	BCC/SSC	Nests at high elevations in grasslands adjacent to lakes or marshes. Winters along the coast on mudflats or in interior valleys in grasslands and agricultural fields.	Absent	No	None – no suitable habitat.
Whimbrel *Numenius phaeopus*	BCC/	Winters along the coast of California.	Absent	No	None – no suitable habitat
Black-crowned night heron *Nycticorax nycticorax*	/-	Nests in saltmarshes, freshwater marshes, swamps, streams, rivers, lakes, ponds, lagoons, tidal mudflats, canals, reservoirs, and wet agricultural fields. Nests situated in trees or in cattails in colonial nest tree.	Absent	No	None – no suitable habitat
Fox sparrow *Passerella iliaca*	BCC/-	Nests in forests and chaparral on the ground or in low crotches of bushes or trees.	Present	No	**High**: suitable nesting habitat present.
Double-crested cormorant *Phalacrocorax auritis*	-/WL	Nest is a well-made platform of sticks, or of seaweed on the coast, placed in a tree or on a cliff or rocky island. Nests in colonies	Absent	No	None – no suitable nesting habitat.
Yellow-billed magpie *Pica nuttallii*	BCC	An omnivorous colonial nesting species. Nests are placed high in large trees.	Absent	No	None – no suitable habitat
Nuttall's woodpecker *Picoides nuttallii*	BCC/-	Found primarily in oak woodlands and riparian woods. Cavity nester.	Present	No	**High**: suitable nesting habitat present.
bank swallow *Riparia riparia*	MB/ST	Nests in banks along rivers, excavating holes in sides of the banks.	Absent	No	None – no suitable nesting habitat.
rufous hummingbird *Selasphorus rufus*	BCC/-	Nests in chaparral, coniferous forest, scrub habitats and riparian habitats in Canada and winters in Mexico. Nests are placed on a downward drooping structure.	Present	No	None – no suitable nesting habitat.

Common Name *Scientific Name*	Status USFWS/ CDFW	Habitat Affinities and Reported Localities in the Project Area	Habitat Present/Absent	Observed During Survey?	Potential for Occurrence
Allen's hummingbird *Selasphorus sasin*	BCC/-	Nests in wooded areas, meadows, or thickets along shaded streams, on a branch low down on stem, although placement height varies between 10 inches and 90 feet.	Present	No	**High** – suitable habitat present.
Black-chinned sparrow *Spizella atrogularis*	BCC	Nests in arid southwestern hills on steep hillsides covered with dense low scrub.	Absent	No	None – no suitable habitat
northern spotted owl *Strix occidentalis caurina*	FT, BCC/CT	Dense coniferous and hardwood forest, shaded, steep sided canyons.	Present	No	None – no suitable nesting habitat. **Moderate** - Edge foraging habitat present.
California thrasher *Toxostoma redivivum*	BCC	Nests in Lowland and coastal chaparral, and riparian woodland thickets.	Present	No	None – no suitable habitat of a size to support nesting
Lesser yellowlegs *Tringa flavipes*	BCC/-	Breeds in open boreal forest with shallow wetlands. Winters in wide variety of shallow fresh and saltwater habitats.	Absent	No	None – no suitable habitat
Willet *Tringa semipalmata*	BCC	In winter, Willets feed on beaches and rocky coasts, as well as mudflats and marshes. During breeding season the western population moves far inland to nest in grasslands and prairies near freshwater.	Absent	No	None – no suitable habitat
Mammals					
pallid bat *Antrozous pallidus*	-/SSC	Day roosts in crevices and cavities in rock outcrops, mines, caves, buildings, bridges, as well as hollows and cavities in a wide variety of tree species. May roost alone, in small groups (2 to 20 bats), or in 100s in maternity roosts, with males and non-reproductive subadults in other, smaller roosts.	Present	No	**Moderate**: suitable roosting habitat present.

Common Name *Scientific Name*	Status USFWS/ CDFW	Habitat Affinities and Reported Localities in the Project Area	Habitat Present/Absent	Observed During Survey?	Potential for Occurrence
Townsend's big-eared bat *Corynorhinus townsendii townsendii*	-/SSC, WBWG:H	Day roosts in cave analogs; mines, buildings, bridges, sometimes large tree hollows. Particularly sensitive to roost disturbance, this species has declined throughout its range in California; very few maternity roosts are known in California. Females form maternity colonies, males roost singly, and all disperse widely after maternity season. During winter, roosts in cold, but non-freezing roosts, which may include man-made structures.	Absent	No	None – no suitable habitat on site.
North American porcupine *Erethizon dorsatum*	-/-	Occurs in forests, mountains, chaparral, and sagebrush. During the winter porcupines eat evergreen needles and the inner bark of trees. During the spring and summer they eat flowers, berries, tender twigs, and leaves from deciduous plants.	Present	No	None - evidence would have been detected
Western red bat *Lasiurus blossevillii*	-/SSC, WBWG:H	Solitary roosting, except when females are with young (from 2 to 6 are born). Roosts almost exclusively in foliage, under overhanging leaves, in woodland borders, rivers, agricultural areas including orchards, and urban areas with mature trees. Typically found in large cottonwoods, sycamores, walnuts and willows associated with riparian habitats.	Present	No	**High**: suitable roosting habitat present.
Hoary bat *Lasiurus cinereus*	-/-, WBWG:M	Roosts singly except when females are with young (from 2 to 4 are born) in dense foliage of medium to large coniferous and deciduous trees.	Present	No	**High** - suitable roosting habitat present.
fringed myotis *Myotis thysanodes*	-/-, WBWG:H	Roosts colonially, up to 2,000 individuals. Females form maternity roosts, give birth to one young. Roosts in rock crevices, caves, mines, buildings and bridges, as well as tree hollows, particularly large conifer snags. May hibernate or use intermittent torpor.	Absent	No	**None** - suitable roosting habitat present.

