DRAFT ENVIRONMENTAL IMPACT REPORT

Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas and Construction and Operation of Recreational Amenities Project

SCH no. 2017112054







PREPARED FOR

County of Sonoma, Natural Resources Section
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December 2019

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Draft Environmental Impact Report
for the
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Prepared for:

COUNTY OF SONOMA

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EXECUTIVE SUMMARY

Introduction

The County of Sonoma (County) has prepared this environmental impact report (EIR) to provide the public and responsible agencies information about the potential adverse effects on the local and regional environment associated with the proposed Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas and Construction and Operation of Recreational Amenities Project (proposed project). This Draft EIR has been prepared pursuant to the California Environmental Quality Act (CEQA) of 1970 (as amended), codified at California Public Resources Code Section 21000 et seq., and the CEQA Guidelines in the California Code of Regulations, Title 14, Section 15000 et seq.

Publication of the EIR marks the beginning of the 45-day public review period, during which written comments regarding the adequacy of this EIR may be submitted to the County's project planner:

Richard Stabler, Senior Environmental Specialist
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Following the close of the public review period, the County will prepare a Final EIR, which will include responses to all substantive comments received during the EIR public review period and any necessary changes or adjustments to the text and analysis in the Draft EIR. The County may use this EIR to approve or modify the proposed project, make findings regarding identified impacts, and if necessary, adopt a Statement of Overriding Considerations regarding these impacts.

Project Description

Project Location

The proposed project site is located on the approximately 500-acre Bordessa Ranch property, at 17000 Valley Ford Cutoff, in unincorporated Sonoma County, west of the town of Valley Ford (Figure 2-1, Regional Location). The project site is located approximately one mile south of Bodega, California, and approximately 2.5 miles west of Valley Ford. The Bordessa Ranch property is bordered by State Route 1 (SR 1) on the north and extends to the Estero Americano (Estero) on its south, encompassing rolling hills and two prominent knolls. Existing adjacent land uses are mostly rural agricultural with the Sonoma Coast Villa Resort & Spa located across SR 1 generally north of the site.

Project Overview

In 2012, the Sonoma County Agricultural Preservation and Open Space District (District) purchased a conservation easement (Conservation Easement) and trail easement (Trail Easement) over property owned by Alfred and Joseph Bordessa (Bordessa Ranch). The purpose of the Conservation Easement is to preserve and protect the conservation values of the property, including natural resources, habitat connectivity, open space and scenic views, agricultural resources, and recreation and education. The purpose of the Trail Easement is to ensure that trail corridors and associated staging areas are established and made available to the public in perpetuity for low-intensity public outdoor recreational and educational purposes consistent with the purpose of the Conservation Easement to preserve and protect natural resources, habitat connectivity, open space and scenic views, and agricultural resources.

The District is proposing to designate trail corridors and associated staging (parking) areas pursuant to the Trail Easement and consistent with the Conservation Easement. Under the terms of the Trail Easement, the District must designate and survey the precise locations of two 50-foot-wide pedestrian-only trail corridors, cumulatively not to exceed 5 miles in length, and two staging areas, not to exceed 1.5 acres in total combined area. Upon designating and surveying the trail corridors and associated staging areas, the District anticipates conveying the Trail Easement to the County, which would then be responsible for developing recreational amenities as provided in the Trail Easement and subject to the Conservation Easement, which the District would retain.

The proposed project would establish two pedestrian/hiker-only trail corridors with associated staging areas (trailheads/parking lots) that would allow for low-intensity public access to pursue outdoor, recreational, and educational uses. As outlined in the Trail Easement, future uses may include hiking, nature study, bird watching, sightseeing, picnicking, outdoor education, docent-led tours, scientific research and observation, and other similar uses. Allowable uses may also include limited, seasonal walk-in access to the Estero for pedestrians and hand-carried, non-motorized boats, such as kayaks and canoes.

Project Objectives

The project objectives include the following:

- Provide public access to the Trail Corridors and Staging Areas in perpetuity for low-intensity public outdoor recreational and educational purposes in accordance with the District's Grant Agreement with the California Coastal Conservancy, dated May 3, 2012 (Agreement No. 11-063).

- Provide public access within the Trail Easement area consistent with the preservation of natural resources and habitat connectivity; open space and scenic views; and existing agricultural resources.
- Create public access pedestrian-only trails that provide a broad public benefit for all ages and cultures and users of varying abilities.
- Provide pedestrian-only trails to support interactive educational experiences.
- Provide pedestrian-only trails that balance resource protection with high quality public access and maximize sensitive resource protection.
- Design pedestrian-only trails in accordance with appropriate trail standards, including the California Department of Parks and Recreation's Trails Handbook (1991, revised 2019) and Accessibility Guidelines (2105) and the California Department of Conservation and Recreation Trails Guidelines and Best Practices Manual (2010).
- Provide pedestrian-only trails to a unique and inspiring landscape that promote and enhance public enjoyment and appreciation of the natural, cultural and scenic resources on the property.

Comments Received in Response to the Notice of Preparation

The NOP for this Draft EIR was released on November 20, 2017, and the public comment period closed on December 20, 2017. The County received a total of nine letters; four comment letters were received from the public and one from an attorney. Comment letters received from four public agencies include from the United State Department of Commerce, Greater Farallones National Marine Sanctuary, California State Coastal Conservancy, California Department of Transportation, and the Sonoma County Farm Bureau. A brief overview of the primary concerns raised in the NOP comment letters is included the Introduction of each technical section in Chapter 3. Some of the letters raised concerns that included the potential for an increase in vandalism, litter, trespassing, and illegal fires as well as the potential for conflicts between trail users and cattle. These comments are not relevant to the EIR, but have been addressed in chapter 3 to the extent possible and have been provided to the decision-makers for their review. The purpose of the NOP process is to solicit input from public agencies and the public on the scope of the EIR analysis. Opinions on the merits of the project are noted, but are not considered relevant for the purposes of defining the scope of the analysis. All of the NOP comment letters received are included in Appendix A.

Environmental Impacts and Mitigation Measures

Table ES-1 presents a summary of potential environmental impacts that could result from the project. Only impacts identified as potentially significant or significant requiring mitigation are listed.

For each significant impact, the table indicates the level of significance after mitigation. Please refer to Chapter 3, Environmental Analysis, in this EIR for a complete discussion of each impact. A reporting and monitoring program for all mitigation measures identified in this EIR would be prepared in accordance with the requirements of Public Resources Code Section 21081.

The proposed project, if implemented, could result in significant adverse environmental impacts. Mitigation measures proposed as part of the project, as well as measures identified by this EIR, would avoid or reduce all impacts to a less-than-significant level.

Table ES-1
Summary of Potential Environmental Impacts

Impact	Mitigation Measures	Level of Significance After Mitigation
3.1 Aesthetics		
3.1-1 Implementation of the proposed project may have a substantial adverse effect on a scenic vista.	No mitigation measures are required.	LTS
3.1-2 Implementation of the proposed project would not substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway.	No mitigation measures are required.	LTS
3.1-3 Implementation of the proposed project would not substantially degrade the existing visual character or quality of public views of the site and its surroundings.	No mitigation measures are required.	LTS
3.1-4 Implementation of the proposed project would not potentially create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.	No mitigation measures are required.	LTS
3.1-5 The proposed project would not contribute to significant cumulative changes in the existing visual character of the area, including the introduction of light and glare.	No mitigation measures are required.	LTS
3.2 Agricultural Resources		
3.2-1 The proposed project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use.	No mitigation measures are required.	LTS
3.2-2 The proposed project would not conflict with existing zoning for agricultural use.	No mitigation measures are required.	LTS

Table ES-1
Summary of Potential Environmental Impacts

Impact	Mitigation Measures	Level of Significance After Mitigation
3.2-2 The proposed project would not involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use.	No mitigation measures are required.	LTS
3.2-3 The proposed project would introduce trail users in close proximity to cattle grazing that could result in potential conflicts and may contribute to the potential for crop contamination.	No mitigation measures are required.	LTS
3.2-4 The proposed project would not contribute to cumulative impacts associated with the loss or conversion of existing agricultural resources.	No mitigation measures are required.	LTS
3.3 Air Quality		
3.3-1 Implementation of the proposed project may conflict with or obstruct implementation of the applicable air quality plan.	No mitigation measures are required.	LTS
3.3-2 Implementation of the proposed project may result in a cumulatively considerable net increase of any criteria pollutant for which the proposed project region is non-attainment under an applicable federal or state ambient air quality standard.	No mitigation measures are required.	LTS
3.3-3 Implementation of the proposed project could expose sensitive receptors to substantial pollutant concentrations.	No mitigation measures are required.	LTS
3.3-4 The proposed project could contribute to cumulative air quality emissions within the existing area. The contribution would not be considerable.	No mitigation measures are required.	LTS

Table ES-1
Summary of Potential Environmental Impacts

Impact	Mitigation Measures	Level of Significance After Mitigation
3.4 Biological Resources		
3.4-1 The proposed project could have a substantial adverse effect on species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.	**BIO-1 Worker Environmental Awareness Training.** All construction workers shall receive a worker environmental awareness training (WEAT) to be conducted by a qualified biologist. The WEAT may also be conducted through a video or Powerpoint presentation created by a qualified biologist specifically for this project. The WEAT shall instruct workers on how to recognize all special-status plant/wildlife species and their preferred habitat potentially present in the project site, applicable laws and regulations regarding each species, actions to take if a special-status species is observed during construction activities including the name/contact information of the monitoring biologist, and the nature and purpose of protective measures including best management practices (BMPs) and other required mitigation measures. They shall also be instructed as to sensitive resource areas, including wetlands and waters of the U.S., to avoid within the project site other than where impacts have been authorized, and relevant laws and regulations for each resource. **BIO-2 Trail Alignment Fencing and Interpretive Signage.** To minimize the potential for direct and indirect impacts to sensitive biological resources occurring on the project site by recreational users venturing off-trail, and to help keep visitors contained within the trail alignments, exclusionary fencing may be used in strategic areas to protect sensitive resources. Specifically, the purpose of the fencing shall be to avoid/minimize the following associated with off-trail use by visitors: (1) trampling and disturbance to on-site special-status plant populations; (2) harassment, disturbance, injury and/or mortality to on-site special-status wildlife species; (3) sedimentation, erosion, or other degradation to the on-site ponds, drainages, and other aquatic/riparian features; and (4) disturbances to nesting native bird species. As stated in Chapter 2, project description, new or re-located fencing and gates would also be designed to accommodate cattle grazing as well as to minimize conflicts between trail users, cattle grazing, and ranch activities. To accommodate the ability of cattle to access various areas within the Bordessa property, fencing shall not extend the entire length of the trail alignments, but would focus on areas of the trails adjacent to sensitive biological habitats or areas where special-status plant and/or wildlife species are known to occur.	LTS

Table ES-1
Summary of Potential Environmental Impacts

Impact	Mitigation Measures	Level of Significance After Mitigation
	The fencing design (including openings to accommodate cattle), extent, location, and overall construction of the fence shall be at the discretion of County Regional Parks Department in coordination with the Bordessa Ranch landowners, the Sonoma County Agricultural and Preservation Open Space District (District), and a qualified biologist. The fence shall be visually appealing and harmonize with the general landscape (e.g., wooden buck or post/rail type fences) and not detract from the overall visitor experience while discouraging off-trail use. The fence design shall also provide for the ability of wildlife species to move through or over the fencing such that movement perpendicular to the fencing would not be adversely inhibited. A fencing design plan that addresses the design and location factors discussed above shall be prepared prior to project construction and shall be approved by the County Regional Parks Department with review by the Bordessa Ranch landowners, the District, and a qualified biologist with expertise on the species and ecosystems on the property. As discussed in Chapter 2, Project Description, interpretive signage would be provided in the staging areas, at the trailheads, at vista points along the trails, and at the Estero; additional interpretive signage providing information about sensitive plant and wildlife species would also be provided at key locations along the trails. Signage content addressing sensitive plant and wildlife species shall be prepared by the County Regional Parks Department in coordination with a qualified biologist. **BIO-3 American Badger.** To avoid/minimize direct and indirect impacts on American badger as a result of project implementation, the following measures shall be implemented: 1. Protocol-level surveys for American badger shall be completed within 30 days prior to construction to determine the locations of any active dens within 200 feet of proposed ground disturbance areas. Surveys shall consist of presence/absence surveys to determine if any winter or natal American badger dens occur within the project site. Potential badger burrows/dens located during the survey shall be evaluated (typically with remote cameras) to determine activity status. Surveys shall be performed by a qualified biologist familiar with badger life history and that possesses experience with identification of active badger burrows and badger activity patterns.	

Table ES-1
Summary of Potential Environmental Impacts

Impact	Mitigation Measures	Level of Significance After Mitigation
	2. Any natal dens determined to be used by American badger, as identified from the surveys, shall be avoided and a 100-foot buffer shall be established around the dens during ground disturbance activities until it is determined by the qualified biologist that the den is no longer active and the young are no longer dependent upon the den for survival. 3. If construction occurs during the non-breeding period (typically from June through February) and an active non-natal den is found to be within or immediately adjacent to the construction footprint, an attempt can be made by a qualified biologist to trap or flush the individual and relocate it to designated open space on the site. Trapping can only be conducted by a qualified biologist with the appropriate permits and credentials. After a trapping or flushing effort is completed, and/or after it is confirmed that a natal den is no longer active, the vacated den can be excavated and upon confirmation that the den is not occupied, the den can be collapsed and construction can proceed. **BIO-4 Special-Status Bats.** As described in Chapter 2, Project Description, all trail construction would be done by hand or with the use of small equipment. Construction of the access road and staging areas adjacent to the barn facility and outbuilding would require the use of heavy equipment such as graders. To ensure that the noise of such equipment would not adversely affect any maternity roosts that could occur within the barn or outbuilding, a pre-construction survey shall be conducted by a qualified bat biologist to determine if active maternity roosts exist within the barn or outbuilding. If maternity roosts are observed, and construction of the access road and/or staging areas adjacent to the barn or outbuilding would occur at the time the roosts are active, equipment emitting ultrasonic noise (i.e., those having frequencies above the range of human hearing >20 kilohertz [kHz]) shall be prohibited from the construction area until the maternity roost is no longer active, as determined by the qualified bat biologist. Alternatively, equipment that emits noise with frequencies <20 kHz can be used to grade and prepare the access road and staging areas adjacent to the barn and outbuilding. As previously noted, signage describing the sensitivity of biological resources shall be located at various key points along the trails. One located at the southern staging area might include interpretation of importance of bats and protected species and penalties for disturbance of species and habitat, reminding users of the importance of staying on designated trails. Fencing may also be used as necessary to keep users on trails and away from the barn, roosting bats, and ranching activities.	

Table ES-1
Summary of Potential Environmental Impacts

Impact	Mitigation Measures	Level of Significance After Mitigation
	BIO-5 Burrowing Owl. To avoid/minimize direct and indirect impacts on burrowing owls as a result of project implementation, the following measures shall be implemented: 1. Protocol-level surveys for burrowing owls shall be conducted 30 days prior to scheduled construction activity that is conducted during the breeding season (March through August) to determine whether burrowing owls are present on site and, if so, their breeding status. Surveys shall be conducted by a qualified biologist with experience conducting such surveys. 2. If during the surveys burrows are observed being used by non-nesting burrowing owls within the construction footprint, construction work shall cease until owls are evacuated from any such burrow using a California Department of Fish and Wildlife-approved burrow closure procedure in accordance with the California Department of Fish and Game "Staff Report on Burrowing Owl Mitigation" (CDFW 2012) and by a qualified biologist. Once owls from any such burrow have been successfully evacuated, the burrow can be collapsed and construction work can proceed. 3. If nesting burrowing owls are observed during these surveys, construction work within 300 feet of active nest burrows shall be delayed until young have fledged and are independent of the nest burrow, as determined by a qualified biologist. The qualified biologist may reduce the 300-foot setback based on the type, timing, extent, and intensity of the construction activity and other factors such as site topography and vegetation cover between the construction activity and the burrow. Once any young have fledged and are no longer dependent upon the nest burrow, the same burrow closure procedure described above shall be used to confirm the burrow is inactive before ground disturbance activities can continue near the burrow. **BIO-6 Native Nesting Birds.** To avoid/minimize direct and indirect impacts on nesting birds within or adjacent to the proposed trail alignments as a result of project implementation, the following measures shall be implemented: 1. A nesting bird survey shall be completed by a qualified biologist no earlier than two weeks prior to construction of the trails and associated infrastructure during the nesting season for most	

Table ES-1
Summary of Potential Environmental Impacts

Impact	Mitigation Measures	Level of Significance After Mitigation
	bird species in this region (March 1-August 30) to determine if any native birds are nesting within 300 feet of the proposed disturbance area (500 feet for raptors). 2. If any active nests are observed during surveys, a suitable avoidance buffer from the nests shall be determined by the qualified biologist. The avoidance buffer distance shall consider such factors as the species of bird, topographic features, intensity and extent of the disturbance, timing relative to the nesting cycle, and anticipated ground disturbance schedule. Limits of construction to avoid active nests shall be established in the field with flagging, fencing, or other appropriate barriers and shall be maintained until the chicks have fledged and the nests are no longer active, as determined by the qualified biologist. 3. If ground-disturbing activities are delayed, then additional pre-disturbance surveys shall be conducted such that no more than 7 days elapse between the survey and ground-disturbing activities. Any woody vegetation (shrubs and trees) needing removal for trail construction shall be removed, as feasible, outside of the bird nesting season (Sept. 1 – Feb. 31) to avoid impacts to nesting birds. **BIO-7 Short-eared owl, Northern Harrier, White-tailed kite, Yellow Warbler, Bryant's savannah sparrow, Grasshopper sparrow, Saltmarsh common yellow-throat.** To avoid/minimize direct and indirect impacts on these special-status bird species within or adjacent to the proposed trail corridors as a result of project implementation, the following measure shall be implemented: 1. The nesting bird survey described in Mitigation Measure BIO-6 shall include searches for short-eared owl, northern harrier, white-tailed kite, yellow warbler, Bryant's savannah sparrow, grasshopper sparrow, and saltmarsh common yellow-throat if construction and ground disturbance activities will occur during the nesting season of these species. If active nests are located during the surveys, the same avoidance/minimization measures described in this measure shall also be implemented. **BIO-8 California Red-legged Frog.** To avoid/minimize direct and indirect impacts to California red-legged frog (CRLF) within or adjacent to the proposed trail corridors as a result of project implementation, the following measures shall be implemented:	

Table ES-1
Summary of Potential Environmental Impacts

Impact	Mitigation Measures	Level of Significance After Mitigation
	1. Exclusion fencing shall be installed around any trail construction and associated work areas that occur within 100 feet of suitable CRLF aquatic habitat (including Ponds 1-4 and ID-01 and ID-02) to prevent CRLF from entering the work area. In addition, siltation fences shall be installed along the aquatic features to minimize siltation and/or erosion into the features during construction. 2. During any construction work conducted within 100 feet of suitable CRLF habitat, a qualified biologist shall be on site to monitor the work effort and conduct regular surveys within the 100-foot setback area, including potential upland refugia habitat, in search of individual CRLF. If CRLF are observed within the buffer areas, work shall be postponed until either (1) the frogs move away from that location on their own, or (2) the frogs are removed and relocated to a safe location by a qualified biologist that possesses a 10(a)1(a) Recovery permit and has approval from USFWS. **BIO-9 Western Pond Turtle.** To avoid/minimize direct and indirect impacts to western pond turtle within or adjacent to the proposed trail alignments as a result of project implementation, the following measures shall be implemented: 1. Exclusion fencing shall be installed around any trail construction and associated work areas that occur within 100 feet of suitable western pond turtle (WPT) aquatic habitat (including Ponds 1-4 and ID-01 and ID-02) to prevent WPT from entering the work area. In addition, siltation fences shall be installed along the aquatic features to minimize siltation and/or erosion into the features during construction. 2. During any construction work occurring within 100 feet of suitable WPT habitat, a qualified biologist shall be on site to monitor the work effort and conduct regular surveys within the 100-foot setback area in search of individual CRLF. If WPT are present within the buffer areas, work shall be postponed until either (1) the turtles move away from that location on their own, or (2) the turtles are removed and relocated to a safe location within the project site by a qualified biologist. 3. Because WPT use upland grassland habitat near aquatic habitat (typically within 325 feet of aquatic sites) for nesting and aestivation, a pre-construction survey for WPT shall be conducted by a qualified biologist prior to any ground disturbance activities occurring within suitable nesting/aestivation habitat (as determined by the biologist)	

Table ES-1
Summary of Potential Environmental Impacts

Impact	Mitigation Measures	Level of Significance After Mitigation
	within 325 feet of these aquatic sites. If active nesting and/or aestivation sites are identified, these areas shall be avoided during construction activities. If avoidance is not possible, the nest and/or turtle should be removed by a qualified biologist and relocated to an appropriate location within the project site. **BIO-10 Myrtle's Silverspot Butterfly.** To avoid/minimize direct and indirect impacts to Myrtles's silverspot butterfly, in particular its host plant western dog violet, within or adjacent to the proposed trail corridors as a result of project implementation, the following measures shall be implemented: 1. To avoid/minimize impacts to Myrtle's silverspot butterfly, a pre-construction survey shall be performed no sooner than 30 days prior to the onset of construction to identify the presence of western dog violet along both trail corridors, and staging areas. 2. If any western dog violet plants are observed within areas proposed for ground disturbance, they shall be marked with pin flags and surveyed to determine if any silverspot butterfly eggs, larva or pupa are attached to the plants. If any of these life stages of the butterfly are observed attached to the plants, the plants shall be avoided until the pupa has metamorphosized into adult butterflies and are no longer attached to the host plants. If avoidance of host plants is not considered possible, a qualified botanist shall be consulted to prepare a translocation plan to transplant the plants, once any pre-adult life stages of the butterfly are determined not to be present, to a suitable location on the project site. The plan shall contain, at a minimum, the following: (a) goals and objectives of the transplantation; (b) methods of collection and transplantation; (c) location of the area(s) on site in which the plants will be transplanted; (d) monitoring methods and timing; (e) success criteria; and (f) measures to be taken in the event that the transplantation is not successful. In addition, the plan shall be approved by the County and by the USFWS since this butterfly species is federally-listed as endangered. **BIO- 11 Special-Status Plants.** To avoid/minimize direct and indirect impacts to special-status plant populations within or adjacent to the proposed trail corridors as a result of project implementation, the following measures shall be implemented:	

Table ES-1
Summary of Potential Environmental Impacts

Impact	Mitigation Measures	Level of Significance After Mitigation
	1. Prior to construction of the trails, a qualified botanist shall conduct surveys during the appropriate blooming period for potentially occurring special-status plant species. The purpose of the survey shall be to delineate and flag populations of special-status plant species for avoidance. Special-status plant populations identified during the pre-construction survey shall be mapped using a hand-held GPS unit and the final trail design shall be modified, where possible, to avoid these plant populations. Plant populations including a 10-foot buffer shall be temporarily fenced during construction activities with high-visibility fencing or prominently flagged. If complete avoidance of populations is infeasible, further measures, as described below, shall be necessary. 2. If avoidance of special-status plant species is not feasible, and to mitigate for 0.27 acres of occupied congested-headed hayfield tarplant habitat within areas of proposed disturbance, prior to ground disturbance, a Rare Plant Salvage and Translocation Plan shall be prepared by a qualified botanist and approved by the County prior to implementation. Because congested-headed hayfield tarplants are an annual species that reproduce from seed on an annual basis, recommended salvage methods include seed collection and/or top soil salvage. The Rare Plant Salvage and Translocation Plan shall include, at a minimum, the following: a) Identification of occupied habitat to be preserved and removed; b) Identification of on-site or off-site preservation, restoration, or enhancement locations; c) Methods for preservation, restoration, enhancement, and/or translocation; d) Goals and objectives; e) Replacement ratio and success standard of 1:1 for impacted to established acreage; f) A monitoring program to ensure mitigation success; g) Adaptive management and remedial measures in the events that the performance standards are not achieved; and h) Financial assurances and a mechanism for conservation of any mitigation lands required in perpetuity. If any other special-status plant species are located on the project site (as a result of additional plant surveys that may be conducted) in areas to be disturbed by the proposed project, a similar salvage and translocation plan shall be developed and implemented by a qualified botanist. However, if golden larkspur and/or two-fork clover, both federally-listed endangered species, are observed on the site during any future	

Table ES-1
Summary of Potential Environmental Impacts

Impact	Mitigation Measures	Level of Significance After Mitigation
	pre-construction surveys and are within areas to be disturbed, consultation with the USFWS may be required before any transplantation could occur.	
3.4-2 The proposed project could have a substantial adverse effect on riparian habitat and other sensitive natural communities identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.	**BIO-12 Arroyo Willow Riparian Habitat, Slough Sedge Sward, Purple Needlegrass, and Pickleweed Communities.** 1. The proposed trails and bridge crossings shall avoid all mapped riparian vegetation along the two on-site drainages. No ground disturbance activities shall occur within 100 feet of riparian habitat. Drainage crossings shall be elevated such that no riparian vegetation will be removed or disturbed. Prior to the initiation of ground disturbance activities upslope and within 100 feet of riparian habitat areas, sediment and erosion control measures shall be utilized that can include, but are not limited to, biodegradable straw wattles free from weed seed, silt fencing, hydroseeding, or biodegradable erosion control mats/blankets. 2. If riparian vegetation removal and/or disturbance to the bed, bank, or channel of the central drainage is necessary in order to install the drainage crossing, a Streambed Alteration Agreement (SAA), pursuant to Section 1602 of the California Fish and Game Code, shall be procured from the California Department of Fish and Wildlife (CDFW) prior to any disturbances to these areas. As part of the SAA, compensatory mitigation may be required to offset the loss of riparian habitat. If so, a mitigation plan shall be drafted by a qualified biologist to address implementation and monitoring requirements under the SAA to ensure that the project would result in no net loss of habitat functions and values. The plan shall contain, at a minimum, mitigation goals and objectives, mitigation location, a discussion of actions to be implemented to mitigate the impact, performance criteria, monitoring methods, and actions to be taken in the event that the mitigation is not successful. The plan shall be approved by the County, the District, and CDFW and compensatory mitigation shall take place either on site or at an appropriate off-site location as approved by the CDFW and the County at a ratio directed by the SAA. 3. A pre-construction survey shall be completed prior to the onset of construction to identify and quantify the number of slough sedge swards or purple needlegrass plants along or immediately adjacent to the proposed trail corridors that could be potentially removed or disturbed. If removal or disturbance of any of these plant communities would occur, a qualified botanist shall prepare a propagation and planting plan to offset the loss of any vegetation/plants to be	LTS

Table ES-1
Summary of Potential Environmental Impacts

Impact	Mitigation Measures	Level of Significance After Mitigation
	removed or disturbed. The plan shall contain, at a minimum the following components: (a) goals and objectives; (b) a description of the extent of plants/vegetation to be removed or disturbed; (c) plant collection, propagation, and planting methods; (d) locations on the project site in which the plants will be transplanted; (e) monitoring methods, timing, and performance criteria; (f) measures to be taken in the event that the propagation and planting is not successful; and (g) reporting requirements. The plan shall be approved by the County. Propagation and planting outside of the trail corridor(s) shall occur on a 1:1 basis to ensure no net loss of these sensitive natural communities. 4. The final installation/placement of the Estero access trail (East Trail) shall be determined by the County Regional Parks Department in coordination with a qualified biologist to avoid/minimize the placement of the matting over patches of pickleweed vegetation. Prior to installation, appropriate signage shall be placed at the beginning of the access trail and at appropriate locations along the trail prohibiting off trail use beyond the mudflat areas adjacent to the trail. The signage shall also include information on the sensitivity of pickleweed and marsh habitat areas and their ecological and biological value. 5. Implement Mitigation Measures BIO-1 and BIO-2.	
3.4-3 The proposed project could have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.	**BIO-13 Wetlands.** 1. The proposed trails and bridge crossings shall avoid all mapped jurisdictional wetland areas and waters of the U.S. Drainage crossings shall be elevated such that no wetland vegetation shall be removed or disturbed and no removal or fill of jurisdictional areas shall occur. Prior to the initiation of ground disturbance activities upslope and within 100 feet of wetland habitat areas, sediment and erosion control measures shall be utilized that can include, but are not limited to, biodegradable straw wattles free from weed seed, silt fencing, hydroseeding, or biodegradable erosion control mats/blankets. 2. If wetland areas or other waters of the U.S. under the jurisdiction of the ACOE shall be removed or filled in order to install drainage crossings, an individual or Nationwide permit from the ACOE shall be obtained prior to any ground disturbance that could result in fill or removal of wetlands or waters of the U.S. As part of the ACOE permit, compensatory mitigation may be required, at a ratio to be determined by the ACOE, to offset the loss of wetland/waters habitat. If so, and as part of the permit application process, a mitigation and monitoring plan (MMP) shall be drafted by a qualified	LTS

Table ES-1
Summary of Potential Environmental Impacts

Impact	Mitigation Measures	Level of Significance After Mitigation
	biologist to address implementation and monitoring requirements under the permit to ensure that the project would result in no net loss of habitat functions and values. The plan shall contain, at a minimum, mitigation goals and objectives, mitigation location, a discussion of actions to be implemented to mitigate the impact, monitoring methods and performance criteria, extent of monitoring to be conducted, actions to be taken in the event that the mitigation is not successful, and reporting requirements. The plan shall be approved by the County, District, and ACOE and compensatory mitigation shall take place either on site or at an appropriate off-site location as approved by the ACOE and the County. Concurrent with the 404 permit, that County shall also obtain a Water Quality Certification from the RWQCB, subject to the same mitigation plan requirements stated above. 3. Implement Mitigation Measures BIO-1 and BIO-2.	
3.4-4 The proposed project could interfere with the movement of native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.	No mitigation measures are required.	LTS
3.4-5 The proposed project could conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	No mitigation measures are required.	LTS
3.4-6 The proposed project could contribute to the cumulative loss of protected species and/or their habitats within Sonoma County.	No mitigation measures are required.	LTS
3.5 Cultural Resources		
3.5-1 Implementation of the proposed project could cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5.	**CUL-1 Discovery of Archaeological Resources.** All construction crews shall be alerted to the potential to encounter archaeological material. This may be implemented through a pre-construction meeting attended by a qualified archaeologist, as part of a Worker Environmental Awareness Program (WEAP), and/or providing appropriate cultural resources training handouts to personnel prior to initiating work. In the event that cultural resources (sites, features, artifacts, or fossilized material) are exposed during construction activities, all	LTS

Table ES-1
Summary of Potential Environmental Impacts

Impact	Mitigation Measures	Level of Significance After Mitigation
	construction work occurring within 100 feet of the find shall immediately stop until a qualified archeologist, meeting the Secretary of the Interior's Professional Qualification Standards, can evaluate the significance of the find and determine whether additional study is warranted. Depending upon the significance of the find under CEQA (14 CCR 15064.5(f); PRC Section 21082), the archaeologist may simply record the find and allow work to continue. Prior to any potentially destructive evaluation efforts such as excavation, the feasibility of resource avoidance should be first considered and discussed with the County. If the discovery proves significant under CEQA, additional work, such as preparation of an archaeological treatment plan, testing, or data recovery may be warranted.	
3.5-2 Implementation of the proposed project could disturb human remains, including those interred outside of formal cemeteries.	No mitigation measures are required.	LTS
3.5-3 Implementation of the proposed project could cause a substantial adverse change in the significance of a tribal cultural resource that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources, or a resource determined by the lead agency to be significant.	**CUL-2 Tribal Cultural Resources.** Should a potential tribal cultural resource (TCR) be inadvertently encountered, construction activities near the encounter shall be temporarily halted and the County notified. The County shall notify Native American tribes that have been identified by the NAHC to be traditionally and culturally affiliated with the geographic area of the project. If the unanticipated resource is archaeological in nature, appropriate management requirements shall be implemented as outlined in mitigation measure CUL-2. If the County determines that the potential resource appears to be a TCR, any affected tribe shall be provided a reasonable period of time to conduct a site visit and make recommendations regarding future ground disturbance activities as well as the treatment and disposition of any discovered tribal cultural resources. Depending on the nature of the potential resource and Tribal recommendations, review by a qualified archaeologist may be required. Implementation of proposed recommendations shall be made based on the determination of the County that the approach is reasonable and feasible. All activities shall be conducted in accordance with regulatory requirements.	LTS
3.5-4 The proposed project could contribute to cumulative losses of prehistoric and historic-period resources, human remains, and tribal cultural resources within Sonoma County.	**CUL-3** Implement CUL-1 and CUL-2 (see above)	LTS

Table ES-1
Summary of Potential Environmental Impacts

Impact	Mitigation Measures	Level of Significance After Mitigation
3.6 Geology and Soils		
3.6-1 Implementation of the proposed project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map.	No mitigation measures are required.	LTS
3.6-2 Implementation of the proposed project would not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking.	No mitigation measures are required.	LTS
3.6-3 Implementation of the proposed project would not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction.	No mitigation measures are required.	LTS
3.6-4 Implementation of the proposed project would not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides.	No mitigation measures are required.	LTS
3.6-5 Implementation of the proposed project would not result in substantial soil erosion or the loss of topsoil.	No mitigation measures are required.	LTS
3.6-6 The proposed project would not be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in	No mitigation measures are required.	LTS

Table ES-1
Summary of Potential Environmental Impacts

Impact	Mitigation Measures	Level of Significance After Mitigation
on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.		
3.6-7 The proposed project would not be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.	No mitigation measures are required.	LTS
3.6-8 The proposed project could directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	No mitigation measures are required.	NI
3.6-9 The proposed project would not contribute to cumulatively significant impacts related to geology and soils. The project's contribution to an existing significant impact would not be considerable.	No mitigation measures are required.	LTS
3.7 Greenhouse Gas Emissions		
3.7-1 Implementation of the proposed project may generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.	No mitigation measures are required.	LTS
3.7-2 Implementation of the proposed project may conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	No mitigation measures are required.	LTS
3.7-2 The proposed project could contribute to cumulative GHG emissions within the region. The project's contribution would not be considerable.	No mitigation measures are required.	LTS

Table ES-1
Summary of Potential Environmental Impacts

Impact	Mitigation Measures	Level of Significance After Mitigation
3.8 Hydrology and Water Quality		
3.8-1 Implementation of the proposed project could violate water quality standards or waste discharge requirements or substantially degrade surface water quality.	No mitigation measures are required.	LTS
3.8-2 Implementation of the proposed project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.	No mitigation measures are required.	LTS
3.8-3 Implementation of the proposed project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces resulting in substantial erosion, flooding, exceed the capacity of stormwater drainage systems, or redirect flood flows.	No mitigation measures are required.	LTS
3.8-4 Implementation of the proposed project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.	No mitigation measures are required.	LTS
3.8-5 Implementation of the proposed project would not result in a cumulative contribution related to impacts to hydrology and water quality.	No mitigation measures are required.	LTS
3.9 Land Use and Planning		
3.9-1 Implementation of the proposed project would not divide an existing established community.	No mitigation measures are required.	NI

Table ES-1
Summary of Potential Environmental Impacts

Impact	Mitigation Measures	Level of Significance After Mitigation
3.9-2 Implementation of the proposed project would not cause a significant environmental impact due to a conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.	No mitigation measures are required.	LTS
3.10 Noise		
3.10-1 The proposed project would not result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of County standards.	No mitigation measures are required.	LTS
3.10-2 The proposed project would not contribute to cumulative impacts with respect to noise. The project's contribution would not be considerable.	No mitigation measures are required.	LTS
3.11 Public Services and Safety		
3.11-1 Implementation of the proposed project would not result in substantial adverse physical impacts associated with the need for new or physically altered fire protection or law enforcement facilities in order to maintain acceptable service ratios and response times.	No mitigation measures are required.	LTS
3.11-2 The proposed project, when combined with other cumulative development, would not result in the cumulative contribution to any existing impacts associated with the provision of new or physically altered fire protection or law enforcement facilities in order to maintain acceptable service ratios and response times. The project's contribution would not be considerable.	No mitigation measures are required.	LTS

Table ES-1
Summary of Potential Environmental Impacts

Impact	Mitigation Measures	Level of Significance After Mitigation
3.12 Recreation		
3.12-1 The proposed project would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.	No mitigation measures are required.	LTS
3.12-2 The proposed project would not include recreational facilities which might have an adverse physical effect on the environment.	No mitigation measures are required.	LTS
3.12-3 The proposed project would not contribute to cumulative impacts related to recreational resources. The project's contribution would not be considerable.	No mitigation measures are required.	LTS
3.13 Transportation and Circulation		
3.13-1 Implementation of the proposed project under Existing Plus Project conditions could degrade intersection operations that exceed Caltrans' acceptable level of service D or better.	**TRAF-1 Construction Activities.** During project construction activities, the County shall obtain an encroachment permit from Caltrans, if required, and implement all measures in the permit. In addition, the County shall provide appropriate flagging operations for larger construction vehicles entering or exiting the project site, and/or limiting construction access to off-peak periods to the acceptance of Caltrans.	LTS
3.13-2 Implementation of the proposed project could add traffic (including construction traffic) to an existing unsignalized intersection approach that may not have adequate sight lines based upon Caltrans criteria for state highway intersections.	No mitigation measures are required.	LTS

Table ES-1
Summary of Potential Environmental Impacts

Impact	Mitigation Measures	Level of Significance After Mitigation
3.13-3 Implementation of the proposed project could result in the addition of project traffic that causes an intersection or driveway access to meet or exceed criteria for provision of a right or left turn lane on an intersection or driveway approach.	No mitigation measures are required.	LTS
3.13-4 Implementation of the proposed project could result in inadequate emergency access.	No mitigation measures are required.	LTS
3.13-5 Implementation of the proposed project could conflict with a program, plan, ordinance or policy that addresses transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.	No mitigation measures are required.	LTS
3.13-6 Under Cumulative plus Project conditions the proposed project could degrade intersection operations that exceed Caltrans acceptable level of service C or better.	No mitigation measures are required.	LTS
3.13-7 Under cumulative plus project conditions the addition of project traffic could cause an intersection or driveway access to meet or exceed criteria for provision of a right or left turn lane on an intersection or driveway approach.	No mitigation measures are available.	SU

LTS=Less than significant, NI= No impact, S= Significant, PS=Potentially significant, SU= Significant and unavoidable

Analysis of Alternatives

Alternatives Analyzed

Four alternatives to the proposed project, including the No Project Alternative, were analyzed in Chapter 5, Alternatives. The No Project Alternative is a required element of an EIR pursuant to Section 15126.6(e) of the CEQA Guidelines that examines the environmental effects that would occur if the project were not to proceed. The other alternatives are discussed as part of the "range of reasonable alternatives" selected by the County. The alternatives addressed in Chapter 5 are described below.