Common Name *Scientific Name*	Status USFWS/ CDFW	Habitat Affinities and Reported Localities in the Project Area	Habitat Present/Absent	Observed During Survey?	Potential for Occurrence
Yuma Myotis *Myotis yumanensis*	-/-, WBWG:M	Forms often large maternity colonies, females giving birth to one young. Males roost singly. Primarily a crevice roosting species in natural habitat, forms large maternity colonies in large spaces in man-made roosts, e.g. buildings. Also uses bridges, caves, mines, tree cavities, bat houses, abandoned swallow nests, exfoliating bark.	Present	No	**Moderate** - suitable roosting habitat present.
American badger *Taxidea taxus*	-/SSC	Inhabits open grasslands, savannas and mountain meadows near timberline. Requires abundant burrowing mammals, their principal food source, and loose, friable soils.	Absent	No	None – no suitable habitat on site. No burrows or ground squirrels observed.

U.S. FISH AND WILDLIFE SERVICE

FE = federally listed Endangered
FT = federally listed Threatened
FC = federal candidate for listing
BCC = Bird of Conservation Concern

CALIFORNIA DEPT. OF FISH AND WILDLIFE

CE = California listed Endangered
CCE = California Candidate for listing as Endangered
CT = California listed as Threatened
CCT = California Candidate for listing as Threatened
CFP = California fully protected species
SSC = Species of Special Concern

Appendix C: Plant species observed at the 7353 St. Helena Highway Project Site – March, April, May and June 2018

Scientific Name	Common Name
Acer macrophyllum	Big leaf maple
Achillea millefolium	Yarrow
Adenostoma fascicularis	chamise
Adiantum jordanii	Maidenhair fern
Aesculus californica	California buckeye
Agoseris heterophylla	Mountain dandelion
Aira caryophyllea	European hair grass*
Anisocarpus madioides	Woodland madia
Arbutus menziesii	Madrone
Arctostaphylos manzanita ssp. *glaucescens*	Whiteleaf manzanita
Arctostaphylos manzanita ssp. *manzanita*	Common manzanita
Aristolochia californica	California pipevine
Avena barbata	Wild oats*
Avena fatua	Oats*
Baccharis pilularis	Coyote brush
Briza maxima	Large quaking grass*
Briza minor	Small quaking grass*
Brodiaea elegans	Elegant brodiaea
Bromus carinatus	California bromegrass
Bromus diandrus	Ripgut brome*
Bromus hordaeceus	Soft chess*
Bromus laevipes	Narrowed flowered brome
Bromus sp.	Brome*
Calendula arvensis	Field marigold*
Calochortus luteus	Yellow mariposa lily
Calycanthus occidentalis	Spicebush
Calystegia occidentalis	Bush morning glory
Cardamine californica	Milk maids
Carduus pycnocephalus	Italian thistle*
Ceanothus cuneatus	Buck brush
Ceanothus integerrius	Deer brush
Centaurea solstitialis	Yellow starthistle*
Cerastium glomeratum	Mouseear chickweed*
Chloragalum pomeridianum	Soaproot
Cirsium vulgare	Bull thistle*
Clarkia affinis	Chaparral fairyfan
Clarkia amoena	Farewell to spring
Claytonia parvilfora ssp. *utahensis*	Streambank spring beauty
Claytonia perfoliata	Miner's lettuce
Clinopodium douglasii	Yerba Buena
Collinsia heterophylla	Chinese houses
Corylus cornuta	Hazelnut
Cottoneaster sp.	Cotoneaster*-ornamental shrub
Cynosurus echinatus	Dogtail grass*
Dactylis glomerata	Orchard grass*
Daucus carota	Queen Anne's lace*
Dichelostemma capitatum	Blue dicks
Diplacus aurantiacus	Sticky monkeyflower

Scientific Name	Common Name
Elymus glaucus	Blue wild rye
Erodium botrys	Broad-leaved filaree*
Erodium brachycarpum	Foothill filaree*
Eschscholzia californica	California poppy
Festuca arundinacea	Tall fescue*
Festuca bromoides	Brome fescue*
Festuca californica	California fescue
Festuca myuros	Rattail fescue*
Festuca perennis	Ryegrass*
Fumaria capreolata	White ramping fumitory*
Galium aparine	Cleavers/bedstraw
Galium parisiense	Wall bedstraw*
Galium porrigens	Climbing bedstraw
Genista monspessulana	French broom*
Geranium dissectum	Cut-leaf geranium*
Geranium robertianum	Robert's geranium*
Heteromeles arbutifolia	Toyon
Hordeum marinum ssp. *gussoneanum*	Mediterranean barley*
Hordeum murinum ssp. *leporinum*	Hare barley*
Hypochaeris radicata	Rough cat's-ear*
Iris douglasiana	Douglas iris
Juglans hindsii	Norther california black walnut
Juncus bufonius	Toad rush
Juncus patens	Spreading rush
Lathyrus angulatus	Angled pea vine*
Lavendula sp.	Lavender*
Leptosiphon bicolor	True babystars
Lonicera hispidula	Honey suckle
Lupinus bicolor	Dwarf lupine
Lupinus nanus	Sky lupine
Luzula comosa	Wood rush
Lysimachia arvensis	Scarlet pimpernel*
Marah fabacea	California man-root
Medicago polymorpha	Bur clover*
Melica californica	California melicgrass
Mentha pulegium	Penneyroyal*
Nemophila menziesii	Baby blue eyes
Olea europea	Olive*
Opuntia sp.	Cactus*
Osmorhiza berteroi	Sweet cicely
Oxalis pes-caprae	Bermuda buttercup*
Pentagramma triangularis	Goldback fern
Pentagramma triangularis	Gold back fern
Phalaris aquatica	Harding grass*
Plagiobothrys nothofulvus	Rusty haired popcorn flower
Plantago lanceolata	English plantain*
Polygala californica	Milkwort
Polypodium californicum	California polypody
Polystichum imbricans	Narrow leaved sword fern
Primula hendersonii	Shooting star or mosquito bill
Prosartes hookeri	Drops of gold
Prunus ilicifolia	Holly leaf cherry

Scientific Name	Common Name
Pseudotsuga menziesii	Douglas fir
Quercus agrifolia	Coast live oak
Quercus berberidifolia	Scrub oak
Quercus garryana	Oregon oak
Quercus kelloggii	Black oak
Quercus wislizeni	Interior live oak
Ranunculus californica	California buttercup
Raphanus sativus	Wild radish*
Ribes divaricatum	Spreading gooseberry
Rosmarinus officinalis	Rosemary*
Rubus armeniacus	Himalayan blackberry*
Rumex crispus	Curly dock*
Sanicula bipinnatifida	Purple sanicle
Sanicula crassicaulis	Gamble weed
Scandix pectin-veneris	Shepherd's needle*
Selaginella wallacei	Wallace moss fern
Stellaria media	Chickweed*
Senecio vulgaris	Common groundsel*
Silene gallica	Common catchfly*
Silybum marianum	Milk thistle*
Sisrynchium bellum	Blue-eyed grass
Sonchus asper	Prickly sowthistle*
Sonchus oleraceus	Common sowthistle*
Stachys ajugoides	Hedge nettle
Stipa pulchra	Purple needlegrass
Symphoricarpos albus	snowberry
Thysanocarpus curvipes	Common fringe pod
Tolpis barbata	European milkwort*
Torilis arvensis	Field hedge parsley*
Toxicodendron diversilobum	Poison oak
Trifolium dubium	Shamrock*
Trifolium hirtum	Rose clover*
Trifolium repens	White clover*
Trifolium subterreaneum	Subterranean clover*
Trifolium wildenovii	Tom cat clover
Trillium ovatum	Western wakerobin
Umbellularia californica	California bay laurel
Vicia benghalensis	Purple vetch*
Vicia lathyroides	Red vicia
Vicia sativa	Spring vetch*
Vicia tetrasperma	Four seeded vetch*
Vicia villosa	Hairy vetch*
Vitis vinifera	Wine grapes*
Wyethia glabra	Smooth mule's ears

* = Non-native species

Appendix D – Mosses and Lichens observed March to June 2018.

Family and/or Scientific Name	Habitat and Substrate
MOSSES	
AULACOMNIACEAE	
Aulacomnium androgynum	oak stump
BARTRAMIACEAE	
Anacolia menziesii	On shaded north facing boulder
Bartramia stricta	On sunny soil over rock
Philonotis capillaris	moist shady roadside
BRACHYTHECIACEAE	
Brachythecium albicans	On shaded soil, oak & manzanita woodland
Homalothecium arenarium	grassy area in partial shade
Isothecium stoloniferum	On shaded base of oak
Scleropodium obtusifolium	On rock in streamlet
BRYACEAE	
Imbribryum miniatum	On sunny soil over rock in chaparral
CRYPHAEACEAE	
Dendroalsia abietina	trunks and limbs of oaks
DITRICHACEAE	
Ceratodon purpureus	On sunny bare soil open ground
ENCALYPTACEAE	
Encalypta vulgaris	soil over rock, sunny
FISSIDENTACEAE	
Fissidens sublimbatus	On sunny soil among rocks and clumps of grass
FUNARIACEAE	
Funaria hygrometrica	On moist to dry soil in rocky opening
Funaria muhlenbergii	Soil on rock
GRIMMIACEAE	
Grimmia laevigata	On sunny fully exposed rock
Grimmia leibergii	On shaded boulders
Grimmia montana	On exposed volcanic rock
Grimmia trichophylla	N-facing rock in full sun

Family and/or Scientific Name	Habitat and Substrate
HEDWIGIACEAE	
Hedwigia detonsa	On exposed rock
Pseudobraunia californica	On boulder in part shade
LESKEACEAE	
Claopodium whippleanum	On shaded bare soil, road banks
LEUCODONTACEAE	
Pterogonium gracile	On bark, base of coast live oak
MNIACEAE	
Epipterygium tozeri	On shaded, moist bare soil
ORTHOTRICHACEAE	
Orthotrichum lyellii	Epiphytic on oaks
Orthotrichum rupestre	On exposed boulders
POLYTRICHACEAE	
Polytrichum juniperinum	On bare shaded soil
Polytrichum piliferum	On bare shaded soil
POTTIACEAE	
Didymodon vinealis	On shaded rock
Syntrichia princeps	on sunny rock
Timmiella crassinervis	thin soil over rock
PTYCHOMITRIACEAE	
Ptychomitrium gardneri	On sunny and shady boulders
RHABDOWEISIACEAE	
Amphidium californicum	On shaded rock overhang
SELIGERIACEAE	
Dicranoweisia cirrata	On shaded, fallen oak limb
LIVERWORTS and HORNWORTS	
ANTHOCEROTACEAE	
Anthoceros sp.	On moist soil
AYTONIACEAE	
Asterella bolanderi	Patches of moist bare soil among rocks