No Project Alternative (Alternative 1)

The No Project Alternative considers the effects of foregoing the project entirely and leaving the project site in its current condition. Under the No Project Alternative, no trails or staging/parking areas would be constructed on the project site. The project site would continue to operate in its existing capacity as a cattle ranch with no change to the existing uses.

This alternative would not meet any of the project objectives because it would not provide public access consistent with the terms of the Trail Easement and Conservancy Agreement or allow the public the enjoyment and appreciation of the natural, cultural and scenic resources present in this area.

Docent-Only Alternative (Alternative 2)

The Docent-Only Alternative would only allow public access to the trails with a docent present. The availability of a docent would be provided on a request or reservation basis monitored by the County's Regional Parks Department staff. Only the northern staging would be constructed and public access to the Estero would be limited to pedestrians only; no boat access would be permitted under this alternative. The gate would remain closed and locked to public access unless a tour has been arranged with a docent.

Eliminate Estero Access Alternative (Alternative 3)

The Eliminate Estero Access Alternative would remove only the portion of the East Trail that allows access to the Estero. The portion of the East Trail that provides a loop in the eastern portion of the site would remain along with the staging area located south of the existing barn. Under this alternative no pedestrian or boat access to the Estero would be permitted.

Eliminate East Trail Alternative (Alternative 4)

Under Alternative 4, the entire East Trail would be eliminated along with the southern staging area. Only the West Trail and associated staging area would be constructed to provide public access to the site. Under this alternative there would be no pedestrian or boat access to the Estero.

Environmentally Superior Alternative

The No Project Alternative would result in the least environmental impacts and would be the environmentally superior alternative. However, Section 15126.6(e)(2) of the CEQA Guidelines states that if the environmentally superior alternative is the No Project Alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives. In this case, the environmentally superior alternative is the Eliminate East Trail Alternative, since it would reduce impacts to biological, cultural and traffic, when compared to the proposed project.

The Eliminate East Trail Alternative would meet most, but not all of the project objectives. This alternative would not meet the first objective of providing low-intensity public outdoor recreational and educational purposes in accordance with the District's Grant Agreement with the California Coastal Conservancy.

Areas of Controversy

Section 15123 (b)(2) of the CEQA Guidelines requires the Executive Summary of an EIR to disclose areas of controversy known to the lead agency that have been raised by the agencies and the public. The County circulated a Notice of Preparation (NOP) to solicit agency and public comments on the scope and environmental analysis to be included in the EIR. Copies of the NOP and the NOP comment letters received by the County are included in Appendix A to this EIR. The following issues were raised in the written responses to the NOP:

- Potential damage to adjacent agricultural properties and cattle from trespassing, unleashed dogs, and potential risks to hikers from close proximity to cattle.
- Introduction of noxious, invasive, and non-native plants and diseases that would jeopardize crops and cattle.
- Increased risk of fire hazards, especially grass fires due to illegal campfires and smoking associated with increased human and vehicle presence.
- Increase in litter to occur.
- Increase in dust and need for dust control.
- Land use compatibility within an active cattle ranch.

- Concerns regarding ground nesting, burrowing, and foraging bird species and potential interruption to established nesting and foraging patterns.
- Concerns regarding riparian flow patterns upstream of bridges, trestles, culverts, and other structures and discharges or deposits into the Estero Americano that could cause harm.
- Potential impacts to the Estero Americano and sensitive plant and riparian habitat from boat access and people accessing the area.
- Adequate response time in the event of an emergency.
- Vehicle turning movements, existing driveway capacity and staging/parking area in relation to SR 1.
- Unsafe conditions for vehicle access from SR 1 and request for a dedicated turn lane.

Issues to Be Resolved By Lead Agency

Section 15123(b)(3) of the CEQA Guidelines requires that an EIR contain a discussion of issues to be resolved. With respect to the proposed project, the key issues to be resolved include decisions by the County, as lead agency, as to:

- Whether this environmental document adequately describes the environmental impacts of the proposed project.
- Whether the recommended mitigation measures should be modified and/or adopted.
- Whether there are other mitigation measures or alternatives that should be considered for the proposed project besides those identified in the Draft EIR.

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CHAPTER 1
INTRODUCTION

Purpose of This Environmental Impact Report

This Environmental Impact Report (EIR) assesses the potentially significant environmental effects of the proposed Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas and Construction and Operation of Recreational Amenities project (proposed project). The California Environmental Quality Act (CEQA) requires that before a governmental agency can make a decision to approve a project with potentially significant environmental effects, it must prepare an EIR that fully describes the environmental effects of the project. This EIR is a public information document for use by governmental agencies and the public to identify and evaluate potential environmental consequences of a proposed project, to recommend mitigation measures to lessen or eliminate adverse impacts, and to examine feasible alternatives to the project. The information contained in the EIR is reviewed and considered by the governing agency prior to the ultimate decision to approve, disapprove, or modify the proposed project.

CEQA requires that the Lead Agency—the County of Sonoma (County)—shall neither approve nor implement a project as proposed unless the project's significant environmental effects have been reduced to a less-than-significant level, essentially "eliminating, avoiding, or substantially lessening" the expected impact. If the Lead Agency approves the project despite residual significant adverse impacts that cannot be mitigated to less-than-significant levels, the Agency must adopt a Statement of Overriding Considerations that articulates the reasons for its action in writing. This "Statement of Overriding Considerations" must be included in the record of project approval.

An EIR is intended to implement the basic purposes of CEQA and provide decision makers and the public with the information required by the CEQA statutes and Guidelines to fulfill these objectives. According to Section 15002(a) of the CEQA Guidelines, the purposes of CEQA are to:

1. Inform governmental decision makers and the public about the potential, significant environmental effects of proposed activities;
2. Identify the ways that environmental damage can be avoided or significantly reduced;
3. Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible; and
4. Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

Environmental Review Process

Notice of Preparation and Responses

On November 20, 2017, the County sent a Notice of Preparation (NOP) to governmental agencies, environmental groups, organizations, and other individuals and groups interested in the project. The NOP requested those agencies with regulatory authority over any aspect of the project to describe that authority and to identify the relevant environmental issues that should be addressed in the EIR. The 30-day public review period ended on December 20, 2017. A copy of the NOP is included as Appendix A.

A public scoping meeting was held by the County on Wednesday, December 13, 2017. The purpose of this meeting was to provide the public and governmental agencies with information on the proposed project and the CEQA process and to give attendees an opportunity to identify environmental issues that should be considered in the EIR. Attendees were invited to mail or email their comment letters to the County during the 30-day NOP public review period by no later than 5:00 p.m. on December 20, 2017.

A total of 10 letters and emails were received during the public review period. Copies of the NOP and the NOP comment letters received by the County are included in Appendix A. The following is a list of those respondents who submitted written comments:

- Caltrans, District 4
- Coastal Conservancy
- Sonoma County Farm Bureau
- U.S. Department of Commerce National Oceanic and Atmospheric Administration National Ocean Service, Greater Farallones National Marine Sanctuary (GFNMS)
- Cindy Eggen
- John and Denny Tibbetts
- Denny Tibbetts
- Susan Kirks
- Rebecca Spaletta – Ahlers
- Andrea K. Liesy, Remy, Moose and Manley

Comments received in response to the NOP were used to determine the scope of this Draft EIR. The following issues were raised in the written responses to the NOP:

- Proximity of active agricultural uses and proposed recreational uses, including potential damage to the environment, infrastructure and livestock due to an increase in public access;
- Potential for public trespassing to occur on surrounding private property;
- Potential introduction of diseases and non-native species to agricultural lands;
- Concerns regarding air quality impacts from construction and maintenance activities, cumulative air quality impacts, and fugitive dust control;
- Adequacy of biological surveys and timing of botanical surveys;
- Potential impacts to wetlands, riparian habitat, streams, and/or loss of wetlands;
- Concerns over proposed trail alignment with regards to documented avian species of special concern, particularly ground nesting, burrowing, and foraging species;
- Potential impacts of trail construction and subsequent human encroachment on nesting and foraging and disturbance to species including Burrowing owl and American badger;
- Location of trail signage on riparian or wetland habitat;
- Native American consultation with tribes, groups, and individuals interested in the project area;
- Request for hydrological studies to study whether project level activities would affect riparian flow patterns upstream of bridges, trestles, culverts, or other structures;
- Concerns regarding the remote location and the extended response time for emergency services, particularly for fire and sheriff departments;
- Increase in vehicle and foot traffic including project related trip generation, distribution, turning movements, storage capacity within the project vicinity, as well as the existing driveway capacity and staging area in relation to State Route 1; and
- Request for Transportation Demand Management measures for the project.

Public Review of the Draft EIR

The Draft EIR is subject to a minimum 45-day public review period by responsible agencies and interested parties. In accordance with Section 15087 of the CEQA Guidelines, the County published a notice of availability of the Draft EIR and concurrently sent a notice of completion to the California Office of Planning and Research (OPR) to start the 45-day public review period. Agencies and the public may comment on the adequacy of the Draft EIR and the lead agency's compliance with CEQA either in writing submitted to the County, as Lead Agency, prior to the end of the public review period, or through oral testimony at a public hearing on the Draft EIR.

Final EIR

Following the close of the public review and comment period, written responses will be prepared that address all substantive comments received on the Draft EIR. The Final EIR will consist of the Draft EIR, the comments received during the public review period, written responses to the comments, and any revisions to the Draft EIR made as a result of public agency and public comments. The Final EIR must be certified by the County before it can be used as the basis for decision-making.

EIR Adequacy

The level of detail contained throughout this EIR is consistent with Section 15151 of the CEQA Guidelines, which states the following:

> An EIR should be prepared with a sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of the environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure.

Intended Uses of the EIR

This EIR has been prepared by the County of Sonoma as Lead Agency in accordance with CEQA and applicable federal and state environmental regulations, policies, and laws. This EIR provides the CEQA compliance documentation upon which the County's consideration of, and action on, all applicable land use permits and other approvals (collectively, "approvals") shall be based. These include without limitation all those approvals set forth in this EIR, as well as any additional approvals necessary or useful to such planning, construction, operation, and maintenance (e.g., any use permits, grading permits, and other development-related approvals). The Sonoma County Agricultural Preservation and Open Space District is a Responsible Agency in accordance with CEQA and has reviewed this EIR with respect to the Trail Easement and Conservation Easement.

Scope of the EIR

This EIR has been prepared in compliance with CEQA (California Public Resources Code Section 21000 et seq.) and the procedures for implementation of CEQA set forth in the CEQA Guidelines (14 CCR 15000 et seq.).

According to CEQA Guidelines Section 15161, an EIR should focus primarily on the changes in the environment that would result from implementation of the proposed project. This EIR evaluates the potential environmental impacts that may occur from construction and operation of the proposed project, including direct, indirect, cumulative, and growth-inducing impacts. Based on a review of the project and comments received during the NOP public review period, the County determined that an EIR should be prepared that addresses the following technical issue areas:

- Aesthetics
- Agricultural Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Geology and Soils
- Greenhouse Gas Emissions
- Hydrology and Water Quality
- Land Use and Planning
- Noise
- Public Services and Safety
- Recreation
- Transportation and Circulation

This EIR evaluates the direct impacts, reasonably foreseeable indirect impacts, and cumulative impacts resulting from planning, construction, and operation of the proposed project using the most current information available and in accordance with the provisions set forth in CEQA and the CEQA Guidelines. In addition, the EIR recommends potentially feasible mitigation measures, where possible, and project alternatives that would reduce or eliminate significant adverse environmental effects.

The alternatives chapter of the EIR (Chapter 5, Project Alternatives) was prepared in accordance with Section 15126.6 of the CEQA Guidelines. CEQA requires that the lead agency

adopt mitigation measures or alternatives, where feasible, to substantially lessen or avoid significant environmental impacts that would otherwise occur. Project modification or alternatives are not required, however, where significant environmental impacts will not occur.

The EIR evaluates the following alternatives to the proposed project:

- **Alternative 1: No Project/No Build Alternative.** This alternative assumes no development would occur, and the site would remain in its current condition.
- **Alternative 2: Docent-Only Alternative.** This alternative would only permit public access to the trails with a docent present. Only docent supervised access would be allowed. Access to the Estero Americano would be allowed for pedestrians only; no boat access would be permitted under this alternative.
- **Alternative 3: Eliminate Estero Access Alternative.** This alternative proposes to eliminate the portion of the East Trail that provides access to the Estero Americano, but the portion of the East Trail in the eastern portion of the site and the staging area would remain.
- **Alternative 4: Eliminate East Trail Alternative.** This alternative would eliminate construction of the East Trail and the staging area located near the existing barn. Only the West Trail would be developed under this alternative.

Document Organization

This EIR is organized to provide a comprehensive analysis of the significant potential environmental impacts, mitigation measures, and alternatives for the proposed project as follows:

- **Executive Summary.** Summarizes the proposed project, environmental impacts that would result from implementation of the proposed project, recommended mitigation measures that would avoid or reduce impacts, and the level of significance of impacts both before and after mitigation.
- **Chapter 1, Introduction.** Provides an introduction and overview describing the purpose and intended use of the EIR, the EIR's compliance with CEQA, and the scope and organizational format of the EIR.
- **Chapter 2, Project Description.** Provides a detailed description of the proposed project, including its geographical setting, project objectives, project components, and construction. This section also provides background on the proposed project and describes the environmental setting, providing a description of the physical environmental conditions in the vicinity of the proposed project, as they existed at the time the NOP was published, which constitute the baseline physical conditions by which the significance of potential impacts would be assessed. This section also includes a list

of discretionary actions that would be required by the Lead Agency and responsible agencies for the proposed project.

- **Chapter 3, Environmental Analysis.** Describes the baseline environmental setting and provides an assessment of potential project impacts for each technical issue area presented. Each section is divided into four sub-sections: Introduction, Environmental Setting, Regulatory Setting, and Impacts and Mitigation Measures (project-specific and cumulative).
- **Chapter 4, Other CEQA Considerations.** Provides discussions required by Sections 15126 and 15128 of the CEQA Guidelines, including effects found not to be significant during the EIR process, growth-inducing impacts of the proposed project, significant environmental effects that cannot be avoided if the proposed project is implemented, and significant irreversible environmental changes that would result from implementation of the proposed project.
- **Chapter 5, Alternatives.** Describes alternatives to the proposed project that would avoid or substantially lessen significant effects and evaluates their environmental effects in comparison to the proposed project.
- **Chapter 6, List of Preparers.** Provides a list of the EIR preparers.

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CHAPTER 2
PROJECT DESCRIPTION

Introduction

The County of Sonoma (County) is the lead agency under the California Environmental Quality Act (CEQA) to prepare the Environmental Impact Report (EIR) for the Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas and Construction and Operation of Recreational Amenities project (proposed project). The Sonoma County Agricultural Preservation and Open Space District (District) is a Responsible Agency as it holds the Conservation Easement over the Bordessa Ranch property, and is the current holder of the Trail Easement for the purposes of designating the Trail Corridors and Staging Areas. The District proposes to transfer the Trail Easement to the County for construction, future operation, and maintenance of the trails and staging (parking) areas. The County's Regional Parks Department (Regional Parks) has received grant funds from the State Coastal Conservancy and additional funding from the District towards completion of the Estero Trail Plan. Transfer of the Trail Easement from the District to the County is currently pending and anticipated to be finalized and recorded after the CEQA review is completed.

Project Site

Location and Surrounding Land Uses

The proposed project site is located in the western portion of unincorporated Sonoma County, just north of Marin County and west of the cities of Santa Rosa, Sebastopol, and Rohnert Park (Figure 2-1, Regional Location). The project site[1] is located on the approximately 500-acre Bordessa Ranch property, at 17000 Valley Ford Cutoff (Assessor's Parcel no. 026-030-011), approximately one mile south of Bodega, and approximately 2.5 miles west of Valley Ford (Figure 2-2, Project Site). The Bordessa Ranch property is bordered by State Route 1 (SR 1) on the north and extends to the Estero Americano (Estero) on its south, encompassing rolling hills and two prominent knolls. Existing adjacent land uses are mostly rural agricultural with the Sonoma Coast Villa Resort & Spa located across SR 1 generally north of the site.

The Estero is a scenic and biologically rich coastal estuary along the boundary of Sonoma and Marin counties. The Estero is part of the Gulf of the Farallones National Marine Sanctuary, part of the California Marine Protected Area network, and designated as a State Marine Recreational Management Area. It is also designated as critical habitat for steelhead trout by the National Oceanic and Atmospheric Administration (NOAA) Fisheries Service, and is identified by the California Department of Fish and Wildlife (CDFW) as containing some of the most significant

[1] References to project site refer to the portion of the Bordessa Ranch property that is within the designated Trail Easement.

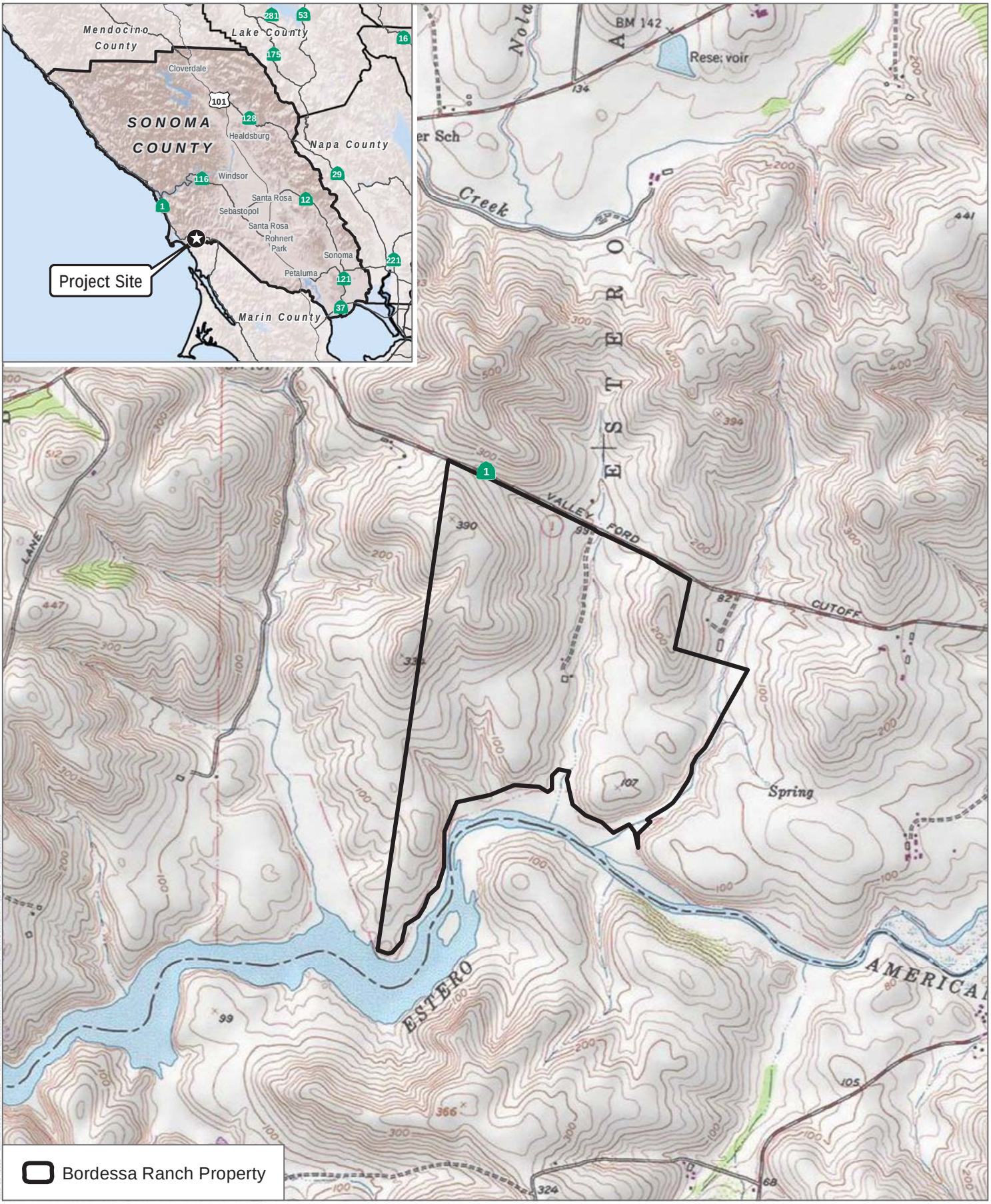
habitat areas in the State, including mudflats, seasonal brackish marsh, and freshwater marsh within the esturary that provide seasonally important foraging habitat for migratory waterfowl and shorebirds, and resident long-legged wading birds. It is currently listed as an impaired water body by the State Water Resources Control Board due to historic land uses.

Project Background

In 2012, the District purchased a conservation easement (Conservation Easement) and trail easement (Trail Easement) over property owned by Alfred and Joseph Bordessa (Bordessa Ranch). The purpose of the Conservation Easement is to preserve and protect the conservation values of the property, as described in the recorded Conservation Easement, including natural resources, habitat connectivity, open space and scenic views, agricultural resources, and recreation and education. The Conservation Easement covers the entire property and also designates a 138-acre area as "Forever Wild" and two riparian corridors as "Natural Areas".[2] The Forever Wild area includes sensitive habitat for American badger and burrowing owls and short-eared owls, and the goal is to protect this habitat in perpetuity from potential disturbances caused by improperly managed grazing, recreation activities, and future buildings. To ensure this area is protected from potential disturbances, the Conservation Easement expressly requires the Bordessa Ranch landowners to prepare a rangeland management plan (RMP) that integrates natural resources protection goals for cattle grazing on the entire project site. The RMP would be prepared in consultation with a certified rangeland manager, the District, and State Coastal Conservancy staff and would govern the landowners' management of the property. In addition, no buildings, staging areas or trails would be allowed within this area and signage providing information about sensitive plant and wildlife species would state no access is permitted within this area, except within a limited area designated as "Trail Corridor within Forever Wild or Natural Areas" (see discussion below under Trail Amenities and Signage).

The purpose of the Trail Easement is to ensure that trails and associated staging areas are established and made available to the public in perpetuity for low-intensity public outdoor recreational and educational purposes consistent with the purpose of the Conservation Easement to preserve and protect natural resources, habitat connectivity, open space and scenic views, and agricultural resources. Under the terms of the Conservation Easement and Trail Easement, the Conservation Easement takes precedence over the Trail Easement.

[2] These areas are designated on the project figures as areas where trails are prohibited per the Conservation Easement, with some exceptions noted.



SOURCE: USGS 7.5-Minute Series Valley Ford Quadrangle

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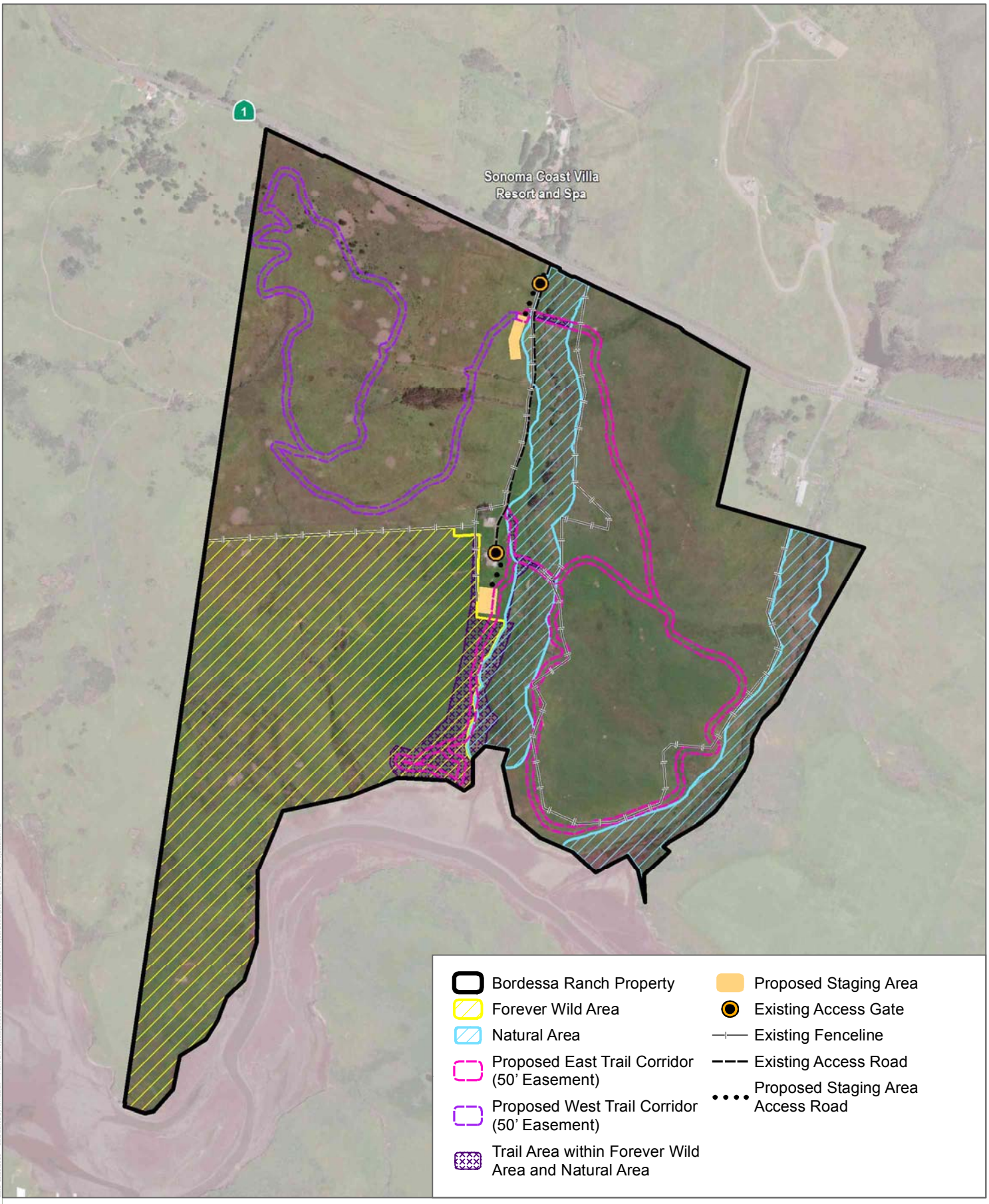
0 1,000 2,000 Feet

FIGURE 2-1

Project Location

Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas Project

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SOURCE: Bing Maps 2019, Sonoma County 2015

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0 500 1,000 Feet

FIGURE 2-2

Project Site Plan

Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas Project

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Permit Sonoma (formally the County's Permit and Resource Management Department) prepared and circulated an Initial Study and a draft Mitigated Negative Declaration (MND) for the proposed project in October 2016. After reviewing the information disclosed by the draft MND document, the Board of Directors of the Sonoma County Agricultural Preservation and Open Space District (District) and the Board of Supervisors of the County of Sonoma directed staff to prepare an EIR for the proposed project to more fully characterize and evaluate potential impacts of the project, including both District designation of the trail corridors and staging areas and County approval and construction and operation of the recreational amenities included as part of the project.

The District is proposing to designate and survey trail corridors and associated staging areas as contemplated by the Trail Easement and consistent with the Conservation Easement. Under the terms of the Trail Easement, the District identified two 50-foot wide trail corridors to be evaluated in the EIR (approximately 30.3 acres) and two staging areas, not to exceed 1.5 acres for a total combined area of approximately 31.8 acres of project area, with approximately 4.8 acres of actual potential disturbance associated with construction of two five-foot wide trails within the designated trail corridors. Improvements to the access road are also evaluated as part of the project. The County will identify the precise locations of the two 5-foot-wide pedestrian-only trails within the 50-foot wide corridors, cumulatively not to exceed 5 miles in length (see Figures 2-3 and 2-4) once the project is approved and the EIR certified.

The project site is located within the California Coastal Commission jurisdiction and is regulated by the California Coastal Act and the Sonoma County Local Coastal Plan. Presently, access to the Estero is available via Valley Ford Estero Road, off of SR 1 for kayakers and other boaters within the County. There is currently no overland (trail) access to the Estero within Sonoma County, other than at the mouth of the Estero.

The Conservation Easement includes areas designated for an Agricultural Building Envelope (ABE) and a Residential Building Envelope (RBE), as shown on Figures 2-3 and 2-4. Within the 2-acre ABE the landowner is allowed to develop agricultural residences including farm worker housing, and farm family housing no larger than 2,000 square feet, barns, corrals, and one lighted horse arena not to exceed 90 feet by 180 feet in size to be used for personal use only. Within the 1-acre RBE the landowner is allowed to develop one primary residence no larger than 3,000 square feet, plus a garage measuring no larger than 1,200 square feet along with any additional accessory structures and improvements including a guest house, shed, swimming pool and other similar improvements. The Trail Easement specifies that the Staging Areas and Trail Corridors shall not be placed within two hundred feet of the RBE. The one exception is a portion of the access road that already existed prior to the Trail Easement and is not subject to this requirement. Future development within either the ABE or RBE would be a separate project initiated by the landowners and is not evaluated in this EIR.

Project Site Characteristics

Existing Uses and On-Site Characteristics

The elevation of the project site ranges from sea level at the Estero to about 400 feet at the highest knoll on the northwestern corner of the site. The topography is characterized as rolling hills with a central valley created by a drainage that drains into the Estero at the southern end of the site. The undeveloped parts of the project site consist of gently to steeply sloped hillsides, with annual grassland, rocky outcrops, stock ponds, springs, and hillside seeps. In addition, a perennial creek and several smaller drainages are located on the property. These drainages, as well as one of the stock ponds, support riparian vegetation and/or eucalyptus groves. The Bordessa Ranch property is currently used as grazing land for cattle and contains a large barn, sheds and outbuildings, a gravel access road, fencing, a concrete water tank, spring boxes and concrete water troughs, and two 2,500-gallon above-ground water tanks. With the exception of the access road, fencing, barn and outbuildings, and water facilities, the remainder of the site is undeveloped.

The Bordessa Ranch property is currently an active cattle ranch. Cattle use the property for breeding and grazing and are present throughout the site. The existing structures on the site including the barn, sheds and outbuildings, concrete water tank and troughs, spring boxes, and above-ground water tanks are not within the boundaries of the proposed project and would not be modified, removed, or altered in any way by project implementation. The County would, however, have to relocate some agricultural fencing or install gates in some locations.

Sonoma County General Plan and Zoning Designations

The project site is located within the coastal zone and designated in the Sonoma County General Plan 2020 and zoning code for Land Extensive Agriculture (Sonoma County 2013). Portions of the site are within the Riparian Corridor (RC) and Scenic Resource (SR) combining districts.

Project Objectives

CEQA requires an EIR to include a statement of objectives for the project, including the underlying purpose of the project. These objectives help the lead agency determine the alternatives to evaluate in the EIR (CEQA Guidelines, Section 15124, subd. (a)). The following is a list of objectives for the proposed project:

- Provide public access to the Trail Corridors and Staging Areas in perpetuity for low-intensity public outdoor recreational and educational purposes in accordance with the District's Grant Agreement with the California Coastal Conservancy, dated May 3, 2012 (Agreement No. 11-063).

- Provide public access within the Trail Easement area consistent with the preservation of natural resources and habitat connectivity; open space and scenic views, and existing agricultural resources.
- Create public access pedestrian-only trails that provide a broad public benefit for all ages and cultures and users of varying abilities.
- Provide pedestrian-only trails to support interactive educational experiences.
- Provide pedestrian-only trails that balance resource protection with high quality public access and maximize sensitive resource protection.
- Design pedestrian-only trails in accordance with appropriate trail standards, including the California Department of Parks and Recreation's Trails Handbook (1991, updated 2019) and Accessibility Guidelines (2015) and the California Department of Conservation and Recreation Trails Guidelines and Best Practices Manual (2010).
- Provide pedestrian-only trails to a unique and inspiring landscape that promote and enhance public enjoyment and appreciation of the natural, cultural, and scenic resources on the property.

Proposed Project

The Trail Easement held by the District allows the District to designate two 5-foot-wide pedestrian-only trails (within the designated 50-wide corridor), up to a cumulative maximum of 5 miles in length, and two associated staging areas (to include trailheads/parking lots), not to exceed 1.5 acres in size in total combined area, to provide for low-intensity public outdoor recreational and educational uses on the property consistent with the underlying Conservation Easement. The Conservation Easement allows non-commercial low-intensity outdoor recreational and environmental education uses, providing these uses do not adversely affect sensitive natural resources or agricultural uses on the property. The Conservation Easement requires a minimum 150-foot setback be provided between the proposed trails and staging areas and the two streams located within the project site, except at two identified trail crossings and associated approaches. The trails are intended to provide public access from SR 1 to scenic vista points and potentially limited public access to the Estero. The purpose of this project is for the District to designate and survey trail corridors and staging areas, and Regional Parks to align and construct trails within the corridors, design and construct staging areas within designated areas, and oversee the operation and maintenance of the trails for use by the public. Timing for full implementation of the project is dependent on Regional Parks obtaining funding for trail development.

As outlined in the Trail Easement, future uses may include hiking, nature study, bird watching, sightseeing, picnicking, outdoor education, docent-led tours, scientific research and observation, and other similar uses. Future uses may also include limited, seasonal walk-in access to the Estero for pedestrians and hand-carried, non-motorized boats, such as kayaks and canoes, if and to the

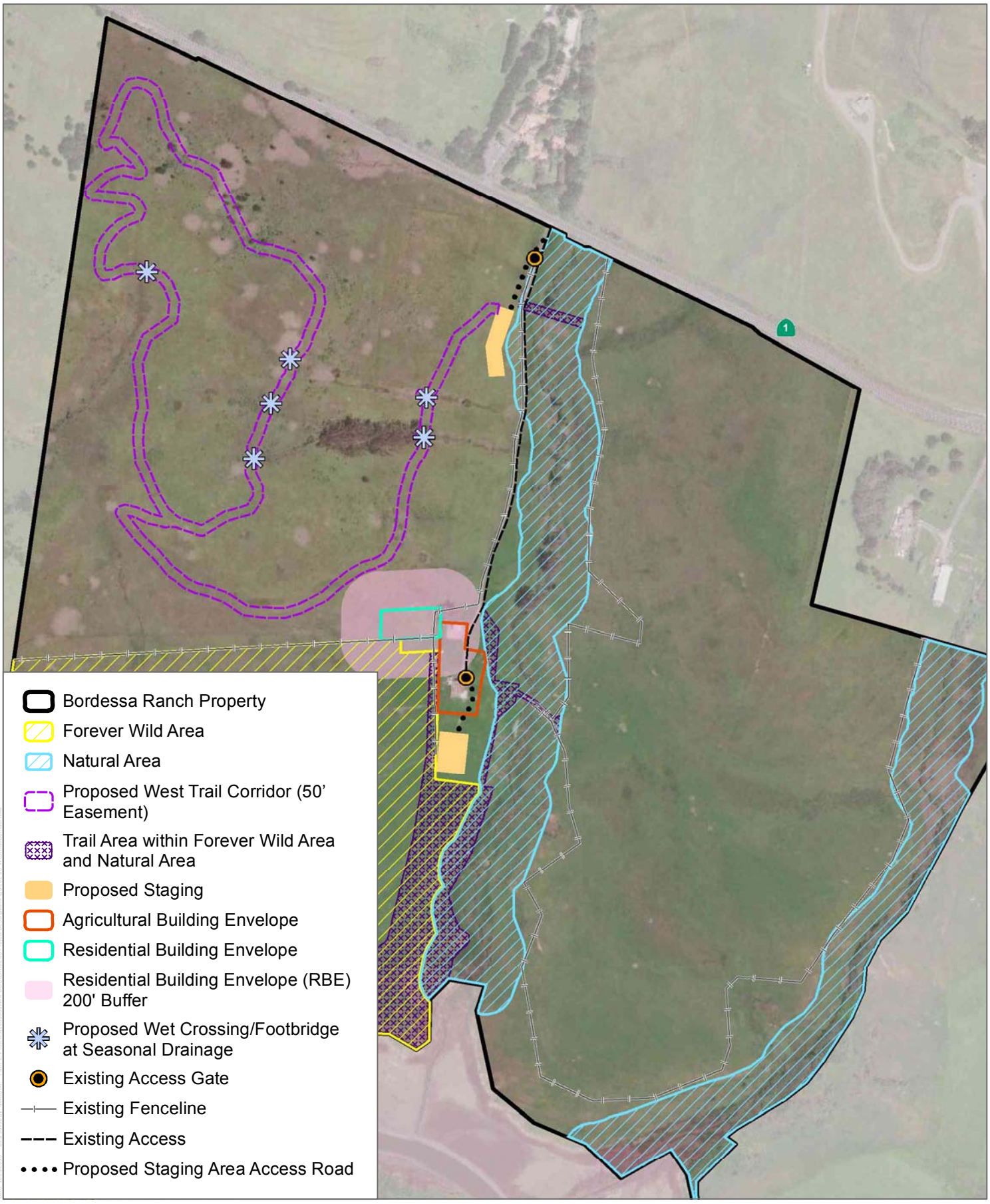
extent the District determines that such access is compatible with sensitive resources associated with the Estero and the property. The County and/or District may place limitations on the nature, hours, and season of public access to the access road, bridge, and access gate, as well as the staging areas and trails, as either deems appropriate for natural resource protection. The County anticipates daily usage would range from an average of five people to up to a maximum of 20 people during holiday weekends. In addition, it is anticipated that people boating along the Estero may stop at the project site to access the restrooms, or hike on the trails before leaving via the Estero. The number of people accessing the trails from the Estero is expected to be minimal.