Family and/or Scientific Name	Habitat and Substrate
CEPHALOZIELLACEAE	
Cephaloziella divaricata	damp shady areas among rocks
FOSSOMBRONIACEAE	
Fossombronia longiseta	On sunny soil in grassy area
PORELLACEAE	
Porella navicularis	On shaded limbs and bark of oaks
TARGIONIACEAE	
Targionia hypophylla	On shaded soil
LICHENS	
Cladonia chlorophaea	On rock outcrops
Cladonia coniocraea	On shaded bare soil
Cladonia fimbriata	on shaded soil with mosses
Cladonia furcata	mossy covered rock
Collema furfuraceum	On shaded trunk of coast live oak
Evernia prunastri	Epiphytic on oak branches
Flavorparmelia caperata	limbs and bark of oaks
Flavopunctelia flaventior	limbs and bark of oaks
Hypogymnia imshaugii	On twigs of manzanita
Parmelia sulcata	On bark of oak and manzanita
Parmelina coleae (P. quercina)	On dead twigs of manzanita
Pertusaria amara	manzanita bark
Physcia sp.	On twigs of oak
Platismatia glauca	manzanita and oak branches
Pseudocyphellaria anthraspis	On bark of oaks
Psora californica	on rocks
Ramalina farinacea	On branches and bark of oak
Ramalina menziesii	On branches of oak
Teloschistes chrysophthalmus	oak twigs
Tuckermannopsis chlorophylla	On dead twigs of manzanita
Tuckermannopsis merrillii	On dead twigs of manzanita
Tuckermannopsis orbata	On sunny twigs of manzanita
Umbilicaria phaea	On exposed volcanic rock
Usnea arizonica	On branches of oak and manzanita
Usnea hirta	on oak branches
Usnea subfloridana	on manzanita and oak twigs
Xanthoparmelia cumberlandii	on sunny rock
Xanthoria sp.	sunny rock

Appendix E: Wildlife Species Observed at the St Helena Project Site

Common Name	*Scientific Name*	Grassland (Block 1 and 2)	Coast live oak (Blocks 1 and 2)	Chamise chaparral (Block 1)	Black oak woodland (Outside Study Area)
Acorn woodpecker	*Melanerpes formicivorus*		X		
American crows	*Corvus brachyrhynchos*	X	X		
American robin	*Turdus migratorius*				X
Anna's hummingbird	*Calypte anna*	X	X	X	X
Bewick's wren	*Thryomanes bewickii*		X	X	
Black phoebe	*Sayornis nigricans*		X		
Botta's pocket gopher	*Thomomys bottae*		X		
Broad-footed mole	*Scapanus latimanus*				X
Brown creeper	*Certhia americana*		X		X
bushtit	*Chamaea fasciata*		X		
California quail	*Callipepla californica*				
California quail	*Callipepla californica*		X	X	
California towhee	*Melozone crissalis*		X	X	X
Chestnut-backed chickadee	*Poecile rufescens*		X		X
Cooper's hawk	*Accipiter cooperi*				X
Dark-eyed junco	*Junco hyemalis*		X		X
Dusky-footed woodrat	*Neotomas fuscipes*		X		
Grey fox (scat)	*Urocyon cinereoargenteus*				X
Mule deer	*Odocoileus hemionus*		X		X
Oak titmouse	*Baeolophus inornatus*		X		X
Pacific slope flycatcher	*Empidonax difficilis*		X		X
Pileated woodpecker	*Dryocopus pileatus*				X
Red-tailed hawk	*Buteo jamaicensis*				
Spotted towhee	*Pipilo maculatus*		X		X
Stellar's jay	*Cyanocitta stelleri*		X	X	X
Striped skunk (grubbings)	*Mephitis mephitis*	X		X	
Striped skunk (sign)	*Mephitis mephitis*		X		
treefrog	*Pseudacris sierrae*		X		
Turkey vulture	*Cathartes aura*				
Western fence lizard	*Sceloporus occidentalis*	X	X	X	
Western rattlesnake	*Crotalus oreganus*	X			
Western scrub jay	*Aphelocoma californica*				
White-breasted nuthatch	*Sitta carolinensis*		X		
White-tailed kite	*Elanus leucurus*				X
Wrentit	*Chamaea fasciata*			X	

Appendix F: Schematic for Rocket Box for Replacement Habitat for Roosting Bats

March 2005

Two-chamber Rocket Box Bat House Plans

Merlin Tuttle
Bat Conservation International

Mark Kiser
Bat Conservation International

Selena Kiser
Bat Conservation International

Two-chamber Rocket Box

Materials (makes one house)

2" diameter (2⅜" outside diameter) steel pole, 20' long
Two 1" x 4" (¾" x 3½" finished) x 8' boards*
Two 1" x 8" (¾" x 7¼" finished) x 8' boards*
Two 1" x 10" (¾" x 9¼" finished) x 6' boards*
24" x 24" x ¾" piece of AC exterior plywood
Box of 100 exterior-grade screws, 1⅝"
Box of 100 exterior-grade screws, 1¼"
16 to 32 exterior-grade screws, 2"
20 to 30 roofing nails, ⅞"
One quart water-based primer, exterior grade
Two quarts flat, water-based stain or paint, exterior grade
Asphalt shingles or dark galvanized metal
One tube paintable latex caulk
Two ¼" x 4½" carriage bolts, washers and nuts