The proposed trail system would be the only means for providing public access to the project site. A single trail, approximately 5-feet wide would be constructed within each of the two designated trail corridors. The trails would be limited to pedestrian use only (no dogs, bikes, or equestrians would be allowed at any time); would be constructed of compacted native material or other permeable surface; would be designed consistent with the federal Architectural Barriers Act Accessibility Guidelines[3] for backcountry trails; and would include wet crossings or wooden footbridges at ephemeral stream crossings (all necessary permits would be acquired before constructing). Trail markers, posts, interpretive signs, and benches would be placed along the trail to assist users. Benches would be constructed of wood and would be compliant with the Architectural Barriers Act. No more than six benches would be provided along the trails. The trail markers provided at the trailheads and at all trail intersections would provide directions and distances (in miles and tenths of a mile) to noteworthy locations along the trails. Trail markers would be constructed of wood or steel and would measure approximately 3-feet tall. An example of types of interpretive signage, trail markers, and benches is included on Figure 2-5.

The project includes a variety of design features including interpretive, wayfinding, monument, display case, and regulatory signage; portable restroom and associated privacy screening; garbage and recycling receptacles; bicycle racks; exclusionary fencing and associated gates; and picnic tables and/or benches. No buildings or structures other than foot bridges and replacement of the existing bridge along on the access road would be constructed as part of the project.

Specific project details and project components include the following.

[3] The Architectural Barriers Act (ABA) requires facilities constructed or altered by or on behalf of federal agencies to be readily accessible to and usable by individuals with disabilities. The Americans with Disabilities Act (ADA) is modeled on the 1968 ABA and Section 504 of the Rehabilitation Act of 1973.



SOURCE: USDA 2016; Sonoma County 2015

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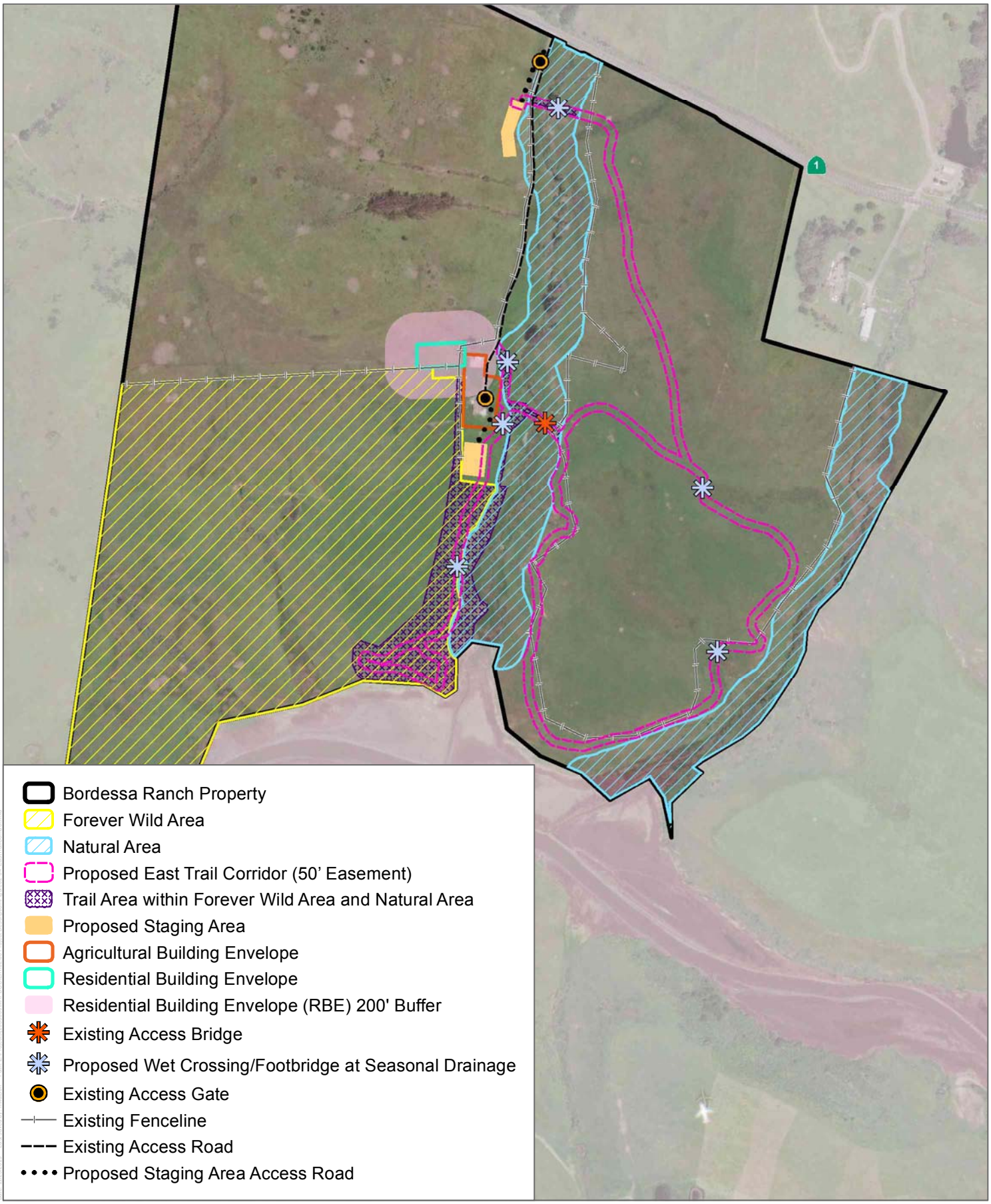
0 325 650 Feet

FIGURE 2-3

West Trail Corridor

Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas Project

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SOURCE: Bing Maps 2018; Sonoma County 2015

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0 405 810 Feet

FIGURE 2-4

East Trail Corridor

Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas Project

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Examples of Trail Signage, Interpretive Signage and Entrance Monument



Example of ADA compliant side along bench



Example of ADA compliant bench with arms

FIGURE 2-5

Trail Amenities

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West Trail Corridor

The West Trail corridor would accommodate construction of a 2.01-mile, five-foot-wide trail located on the western side of the central drainage (also referred to as the central creek drainage) that traverses the property. The trail would start at the northern staging area (near the main entrance and SR 1) then would loop around climbing the western knoll to a vista in the northwest corner of the property; it then loops back to descend the western knoll, returning to the start at the northern staging area (see Figure 2-3). The trail would be constructed of native soil which may include drainage and wet crossings (foot bridges); erosion prevention features such as walls, switchbacks, and grade-break swales; interpretive, regulatory and wayfinding signage; exclusionary fencing and associated gates; and benches.

East Trail Corridor

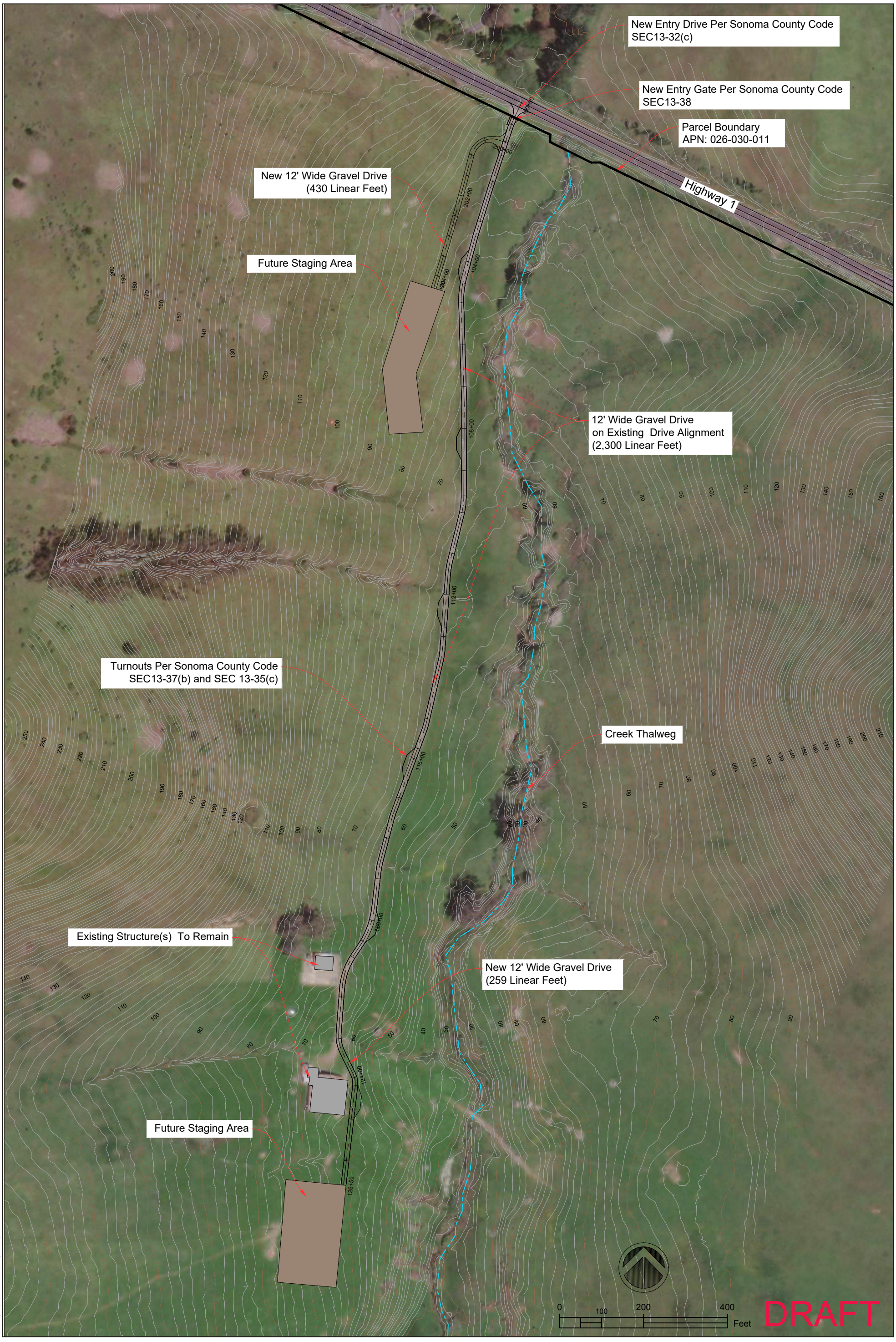
The East Trail would not exceed 2.75 miles in length and could be accessed from either the northern or southern staging areas, as shown on Figure 2-4. From the southern staging area (south of the existing barn), the five-foot wide trail heads south to the Estero, makes a small loop, then runs back up to the southern staging area. From here it runs east, crossing the central creek drainage at the existing foot bridge; it then traverses the bluff following the central creek drainage towards the Estero, and then heads east along the bluff above the Estero and north above the creek on the eastern edge of the property, then looping back to the existing foot bridge across the central creek drainage or up to the northern central creek crossing and west to the northern staging area. The East Trail may also include drainage and wet crossings (foot bridges); erosion prevention features such as walls, switchbacks, and grade-break swales; interpretive, regulatory and wayfinding signage; exclusionary fencing and associated gates; and benches.

Hiker and boater access to the Estero would be via the East Trail and would include signage directing users to specific routes that may change seasonally, and a seasonal trail that would include temporary mesh matting laid down in the mudflats to reduce erosion and turbidity. The County is proposing a roll out surface protection mat that would be approximately five-feet-wide and 400 feet long, that would begin at the bottom of the slope and would cross the mud flats to the main Estero channel. The two systems under consideration include a series of open mesh or grate-like hard plastic panels (GeoSystems GeoRunner or Geoterra) that snap together and secure with clips as well as anchors that secure the mat to the soil surface. Both designs would allow sunlight to penetrate the ground, allowing vegetation to grow, and would enable the system to be removed before large storm events.

Site Access

Existing access to the property is via an unimproved gravel access road off SR 1 that allows access to the site. A locked access gate is located approximately 175 feet from the SR 1 turnoff. There is an existing vehicle bridge over the central creek drainage, which is currently the only

crossing over this drainage that provides access for the landowner's cattle and agricultural vehicles. This bridge would be replaced with a weathered steel or wood bridge, and the bridge deck would be paved with asphalt or concrete. The bridge would be designed to span from bank to bank to eliminate disturbance or construction in the central creek drainage to provide vehicle access, access for hikers, as well as access for ranch management (i.e., cattle and landowner vehicles). A new access gate would be constructed at the property entrance to enable the trail and staging areas to be closed at sundown. The future development of the northern and southern staging areas would likely include partial relocation and extension of the existing access road to allow vehicle access to both staging areas. The access road to the staging areas would be designed as a single lane road consistent with the County's private driveway road standards. This design is consistent with road access for County parks. It is anticipated the road would be widened to approximately 12-feet, and may include a pull out area to allow cars to pass and would be surfaced with a gravel base. The access road is currently approximately 2,300 feet long and could be extended an additional 500 feet to enable access to the southern staging area. The access road would provide operations, maintenance, emergency, and public access to the staging areas and trail system. Figure 2-6 provides the location of the proposed access road and Figure 2-7 illustrates the County's specifications.



SOURCE: Sonoma County Regional Parks 2019

FIGURE 2-6

Proposed Access Road Location

Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas Project

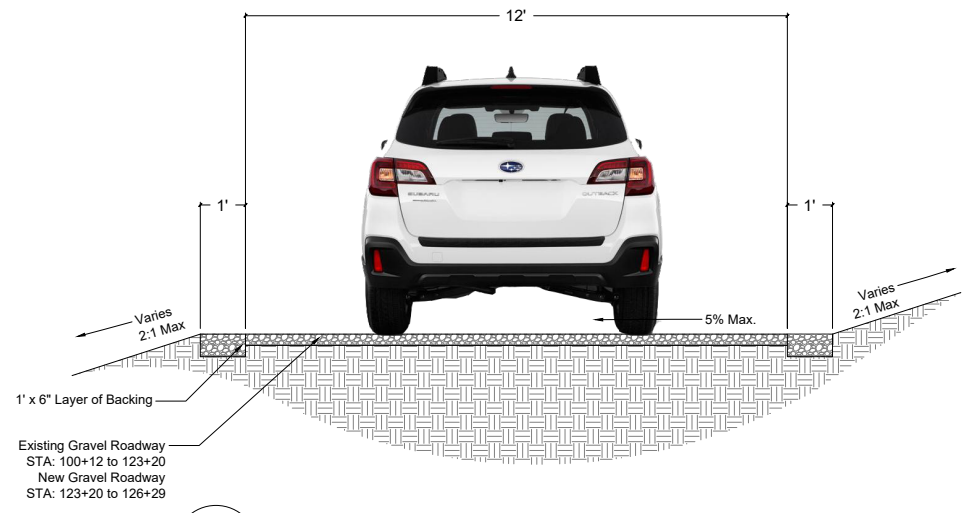
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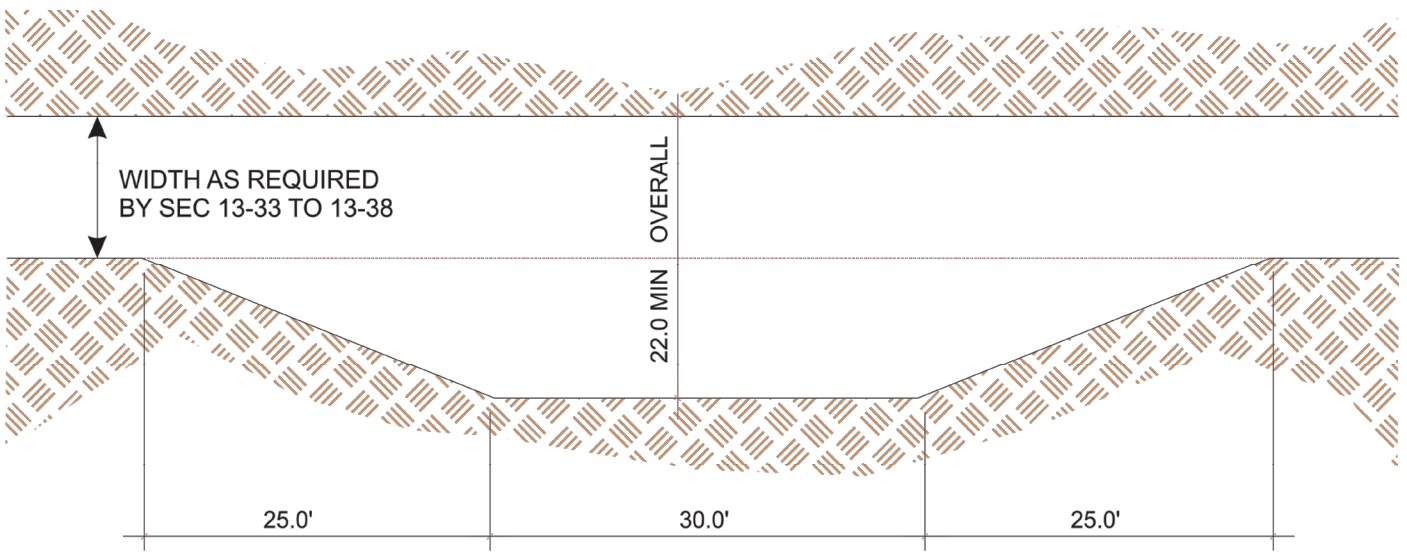
DRIVEWAY
SEC. 13-37

- WIDTH AS REQUIRED BY SEC 13-33 TO 13-38
- DRIVEWAYS SERVE BUILDINGS
- ROADS SERVE PARCELS



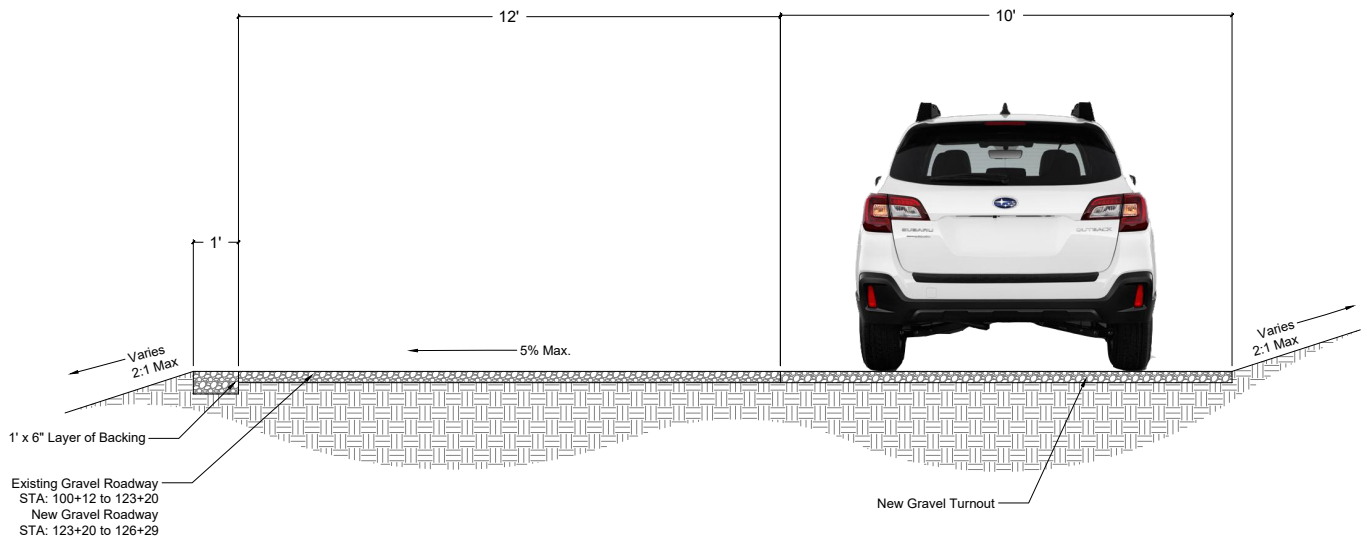
1 Typical Driveway Section STA: 100+12 to 123+20

nts



TURNOUT

[SEC 13-37(b)] ALL DRIVEWAYS EXCEEDING ONE HUNDRED FIFTY (150) FEET IN LENGTH SHALL HAVE A TURNOUT CONSTRUCTED AT APPROXIMATELY THE MIDPOINT OF THE DRIVEWAY. ANY DRIVEWAY EXCEEDING EIGHT HUNDRED (800) FEET IN LENGTH SHALL HAVE TURNOUTS CONSTRUCTED APPROXIMATELY EVERY FOUR HUNDRED (400) FEET ALONG THE ENTIRE LENGTH OF THE DRIVEWAY.