** Western red cedar or poplar preferred*

Recommended tools

Table saw or circular saw
Caulk gun
Hammer
Tape measure
Square
Jigsaw, keyhole saw or router
Sandpaper or sander
Rasp or wood file
Variable-speed reversing drill
1½" hole saw or spade bit
⅛" and ¼" drill bits
Screwdriver bit for drill

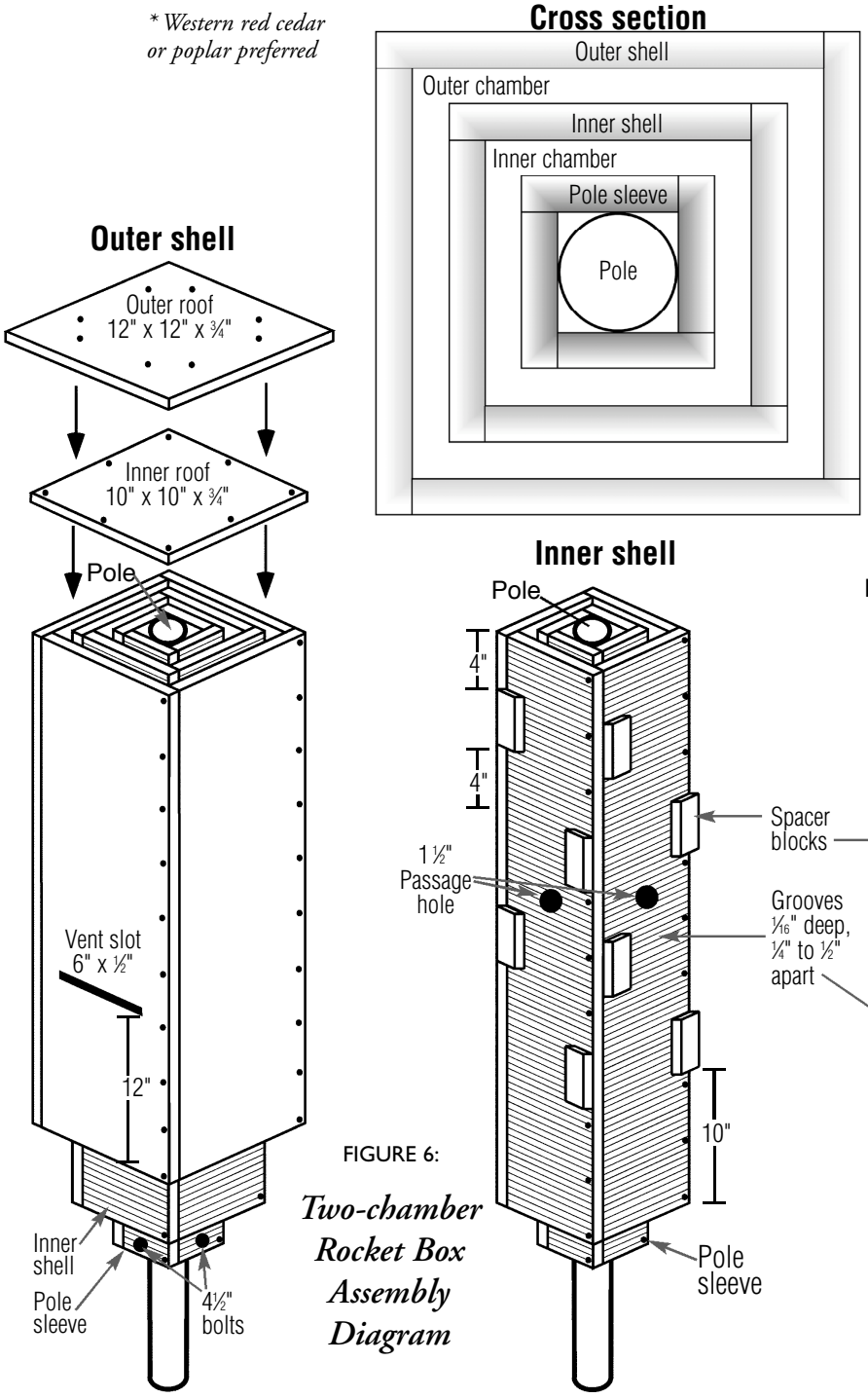


FIGURE 6:

Two-chamber Rocket Box Assembly Diagram

Construction

1. Measure, mark and cut out parts according to Figure 7. Dimensions must be exact for correct fit. Cut out two vent slots and four passage holes as shown.
2. Cut 1/16"-deep horizontal grooves ¼" to ½" apart on one side of all 36" and 45" boards and on both sides of all 42" boards. Sand to remove splinters.
3. Drill two ⅛" holes through each ¾" x 1½" x 4" spacer block to prevent splitting.
4. Assemble four pole sleeve boards into a hollow, square box as shown using 1⅝" screws and caulk. Pre-drill holes to prevent splitting. Countersinking holes may also help.

5. Attach spacer blocks to pole sleeve as shown (four per side) using two 1¼" screws per block. Bottom spacer blocks are 9" up from bottom of pole sleeve. Top spacer blocks are 5" from top. Alternate spacer blocks on left and right sides, 5" apart.
6. Assemble four inner shell boards into a hollow, square box as in step 4.
7. Slide pole sleeve into inner shell until top edges are flush. Bat passage holes will be towards the top. Mark location of spacer blocks. Secure inner shell to pole sleeve with 2" screws through the spacer blocks to ensure no screws protrude into roosting chambers. Pre-drill holes first to avoid splitting spacer blocks (countersinking holes may also help).
8. Attach spacer blocks (4 per side) to inner shell as shown, using two 1¼" screws per block. Bottom spacer blocks are 10" up from the bottom edge of the inner shell. Top spacers are 4" from top. Alternate spacers left and right sides, 4" apart.
9. Assemble four outer-shell boards into a hollow, square box as in step 4. Vent slots are on opposing sides and oriented towards the bottom.
10. Slide finished outer shell over inner shell, so that 6" of inner shell protrudes below outer shell. Mark locations of spacer blocks. Secure outer shell to inner shell as in step 7 (pre-drill holes first). Ensure that no screws protrude into the roosting chambers.
11. Caulking first, attach inner roof to box with 1¼" screws. Carefully drive screws into top edges of shells to prevent screws from entering roosting chambers.
12. Center and attach outer roof to inner roof with 1¼" screws, caulking first.
13. Paint or stain exterior three times (use primer for first coat). Cover roof with shingles or dark galvanized metal.
14. Slide completed rocket box over pole. One inch up from the bottom edge of pole sleeve, drill a ¼" hole all the way through pole and sleeve. Rotate box and pole 90° and drill another ¼" hole, 2 inches from the bottom, through pole and sleeve. Secure box to pole with two 4½" bolts, washers and nuts. Orient vent slots north and south during installation.

Optional modifications to the rocket box

1. For extra mounting height, insert a 4½" bolt and nut about halfway up through pole sleeve after completing step 5.
2. For extra heat-holding capacity, create a compartment in upper half of pole sleeve with a 2½"-square piece of leftover plywood. Fill upper half of sleeve with sand, gravel or dirt, and seal with another piece of plywood flush with top.
3. In warmer climates, a larger outer roof with more overhang can be used for additional shading.

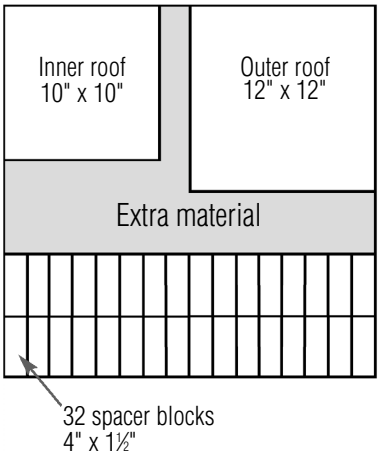
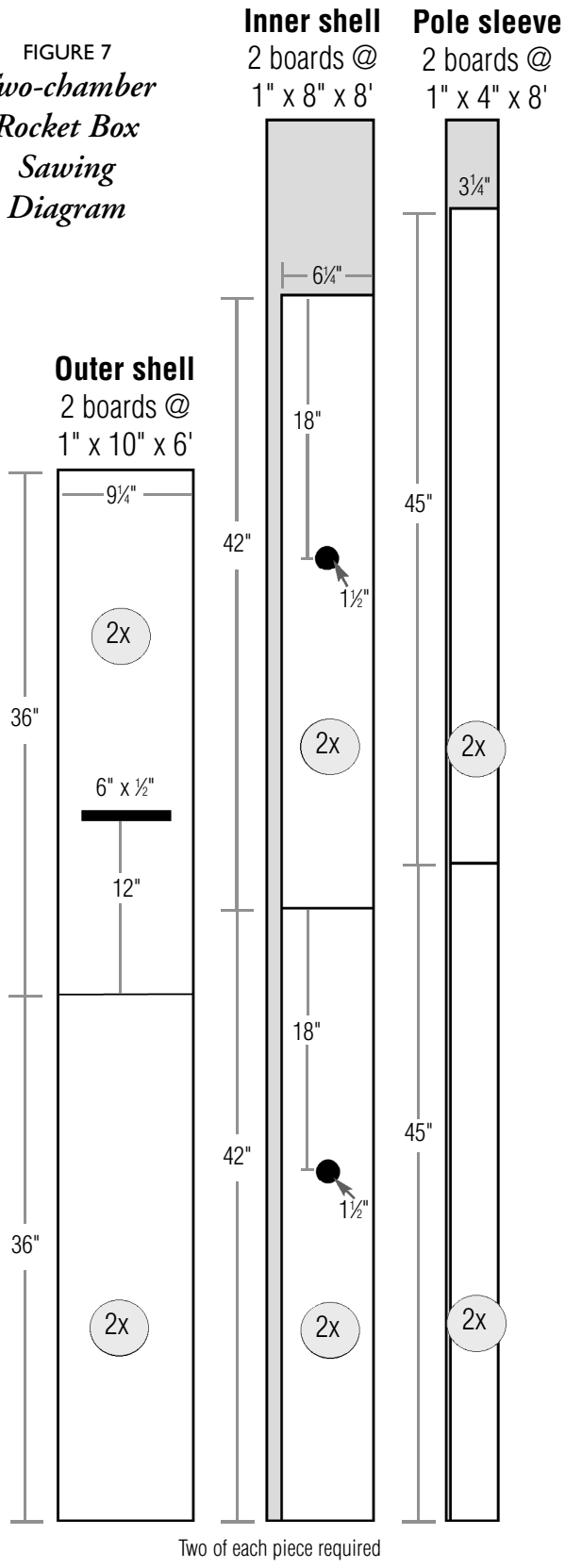
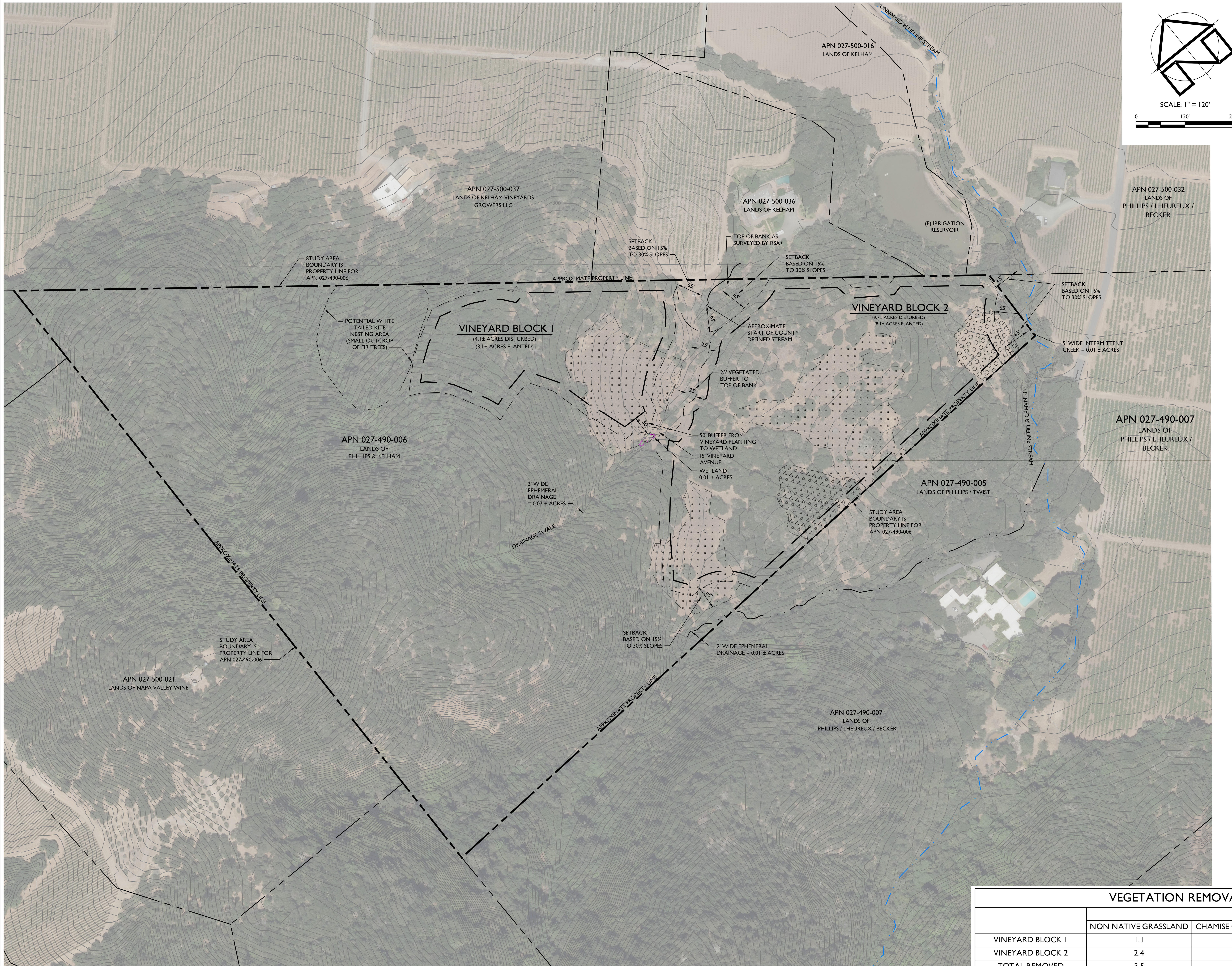