2 Typical Driveway Section at Turnout

nts

DRAFT

Path: Z:\Projects\103\00\MAP\SEIR\02 Project Description

SOURCE: Sonoma County Regional Parks 2019

FIGURE 2-7

Sonoma County Driveway Specifications

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Staging Areas/Parking

Two staging or parking areas—1.5 acres in total combined area—would be designated to accommodate parking for trail users. One staging area would be located in the north near SR 1 (north area), and the other would be located south of the existing barn and Agricultural Building Envelope (south area), as shown in Figure 2-4. The staging areas would provide a total of up to 30 parking spaces cumulatively between the two areas. If parking becomes an issue, Regional Parks rangers would be on-site to regulate access and turn away users when the parking areas are full.

The staging areas would be constructed with a permeable surface (gravel base) and would include Americans with Disabilities Act (ADA) accessible parking (one parking stall) in each area. The staging areas may also include the following features: portable restroom facilities, bicycle parking, display case, picnic tables, benches, animal-proof trash & recycle containers, and operations signage. Potable water would not be provided.

Signs in both staging areas would be consistent with the requirements set forth in the Trail Easement and would include wayfinding and maps as well as signage that explains the "rules" of access (e.g., specifying that dogs and equestrians are prohibited on the property including in the staging areas and on the trails, and bicycles are prohibited on all trails) would also be provided at the trailheads. Educational signage with information about protected plant and wildlife species and appropriate behavior around cattle in support of ranch management would also be provided at key locations along the trails, as discussed in detail below.

Trail Amenities and Signage

Trail amenities and features may include wood benches (up to six) placed along the trails. The staging areas may include picnic tables, animal-proof trash and recycling containers, and portable restrooms and associated privacy screening.

New fencing and gates would be designed to accommodate cattle grazing and to minimize any potential conflicts between hikers and natural resources, cattle grazing, and other ranching activities. Fences and gates would be designed to match the existing on-site facilities where appropriate and would include "kissing gates" for trail users to access lands where livestock graze. In accordance with the Conservation Easement, any new fencing would comply with the District's standards for fences on conservation lands, which include no more than 40-inches in height, with smooth bottom wire no closer than 16-inches from the existing grade, two or three smooth or barbed central wires, and a smooth top wire. The top wire would be set at 12-inches from the next wire to reduce the chance of wildlife entanglement. This design may be modified slightly based on discussions with the landowner to ensure that it works for the agricultural operation. A kissing gate is a type of gate that allows people, but not livestock, to pass through. The normal construction is a half-round, rectangular, trapezoidal or V-shaped enclosure with a hinged gate trapped between its arms. This style of gate eliminates the need to close or lock a

gate as people pass through. Regional Parks has used this style of fencing and gates with success in other County facilities where hikers and cattle share the same area.

Interpretive and wayfinding signage would be provided in the staging areas, at the trailheads, at vista points along the trails, and at the Estero; examples of different types of signage are included in Figure 2-5. A monument sign at the project access road entrance or at the northern staging area would identify the park/trail name and would include the name of the agencies involved in funding the project. Additional informational signage would be provided indicating where to park and allowable speed limit. Signage at the staging areas (display style signage) would provide information on where to park, ranch activities and seasonal activities (e.g., notices of on-going agricultural activities stating that the trail user agrees to use the trail at his/her own risk, or trail users would be advised that agricultural operations would be occurring and may include pesticide spraying, agricultural dust and debris, and burning activities in accordance with State and local laws and ordinances), allowable uses, hours of operation, fee collection (if any), trail access and trail maps, and information on the flora and fauna and ecosystem. Trail markers along the trails would provide the trail name, distance (mileage) and destination, and educational signage providing information about sensitive plant and wildlife species would also be provided at key locations along the trails. At the Estero, a sign would be provided with the rules, information on the fragile ecosystem, and allowable uses and activities. All signage (including materials and size) would be constructed consistent with the Trail Easement and Conservation Easement requirements.

Hours of Operation, Allowed Uses, and Maintenance

Proposed operating hours for public use of the trails would be sunrise to sunset seven days a week, with limited seasonal access to the Estero for recreational uses such as kayaking and canoeing—if and to the extent the District determines such access is compatible with sensitive resources associated with the Estero—and other such uses similar in nature and intensity. The main access gate would be opened at sunrise and closed and locked at sunset every day. The project does not include any type of lighting. In the event a car is left in the parking lot when the gate is closed, the vehicle would be subject to a citation. In addition, a Park Ranger would do a foot patrol of the area to see if the vehicle owner can be located, which may include conducting a visual survey to see if it may be a kayaker in the Estero. The Ranger would also contact the Sheriff's Department to get information on the vehicle's owner which often includes a cell number. Currently, there are no plans to impose a day use fee to access the trails and the Estero, but this is subject to change depending on the project components.

The trails would be restricted to pedestrians/hikers only, and no dogs, bikes, or equestrians would be allowed at any time. Signage would be provided in the staging areas listing allowed and prohibited uses.

Maintenance of the trails and staging areas would be provided by Regional Parks. Regional Parks would be responsible for ensuring the trails are kept functional and safe. Maintenance activities would include mowing and maintaining the staging (parking) areas and trails, and Regional Parks rangers would also conduct periodic patrols of the trails and staging areas. If portable restrooms are provided in the staging areas these facilities generally would be serviced on a weekly basis, unless Regional Parks determines more frequent restroom cleaning is needed. Trash would also be removed on a weekly basis, unless more frequent removal is required. Trail maintenance would be as-needed depending upon use, weather, etc. Generally, trails require maintenance right before, during, and after the rainy season.

Regional Parks would also coordinate with local law enforcement in the event of any illegal activities and the County's Department of Emergency Services – Fire Prevention Division in the event of a fire. The County is preparing a Fire Management Plan as part of the project, consistent with the requirements set forth in the County's Local Coastal Plan. In addition, Regional Parks would work collaboratively and in good faith with the landowners with regard to their current agricultural operation.

Construction Details and Timeline

Project construction would occur outside of the wetter winter months and is anticipated to take 3 to 4 years to complete. Construction of the trails would be done by hand or using small equipment, while widening the access road and constructing the staging areas would require the use of heavy equipment such as graders.

All trail construction would conform to the County's trail construction standards and would include the following steps:

- Clearing and grubbing of the existing plants (consisting of mostly non-native annual grasses) along the trail alignment. The finished width of the trails would be no wider than be 5-feet, but up to a 20-foot wide area may be cleared and graded as needed to construct a sustainable trail designed consistent with the federal Architectural Barriers Act Accessibility Guidelines for backcountry trails, minimizing running slopes making the trail the most accessible to users of varying ability. Grading slopes above and below the trail may also be needed to minimize soil erosion by lessening the slopes above and below the trail. All exposed soil outside the five-foot wide trail width would be covered with existing duff stockpiled during clearing and grubbing or with weed-free straw.
- Minor grading of native soils to compacted trail bed at a maximum width of five-feet-wide. Cut and fill required to construct the trails would be balanced on-site so no import or export of soil would be required.

- Silt fences or wattles would be placed at sensitive areas, along seasonal streams, seeps, and wetland areas.
- Grading to maintain a running slope between 2.5% to 10% and a maximum cross slope of 5%.
- Installation of approximately 12 new seasonal stream crossings that would range in size from 3 to 8-feet long and 5-feet wide and could include the following:
    - Puncheon[4], or
    - Armored crossing[5] - 4"-9" riprap to 12" depth in approximately an 8 foot by 10 foot area, or
    - Foot bridges.[6]

Figures 2-8a through 2-8e provide examples of the various stream crossings that could be constructed.

- Installation of raised trail bed through seasonal wet seeps:
    - Could be a wooden boardwalk (foot bridge), or
    - Crushed rock to form drainage lenses[7] – on 4"-6" riprap raised surface.

Construction staging for equipment and parking for construction workers would be provided on-site in the area designated for future parking. During project construction, equipment would be stored on-site only in designated areas.

Discretionary Actions and Use of This EIR

The County will be the lead agency under CEQA to review the proposed project. The District will be a Responsible Agency as it holds the Conservation Easement and will be transferring the Trail Easement to the County. The County is exempt from the Sonoma County Zoning Code, so no local entitlements are necessary to construct the trail. However, the following Responsible Agencies may be required to use this EIR to authorize construction or to issue permits for the project.

4 Small, wooden bridge designed for high water to flow over, usually set on a wood foundation. Typically this would be used to cross a drainage feature.

5 An armored stream crossing includes using larger rocks and gravel set flush within the existing waterway to create solid footing for the user, but is not designed to elevate the crossing above the waterline.

6 A footbridge is similar to a puncheon, but is designed for crossing wider areas. It is typically also constructed of wood and allows crossing wet or boggy areas.

7 A drainage lens or rock causeway is built on top of the existing soil elevation using large rocks as the base with smaller rocks for the trail bed surface. It is typically used where there are wet soils and wet seeps in flat areas.

Responsible and Trustee Agencies

The EIR prepared for the proposed project would be used by responsible agencies and trustee agencies that may have some approval authority over the proposed project (i.e., to issue a permit). The County would obtain all federal, state and local permits, as required by law. The following agencies have been identified as having potential discretionary authority over approval of certain project elements, or alternatively, may serve in a ministerial capacity:

- North Coast Regional Water Quality Control Board (RWQCB) will require either a Section 401 Water Quality Certification, Waiver of Waste Discharge Requirements for impacts to on-site wetlands.
- California Coastal Commission may require a Coastal Development Permit to construct the proposed project.
- California Department of Fish and Wildlife is a trustee agency under CEQA with regard to impacts, if any, to: (i) the fish and wildlife of the state, (ii) designated rare or endangered native plants, and (iii) other important natural resources.
- California Coastal Conservancy (Project Funding).
- State Lands Commission is a trustee agency under CEQA with regard to state-owned "sovereign" lands, such as the beds of navigable waters including the Estero Americano.
- An Operating Entity, such as Sonoma County Regional Parks, may be designated by the District to assume responsibility for development and operation of the future trail system. That Operating Entity would be a responsible agency.
- Northern Sonoma County Air Pollution Control District may require an Authority to Construct or Modify permit for construction activities if any stationary source equipment would be required.
- Sonoma County Agricultural Preservation and Open Space District, as current holder of the Trail Easement, is a responsible agency under this EIR. As holder of the Conservation Easement, the District will continue to monitor recreational uses for compliance with the Conservation Easement.

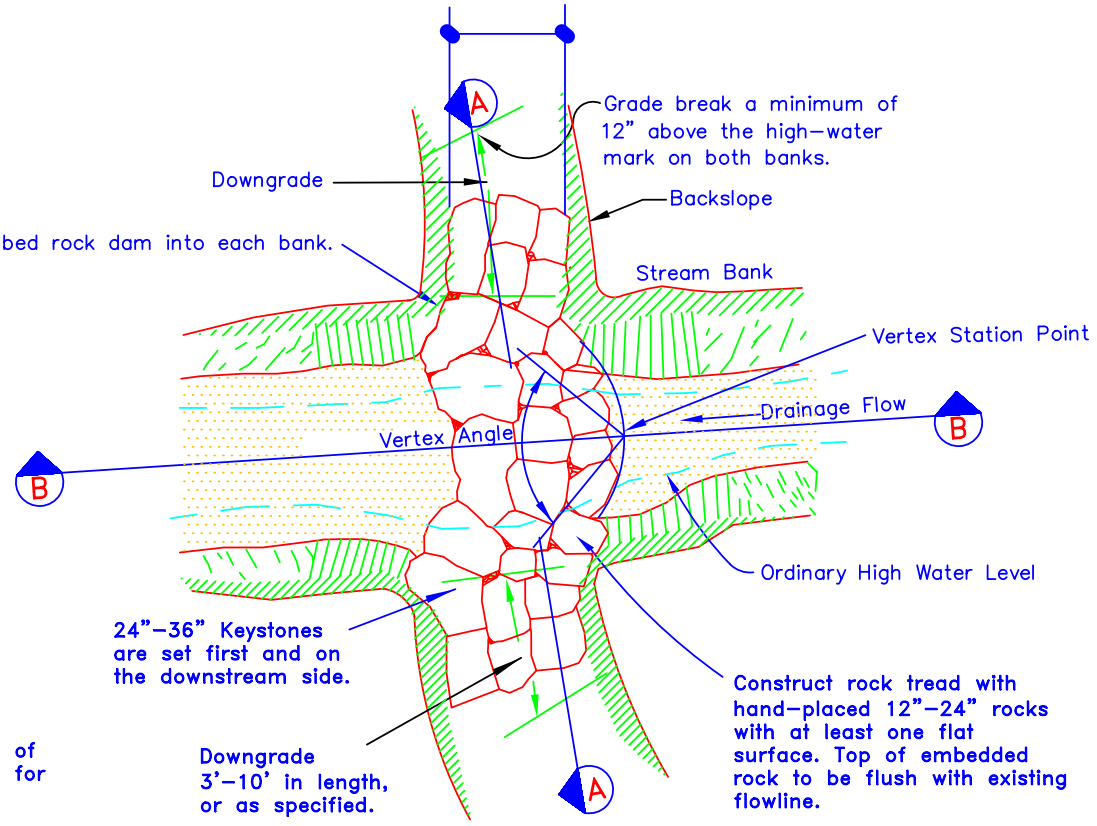
Federal Agencies

- U.S. Fish and Wildlife Service (USFWS) may require an Incidental Take Permit for species listed under the Federal Endangered Species Act that are under their jurisdiction.
- NOAA Fisheries (NMFS) may require an Incidental Take Permit for species listed under the Federal Endangered Species Act that are under their jurisdiction.

- The U. S. Army Corps of Engineers (Corps) will require a Nationwide Permit/or Individual Permit under Section 404 of the Clean Water Act for impacts to on-site wetlands.
- Greater Farallones National Marine Sanctuary oversees construction activity adjacent to the Estero Americano.

Ministerial Permits

- California Department of Transportation (Caltrans) may require a temporary encroachment permit for construction.
- Permit Sonoma may require a grading permit for construction, ADA and Architectural Barriers Act compliance, and a storm water permit for trail and staging area construction.



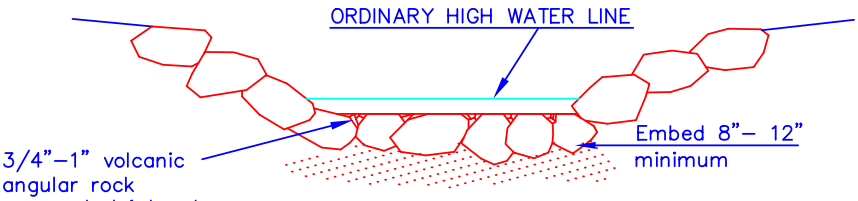
PLAN VIEW

NOTES

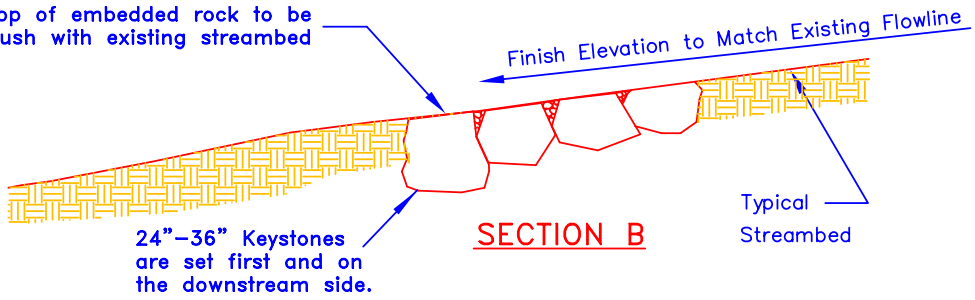
1. Multiple courses of rocks are required for larger crossings.