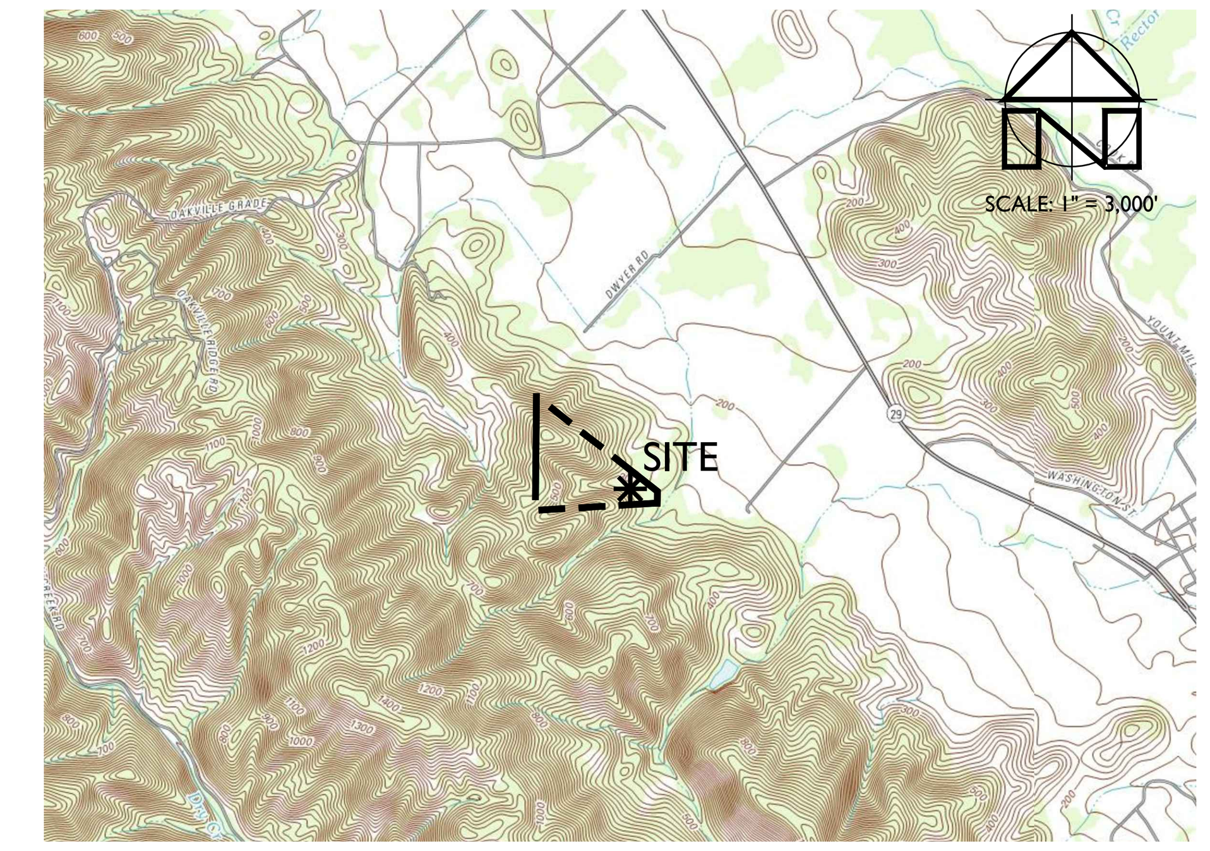
FIGURE 7
Two-chamber Rocket Box Sawing Diagram