2. Trail should be dewatered with a rolling dip or other method before downgrade on both sides of the crossing.

3. Crossing shall curve upstream based on vertex angle. See Trail Log, Specifications and/or Inspector for exact angle.



SECTION A



SECTION B

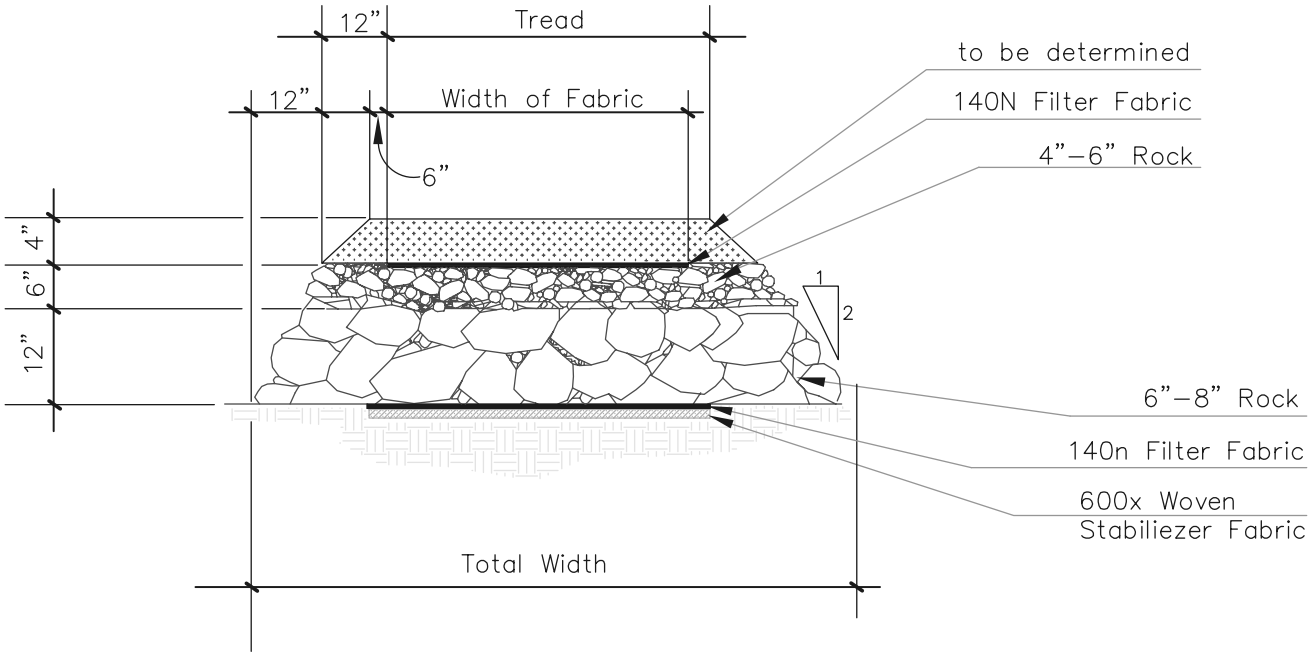
SOURCE: Sonoma County Regional Parks 2018

FIGURE 2-8a

Armored Ford

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SOURCE: Sonoma County Regional Parks 2018

FIGURE 2-8b

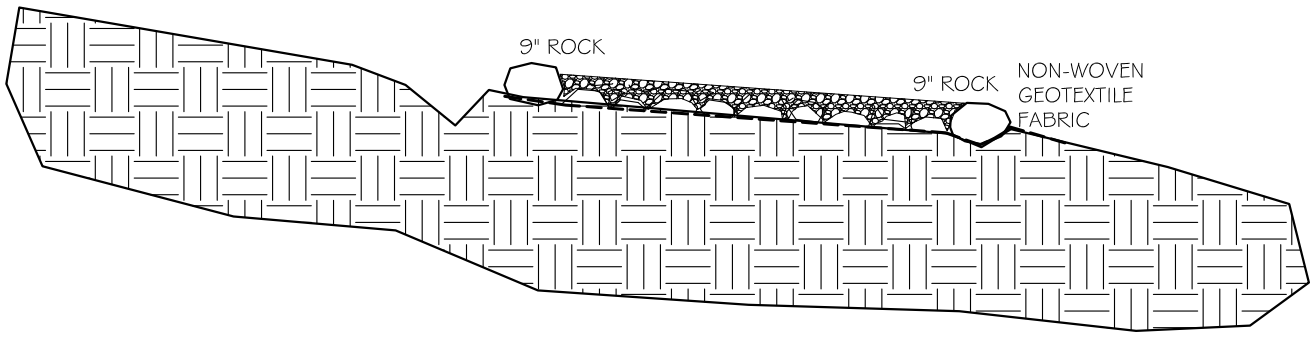
Drainage Lense

Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas Project

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CLEAR GRASS & VEGETATION FROM TRAIL BED & CUT GRADE TO CROSS SLOPE @ 3%-4% TO DRAIN. EXCAVATE A 3"-4" DEEP TRENCH ON BOTH SIDES FOR ROCK EDGES. INSTALL NON WOVEN GEO-TEXTILE FABRIC. PLACE 9" ROCK EDGING ON BOTH SIDES. EXCAVATE A DRAINAGE SWALE ON THE UPHILL SIDE OF THE ROCK CAUSEWAY & DAYLIGHT TO DRAINAGE ALONG NORRBOM ROAD. USE THE EXCAVATED SOIL & SMALL LOOSE ROCK FROM THE SWALE TO BACKFILL & COMPACT THE TRAIL TREAD.



SOURCE: Sonoma County Regional Parks 2018

FIGURE 2-8c

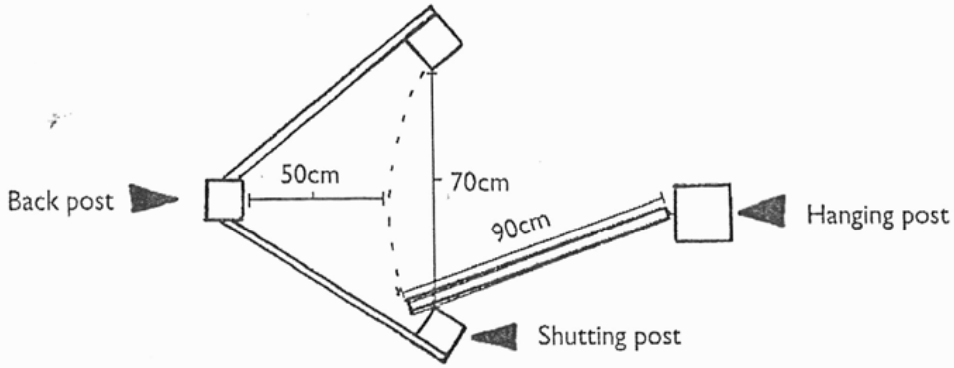
Rock Causeway

Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas Project

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DESIGN 2 - Pedestrian users only



MATERIAL AND CONSTRUCTION - Design 2 -Pedestrian only gate

Hanging Post	15cm x 15cm x 225cm (6" x 6" x 7½ft)
Shutting & Back Posts	10cm x 10cm x 210cm (4" x 4" x 7ft)
Gate	90cm wide x 122cm high (3ft x 4ft) Morticed and double braced
Hinges	Top hinge to be bolted through the hanging post and the bottom hinge driven in inverted to prevent the gate being lifted off its hinges
Rails	87mm x 38mm (3½" x 1½")
Finished Height	Approximately 122cm (4 ft)

Construction

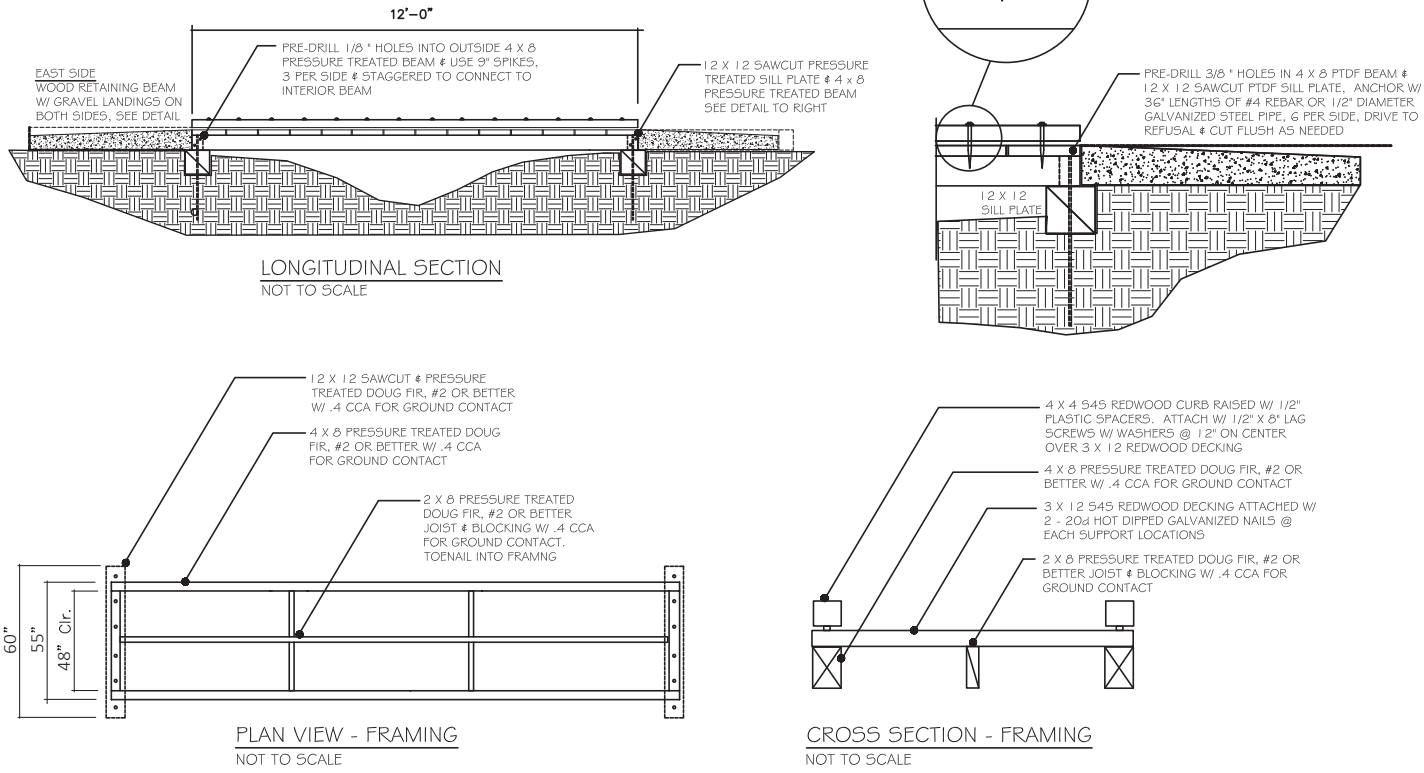
Hanging post to be dug into a depth of 106cm (3ft 6"). Shutting posts to be positioned 70cm (2ft 4") apart so that the gate swings shut onto the posts. The back post to be positioned a minimum of 70cm (2ft 4") from the closest point of the gate end swing.

SOURCE: Sonoma County Regional Parks 2018

FIGURE 2-8d

Pedestrian Kissing Gate

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SOURCE: Sonoma County Regional Parks 2018

FIGURE 2-8e

Puncheon

DUDEK

Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas Project

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CHAPTER 3
INTRODUCTION TO THE ANALYSIS

Scope and Format of the EIR

This chapter of the Draft Environmental Impact Report (Draft EIR) discusses the environmental and regulatory setting, impacts, and mitigation measures for each of the following technical issue areas or sections of this chapter (Sections 3.1 through 3.13):

3.1 Aesthetics

3.2 Agricultural Resources

3.3 Air Quality

3.4 Biological Resources

3.5 Cultural Resources

3.6 Geology and Soils

3.7 Greenhouse Gas Emissions

3.8 Hydrology and Water Quality

3.9 Land Use and Planning

3.10 Noise

3.11 Public Services and Safety

3.12 Recreation

3.13 Transportation and Circulation

It is important to note impacts of the environment on a project or plan (as opposed to impacts of a project or plan on the environment) are beyond the scope of required CEQA review. “[T]he purpose of an EIR is to identify the significant effects of a project on the environment, not the significant effects of the environment on the project” (*Ballona Wetlands Land Trust v. City of Los Angeles* (2011) 201 Cal.App.4th 455, 473 and *California Building Industry Association v. Bay area Air Quality Management District* (2015) Cal.App 4th.). However, information pertaining to potential impacts associated with the environment on the project are included for informational purposes.

The “proposed project site” or “project site,” as referenced throughout the EIR, generally refers to the 50-foot-wide Trail Corridors and Staging Areas where the proposed trail alignments, staging areas, and other project components would be constructed. The ranch property, located within the larger Conservation Easement area outside of the Trail Corridors and Staging Areas, is generally referred to as the Bordessa Ranch property.

Technical Studies Overview

A number of technical studies were prepared as part of this Draft EIR and are included in the technical appendices. Studies prepared include numerous biological resource reports (Appendix C) and a Cultural Resources Report (Appendix D). The following is a brief overview of the findings of the technical studies prepared for the project.

Reports prepared to evaluate potential impacts to protected species and their habitat include the following:

- A biological reconnaissance survey was conducted on September 26, 2017, to assess on-site habitats and their potential to support various special-status plant and wildlife species and to characterize and map on-site vegetation communities.
- A habitat assessment and focused surveys to determine suitability and presence/absence for California red-legged frog and western pond turtle were conducted on September 26, 2017, at all aquatic sites that contained water on the project site.
- A jurisdictional delineation was conducted on May 25-26, 2017 and September 27, 2017, to characterize and map wetland/aquatic areas potentially under the jurisdiction of the U.S. Army Corps of Engineers pursuant to Section 404 of the federal Clean Water Act and under California Department of Fish and Wildlife jurisdiction pursuant to Section 1600 of the California Fish and Game Code.
- Focused protocol-level surveys for special-status plant species known to occur in the region and potentially occurring on the project site were conducted on April 13-14, 2017, May 25-26, 2017, and August 2-3, 2017 to coincide with the blooming periods of those species.
- A habitat assessment for Ridgway's Rail, a duck marsh species now entirely confined to the San Francisco Bay estuary, and the Salt Marsh Harvest Mouse, a federal- and state-listed endangered species, was conducted on June 27, 2018.
- A Cultural Resources report that evaluated the potential for prehistoric or historic resources to be present on the site and within the area of potential effect or disturbance was completed on August 25, 2018.

The traffic consultant, W-Trans, did not prepare a stand-alone traffic report for the project because the technical section in Chapter 3, Section 3.13, Transportation and Circulation, provides the same information as a traffic report. Appendix E provides the model output data from the traffic modeling prepared for the project.

Environmental Setting

Subdivision (a) of Section 15125 of the California Environmental Quality Act (CEQA) Guidelines requires that an EIR include a description of the existing physical environmental condition in the vicinity of the project as those conditions exist at the time when the Notice of Preparation (NOP) is published. This "environmental setting" will normally constitute the "baseline condition" against which project-related impacts are compared. Therefore, the baseline conditions for this EIR, unless noted otherwise, are based upon conditions that existed in November 2017, when the NOP was published. The CEQA Guidelines recognize that the data for establishing an environmental baseline cannot be rigid. Because physical environmental conditions may vary over a range of time, the use of environmental baselines that differ from the date of the NOP is reasonable and appropriate in certain circumstances when doing so results in a more accurate or conservative environmental analysis.

For analytical purposes, impacts associated with implementation of the proposed Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas and Construction and Operation of Recreational Amenities project (proposed project) are compared against two different baselines: first, project-specific effects are assessed against existing conditions at the time the NOP was first published; and second, cumulative effects are assessed against future, or "cumulative," conditions, generally defined as buildout of the County of Sonoma General Plan 2020. Existing conditions and the cumulative baseline can differ by issue area. Each technical section defines the existing conditions and cumulative baseline for the impacts analyzed.

In determining the level of significance of environmental impacts associated with the proposed project, the analysis in this Draft EIR assumes that the proposed project would comply with relevant federal and state laws and regulations, County General Plan policies, ordinances, and other relevant adopted County documents, unless otherwise noted. Therefore, such mandatory policies, ordinances, and standards are not identified as mitigation measures, but rather are discussed as part of the "Regulatory Setting" governing the proposed project.

Section Format

Each technical section in Chapter 3 begins with an **introduction** that explains the issues to be evaluated, provides a general summary of relevant comments received in response to the NOP, and identifies the primary sources reviewed to prepare the analysis. In October 2016, Permit Sonoma prepared and circulated an Initial Study and draft Mitigated Negative Declaration (MND) for the same project. After reviewing the information disclosed by the draft MND document, the Board of Directors of the Sonoma County Agricultural Preservation and Open Space District (District) and the Board of Supervisors of the County of Sonoma directed staff to prepare an EIR for the proposed project to more fully characterize and evaluate potential impacts of the project. Comment letters

received in response to the prior MND were also reviewed during preparation of the EIR and relevant comments are summarized in the introduction section of each technical section in Chapter 3. The introduction is followed by a description of the project's **environmental setting** and **regulatory setting** as it pertains to a particular issue.

The regulatory setting provides a summary of applicable federal, state, and local regulations, plans, policies, and laws that are relevant to each issue area. The regulatory setting description in each section is followed by a discussion of **project impacts**. The project impact discussion is followed by an analysis of the **cumulative impacts** of the project. This section addresses what the project's incremental contribution to any current cumulatively significant impact would be and identifies mitigation measures, if required. The impact statement is prefaced by a number for ease of identification. An explanation of each impact and an analysis of its significance follow each impact statement. All **mitigation measures** are identified immediately following the impact analysis. The degree to which the identified mitigation measure(s) would reduce the impact is also described. Compliance with applicable laws, policies, and County regulations is assumed and will be identified in the impact analysis. In many cases, compliance with applicable laws, policies, or regulations would reduce the significance of a potential impact. Compliance with such regulatory requirements will not be identified as a separate mitigation measure.

An example of an impact statement is shown below:

3.1-1: Implementation of the proposed project could expose sensitive receptors to substantial pollution concentrations. Based on the analysis below and with implementation of mitigation the impact is less than significant. (The significance finding is included in each impact statement).

A discussion of potential impacts of the proposed project is presented in paragraph form. The project-specific impacts associated with construction and operation of the project are evaluated and compared to the threshold of significance for the particular impact. The analysis discusses the applicable local, state, and federal laws and regulations that would reduce impacts, and assumes that the project would comply with applicable laws, ordinances, and regulations, and that the project applicant would obtain all necessary permits and comply with all required conditions of those permits. In many instances, the actions necessary to reduce a project impact are already required by existing laws or requirements. The impact analysis concludes with a determination of the impact's significance in **bold type** (e.g., **significant impact, significant and unavoidable impact, potentially significant impact, less-than-significant impact, or no impact)**.

Mitigation Measures

A discussion of the applicable mitigation measures identified to reduce the significance of an impact will immediately follow the impact analysis.

This section includes a statement indicating whether the mitigation measure will reduce the impact to a **less-than-significant level** or if the impact remains **significant and unavoidable** due to the absence of any available mitigation that could reduce the impact below the applicable threshold. A discussion of how the mitigation would reduce the impact is included before the mitigation measure.

Mitigation measures, if applicable, are identified by the section and numbered sequentially, as presented in the following format:

AES-1 Statement of what, if any, mitigation measures are required.

Note that CEQA Guidelines, Section 15370, defines mitigation as:

- Avoiding the impact altogether by not taking a certain action or parts of an action;
- Minimizing impacts by limiting the degree of magnitude of the action and its implementation;
- Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
- Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and
- Compensating for the impact by replacing or providing substitute resources or environments.

In addition, provided there is a "reasonable plan for mitigation" and contributions are "sufficiently tied to the actual mitigation" of the project's impacts, a commitment to contribute a fair share to such a program discharges an agency's mitigation duty under CEQA (*Save Our Peninsula Com. v. Monterey County Bd. of Supervisors* 2001) 87 Cal.App.4th 99, 141); see also CEQA Guidelines, Section 15130, subd. (a)(3) [recognizing that a project's contribution to a cumulative impact may be less than cumulatively considerable where "the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact"] see also *Anderson First Coalition v. City of Anderson* (2005) 130 Cal.App.4th 1173).

Cumulative Impacts

An analysis of cumulative impacts follows the evaluation of project impacts under existing conditions in each section in Chapter 3. As defined in CEQA Guidelines, Section 15355, cumulative impacts refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. The cumulative

impact from several projects is the change in the environment that results from the incremental impact of the project together with other past, present, and reasonably foreseeable projects causing related impacts.

An introductory statement that defines the cumulative analysis methodology and the cumulative context for respective sections (e.g., buildout of the County's General Plan, development within the Air Basin) is included under the "Cumulative Analysis" discussion. In some instances, a project-specific impact may be considered less than significant but would be considered potentially cumulatively significant in combination with other development within the surrounding area. Or, in other instances, a potentially significant impact could result on a project level impact, but would not result in a cumulatively considerable impact. The cumulative impacts analysis is presented in the same format as the impacts section, shown above.