TRUST VINEYARD PARTNERS

VINEYARD PLANNING EXHIBIT





LOCATION MAP

SCALE: 1" = 3,000'

PROJECT INFORMATION:

CLIENT:

TRUST VINEYARD PARTNERS
CARE OF:
BRUCE PHILLIPS & BILL KELHAM
POST OFFICE BOX 2066
YOUNTVILLE, CA 94599

SURVEY NOTES:

1. FADED BACKGROUND REPRESENTS EXISTING TOPOGRAPHIC FEATURES. TOPOGRAPHIC INFORMATION WAS TAKEN FROM THE NAPA COUNTY GEOGRAPHIC INFORMATION SYSTEM DATABASE. APPLIED CIVIL ENGINEERING INCORPORATED ASSUMES NO LIABILITY REGARDING THE ACCURACY OR COMPLETENESS OF THE TOPOGRAPHIC INFORMATION.
2. AERIAL PHOTOGRAPHS WERE OBTAINED FROM THE SAN FRANCISCO ESTUARY INSTITUTE (SFEI) SAN FRANCISCO BAY AREA ORTHOPHOTOS DATABASE, DATED JUNE 2014 AND MAY NOT REPRESENT CURRENT CONDITIONS.
3. CONTOUR INTERVAL: FIVE (5) FEET, HIGHLIGHTED EVERY TWENTY FIVE (25) FEET.
4. BENCHMARK: NAVD 88
5. THE PROPERTY LINES SHOWN ON THESE PLANS DO NOT REPRESENT A BOUNDARY SURVEY. THEY ARE VERY APPROXIMATE AND ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

LEGEND:

- APPROXIMATE PROPERTY LINE
- BLUELINE STREAM
- COUNTY DEFINED STREAM
- NEW VINEYARD AVENUE
- NEW VINEYARD BLOCK
- POTENTIAL WETLAND AREA = 0.01 ± ACRES
- COAST LIVE OAK WOODLAND (LEFT UNHATCHED FOR CLARITY): COAST LIVE OAK WOODLAND (38.02± ACRES) LEFT UNHATCHED FOR CLARITY. ASSUME COAST LIVE OAK WOODLAND FOR ALL AREAS NOT HATCHED WITHIN THE SUBJECT PARCEL.
- NON NATIVE GRASSLAND (4.0± ACRES)
- CHAMISE CHAPARRAL (0.5± ACRES)
- EXISTING DEVELOPMENT AREA (0.4± ACRES)

VEGETATION REMOVAL AND RETENTION SUMMARY

	AREA REMOVED BY VEGETATION TYPE				
	NON NATIVE GRASSLAND	CHAMISE CHAPARRAL	COAST LIVE OAK WOODLAND	EXISTING DEVELOPMENT	TOTAL
VINEYARD BLOCK 1	1.1	0.0	3.0	0.0	4.1
VINEYARD BLOCK 2	2.4	0.5	6.4	0.4	9.7
TOTAL REMOVED	3.5	0.5	9.4	0.4	13.8
*TOTAL ON APN 027-490-006	4.0	0.5	38.0	0.4	42.9
% RETAINED	13%	0%	75%	0%	

* THE VEGETATION COVER FOR THE DRAINAGE AND WETLAND AREAS ARE INCLUDED IN THE OVERALL ACREAGE FOR THE VEGETATION TYPE.

VINEYARD PLANNING EXHIBIT
SCALE: 1" = 120'

APPLIED CIVIL ENGINEERING INCORPORATED
2074 West Lincoln Avenue
Napa, CA 94558
(707) 320-4968 (707) 320-2395 Fax
www.appliedcivil.com

TRUST VINEYARD PARTNERS
VINEYARD PLANNING EXHIBIT

PREPARED UNDER THE DIRECTION OF:

REGISTERED PROFESSIONAL ENGINEER MICHAEL R. MUELRATH CIVIL STATE OF CALIFORNIA
PRELIMINARY NOT FOR CONSTRUCTION

DRAWN BY: SMI / BT DRAFTING
CHECKED BY: MRM
DATE: MARCH 2019
REVISIONS: BY:

JOB NUMBER: 18-110
FILE: 18-110ECP-VDP 120.DWG
ORIGINAL SIZE: 24" X 36"
SHEET NUMBER: C1 OF 1