Terminology Used in This EIR

This Draft EIR uses the following terminology to describe environmental effects of the proposed project:

- **Thresholds of Significance:** A set of criteria used by the lead agency to determine at what level or "threshold" an impact would be considered significant. Standards of significance used in this Draft EIR include those set forth in CEQA Guidelines Section 15065 (Mandatory Findings of Significance) and those derived from questions set forth in Appendix G to the CEQA Guidelines; criteria based on regulatory standards of local, state, and federal agencies; and criteria based on goals and policies identified in the County of Sonoma General Plan 2020. In fashioning criteria based on these sources, County staff has also relied on its own professional judgment and experience in some instances. In determining the level of significance, the analysis assumes that the proposed project would comply with relevant federal, state, and local regulations and ordinances.
- **Less-than-Significant Impact:** A project impact is considered less than significant when it does not reach the standard of significance, indicating that there would be no substantial change in the environment. No mitigation is required for less-than-significant impacts.
- **Potentially Significant Impact:** A potentially significant impact is an environmental effect that could cause a substantial adverse change in the environment; however, additional information is needed regarding the extent of the impact to make the determination of significance. For CEQA purposes, a potentially significant impact is treated as if it were a significant impact.

- **Significant Impact:** A project impact is considered significant if it results in a substantial adverse change in the physical conditions of the environment. Significant impacts are identified by the evaluation of project effects in the context of specified significance criteria. When available, potentially feasible mitigation measures and/or project alternatives are identified to reduce these effects to the environment.
- **Cumulative Impact:** According to CEQA, “cumulative impacts refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts” (CEQA Guidelines, Section 15355). CEQA requires that cumulative impacts be discussed when the “project’s incremental effect is cumulatively considerable” (CEQA Guidelines, Section 15130 (a)).

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3.1 Aesthetics

Introduction

This section of the Draft Environmental Impact Report (EIR) evaluates the potential changes to the existing visual characteristics of the project site and vicinity that could result from future development of the proposed Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas and Construction and Operation of Recreational Amenities project (proposed project). The analysis focuses on the change in visual character and effects on views, and scenic resources.

No comments were received that raised concerns regarding aesthetics in response to the Notice of Preparation (NOP) or on the prior Mitigated Negative Declaration prepared for the project in October 2016. To the extent that issues identified in public comments involve potentially significant effects on the environment according to the California Environmental Quality Act (CEQA), and/or were raised by responsible and trustee agencies or the public, they are identified and addressed in this EIR. See Appendix A for a copy of the NOP and complete list of public comments received during the public scoping period.

Environmental Setting

This section describes the existing conditions in the project area and identifies the resources that could be affected by the proposed project.

Regional Setting

The Sonoma County General Plan 2020 recognizes coastal bluffs, vineyards, the San Pablo Bay, and the Sonoma coast as important scenic resources within the County. Mountain ranges and hills within the County, such as the Mayacama and Sonoma Mountains and hills south of Petaluma, also provide a scenic backdrop (Sonoma County 2016). The western portion of the County is dominated by redwood forests and the coastal mountain range. The landscape of the southern portion of the County is characterized by rolling hills and grazing lands. The defining characteristic of the County, however, is the intermingling of rural communities and the natural landscape (Sonoma County 2016).

Highway 101, Highway 12, Highway 116, and State Route 1 (SR 1) are the primary highway corridors within the County. Highway 101 passes through central Sonoma County, where many of the County's urban centers are located. Highway 12 runs from the Napa County border north towards Santa Rosa, then west to Sebastopol. Highway 116 runs north towards Rohnert Park, then branches northwest through Sebastopol and Forestville and joins SR 1 near the coast. SR 1 runs along the entire western boundary of the County adjacent to the coast. SR 1 is characterized by scenic views of the Pacific Ocean, coastal bluffs and terraces, and redwood groves (Sonoma County 2006).

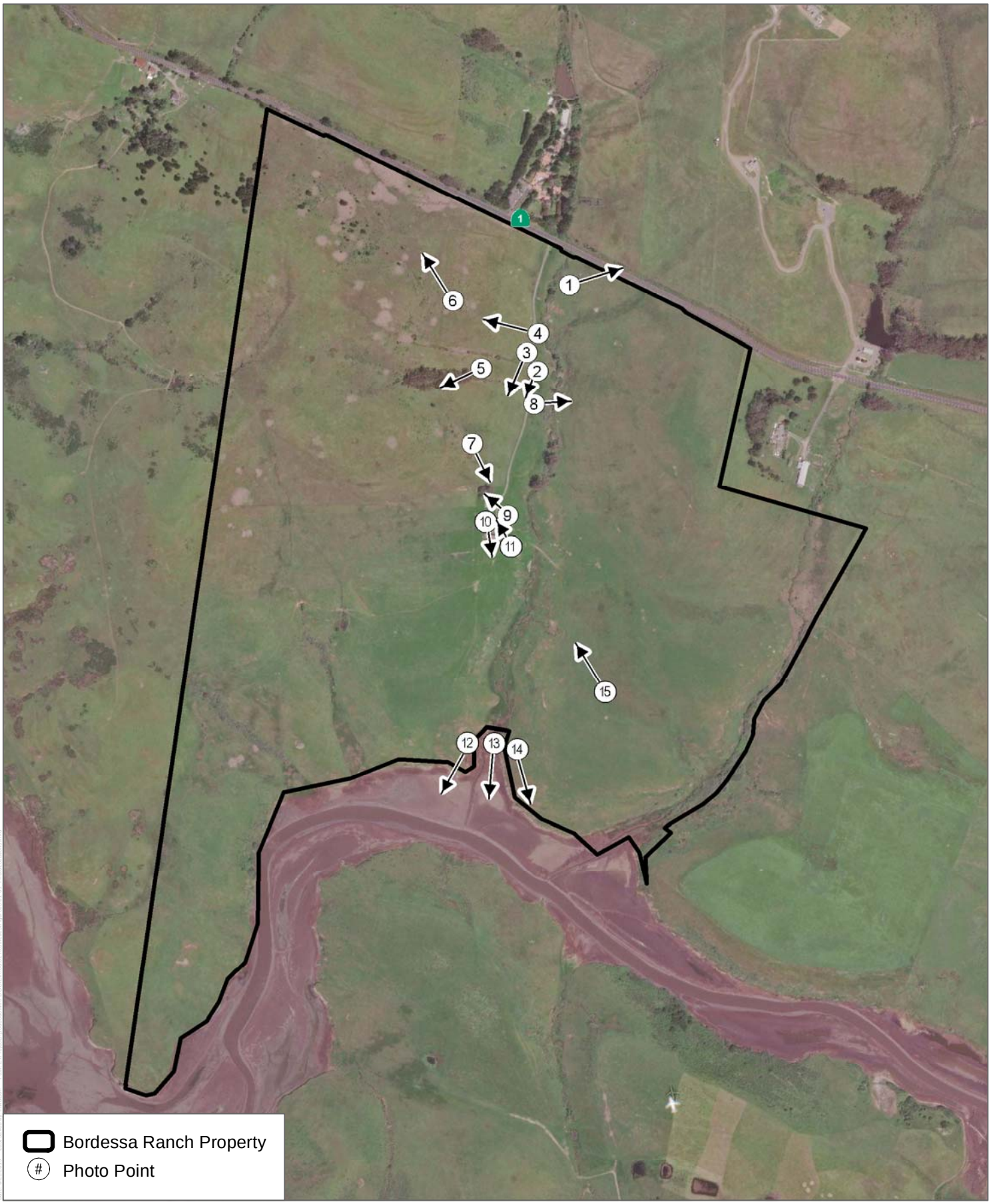
In addition to wide views of agricultural and open space lands, Sonoma County contains unique geologic formations that provide a scenic backdrop to the County. These include Mount Saint Helena at the northeastern boundary of the County, and Sonoma Mountain in the southeastern portion of the County. In addition, large blocks of serpentine within the County create ridges that contribute to the County's unique visual landscape (Sonoma County 2006).

Existing Project Site (including the Bordessa Ranch Property)

The project site (Trail Easement and Staging Areas), including the larger Bordessa Ranch property, is bordered by SR 1 on the north and extends to the Estero Americano (Estero) on its south, encompassing rolling hills and two prominent knolls. The Bordessa Ranch property is currently used as grazing land for cattle and is a working cattle ranch that contains a large barn, sheds and outbuildings, a gravel/dirt access road, fencing, a concrete water tank, spring boxes and concrete water troughs, and two 2,500-gallon above-ground water tanks. With the exception of the access road, fencing, barn and outbuildings, and water facilities, the remainder of the site is undeveloped. The topography of the project site and the Bordessa Ranch property is primarily characterized by gently to steeply sloped hillsides with a central valley created by a drainage that flows into the Estero at the southern end of the site. Annual grassland, rocky outcrops, stock ponds, springs, hillside seeps, a perennial creek, and several smaller drainages are also located on the property. These drainages, as well as one of the stock ponds, support riparian vegetation and/or eucalyptus groves.

California annual grassland is the dominant vegetation community on the project site. In the summer, fall and winter months the grasslands dry out and views of project site include rolling hillsides in various shades of brown. During the late winter and early spring views of the hillsides and grasslands change from brown to green after the winter rains. Evergreen trees including Monterey pine trees and Eucalyptus are also visible on the project site.

The Estero is a scenic and biologically rich coastal estuary along the boundary of Sonoma and Marin counties. The elevation of the project site ranges from sea level at the Estero to about 400 feet at the highest knoll on the northwestern corner of the site. Locations of key viewpoints on the project site are depicted in Figure 3.1-1 and photos from these representative viewpoints are shown in Figures 3.1-2 through 3.1-9.



SOURCE: Bing Maps 2018; Sonoma County 2015

DUDEK

0 500 1,000 Feet

FIGURE 3.1-1

Locations of Site Photographs

Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas Project

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1 - Looking east from project site towards Highway 1



2 - Looking south down existing access road toward barn

FIGURE 3.1-2

Site Photographs

INTENTIONALLY LEFT BLANK



3 - Looking southwest near existing access road toward existing barn



4 - Looking west from existing access road toward fence

FIGURE 3.1-3

Site Photographs

INTENTIONALLY LEFT BLANK



5 - Looking southwest toward eucalyptus grove in northwestern portion of site



6 - Coyote brush scrub in northwestern portion of property

FIGURE 3.1-4

Site Photographs

Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas Project

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7 - Looking southeast across site from proposed West Estero Trail Loop



8 - Looking east from existing access road toward central creek

FIGURE 3.1-5

Site Photographs

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9 - Existing outbuilding



10 - Existing barn, attached bunkhouse on right

FIGURE 3.1-6

Site Photographs

Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas Project

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11 - Existing water tank



12 - View looking southwest toward Estero

FIGURE 3.1-7

Site Photographs

Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas Project

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13 - View looking southwest toward Estero



14 - View looking southeast toward Estero

FIGURE 3.1-8

Site Photographs

Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas Project

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15 - View looking northwest from southeastern portion of property

FIGURE 3.1-9

Site Photographs

Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas Project

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Views of the Project Site from the Surrounding Area

The project site is visible from the portion of SR 1 to the north of the site and partially from the Sonoma Coast Villa Resort & Spa located across SR 1 to the north, although views are largely blocked from this location due to mature trees and vegetation surrounding the resort. From the segment of SR 1 to the north of the project site, views of the site primarily consist of rolling hills that contain annual grasslands, intermittent shrubs and mature trees in various shades of green and brown, and a gravel/dirt access road to the site. In addition, a large brown barn and rolling hills are visible in the background. A brown rusted, metal gate is visible near the entrance of the access road from SR 1, and the site is surrounded by low barbed-wire with wood pole fencing on its northern end. From the Sonoma Coast Villa Resort & Spa, views of the project site primarily consist of the undeveloped grasslands and rolling hillsides on the project site. Utility poles span the northern portion of the project site along SR 1. The project site (and the Bordessa Ranch property) is surrounded by private property to the north, west, and east. These properties primarily consist of rolling pasture land that is similar in character to the project site.

Views from the Project Site

Views from the project site include surrounding rolling hills within the Bordessa Ranch property and adjacent land, the Estero to the south, and SR 1 to the north of the site. From the north of the project site looking towards SR 1, views consist of brown and green vegetation that line the roadway, including a dense combination of mature trees and shrubs and annual forbs and grasses, and the paved, two-lane highway. Small signs marking the location of the Sonoma Coast Villa Resort & Spa are visible looking northwest from the project site along SR 1. Long-range views of rolling hills characterized by grasslands are visible looking northeast from the project site (Figure 3.1-2). Views from the access road on the project site primarily consist of annual grasslands within the Bordessa Ranch property that are green in the early spring after the winter rains and brown during the summer and fall months. Several mature trees, primarily consisting of Monterey pine trees, are scattered across the site. Rocky outcrops are also visible past low open barbwire fences that border the access road (Figure 3.1-3). The southern end of the access road leads to two buildings: one large barn and one wooden outbuilding part of the Bordessa Ranch. The outbuilding is located upon a gray concrete slab and consists of a rectangular building with a brown wood-panel exterior, several glass windows, and a flat metal roof. The barn is a large, steep-roofed structure with a white wood-panel exterior and large open entrance with a small open window above the entrance. The barn is connected to a small shed with a door and glass windows. In the southern portion of the project site, views of the Estero are visible from the highest vantage points on the project site, which include marshlands with areas where salt collects (Figure 3.1-6). Rolling hills can be seen in the background and hills surround the valley that the Estero passes through. This area is of high visual quality, due to unobstructed views of the Estero and associated natural features (Figure 3.1-8).

Light and Glare

Nighttime lighting is necessary to provide and maintain safe, secure, and attractive environments. Light that falls beyond the intended area of illumination is referred to as "light trespass." Types of light trespass include spillover light and glare. Spillover light, which is light that illuminates surfaces beyond the intended area, is typically caused by artificial lighting sources, such as from building security lighting, signs, parking lot lights, roadway lights, and stadium lights on playing fields. Spillover light can adversely affect light-sensitive uses, such as residential neighborhoods at nighttime. Because light dissipates as it moves farther from its source, the intensity of the lighting source is often increased to compensate for dissipating light, which can increase the amount of light that illuminates adjacent uses. The type of light fixture determines the extent to which light will spill over onto adjacent properties and/or be visible from far away. Modern, energy-efficient fixtures that face downward, such as cutoff-type fixtures and shielded light fixtures, are less obtrusive than light fixtures that have been used in the past.

The second type of light trespass is glare, which results when a light source in the field of vision is brighter than the eye can comfortably accept. Glare can result from sunlight or from artificial light reflecting off building exteriors, such as glass windows, metal roofs or other highly reflective surface materials. Squinting or turning away from a light source is an indication of glare. Cutoff-type light fixtures minimize glare because they emit relatively low-intensity light at these angles. Glare resulting from sunlight reflecting off building exteriors can be reduced with design features that use low-reflective glass and exterior materials and colors that absorb, rather than reflect, light.

Existing Light and Glare Conditions

There are minimal light sources associated with exterior building lights on the Bordessa Ranch buildings. Within the project site there are no sources of existing light or glare. Other sources of light in the project vicinity include residential uses approximately 0.5 mile to the north and east of the site, the Sonoma Coast Villa Resort & Spa located north of the project site across SR 1, and vehicle headlights visible at night along SR 1.

General Plan Land Use Designations

The project site is designated in the Sonoma County General Plan and zoning code for Land Extensive Agriculture (Sonoma County 2013). Portions of the site are within the County's Riparian Corridor and Scenic Resource combining districts.

The Open Space and Resource Conservation Element of the Sonoma County 2020 General Plan designates the project site as being adjacent to a Scenic Corridor (Highway 1) (Sonoma County 2008).

Regulatory Setting

Federal Regulations

There are no federal regulations pertaining to visual resources that would apply to the proposed project.

State Regulations

The following state regulations would apply to the proposed project.

California Scenic Highway Program

California's Scenic Highway Program was created by the Legislature in 1963 to preserve and protect scenic highway corridors from change which would diminish the aesthetic value of lands adjacent to highways (Caltrans 2018). The state laws governing the Scenic Highway Program are found in the Streets and Highways Code, Section 260 et seq. The State Scenic Highway System includes a list of highways that are either eligible for designation as scenic highways or have been so designated. County roads can also become part of the Scenic Highway System. To receive official designation, the county must follow the same process required for official designation of State Scenic Highways.

The nearest designated state scenic highway is Highway 116 from SR 1 near Jenner to Highway 101 near Cotati, approximately 9 miles from the site. The segment of SR 1 from the northern boundary of Sonoma County until approximately 5 miles east of the community of Bodega Bay is an eligible state scenic highway, but is not currently designated as a scenic highway. The nearest portion of this eligible scenic highway is located immediately north of the project site (Caltrans 2017).

Local Regulations

Sonoma County General Plan 2020

The Open Space and Resource Conservation Element of the Sonoma County 2020 General Plan designates three types of scenic resources within the County that are important to the County's visual character and quality: Community Separators, Scenic Landscape Units, and Scenic Corridors. Community separators are open space or rural buffers located between urban communities that provide distinction between the County's developed communities and prevent urban sprawl. Scenic Landscape Units are landscapes that have special importance to the County by contributing to the quality of life of County residents, tourists, and the agricultural economy, providing a scenic backdrop to communities, and providing visual relief from urban densities (Sonoma County 2016). Furthermore, the County designates corridors within the

County with views of high visual quality landscapes as Scenic Corridors (Sonoma County 2016, Figure ORSC-1). The segment of SR 1 from the northern boundary of Sonoma County until approximately 5 miles east of the City of Bodega Bay is a County designated Scenic Corridor. A segment of this Scenic Corridor is located directly north of the project site.

The Open Space and Resource Conservation Element of the Sonoma County 2020 General Plan provides objectives, policies, and programs regarding aesthetics. Several of these policies are pertinent to areas designated as Scenic Landscape Units, Community Separators, and Scenic Corridors. Design review is required within these areas to ensure consistency with project surroundings. Relevant General Plan policies are included below:

Goal OSRC-4: Preserve and maintain views of the night time skies and visual character of urban, rural and natural areas, while allowing for nighttime lighting levels appropriate to the use and location.

Policy OSRC-4a: Require that all new development projects, County projects, and signage utilize light fixtures that shield the light source so that light is cast downward and that are no more than the minimum height and power necessary to adequately light the proposed use.

Policy OSRC-4b: Prohibit continuous all-night exterior lighting in rural areas, unless it is demonstrated to the decision making body that such lighting is necessary for security or operational purposes or that it is necessary for agricultural production or processing on a seasonal basis. Where lighting is necessary for the above purposes, minimize glare onto adjacent properties and into the night sky.

Policy OSRC-4c: Discourage light levels that are in excess of industry and State standards.

Goal OSRC-5: Retain and enhance the unique character of each of the County's unincorporated communities, while accommodating projected growth and housing needs.

Goal OSRC-6: Preserve the unique rural and natural character of Sonoma County for residents, businesses, visitors and future generations.

Policy OSRC-6a: Develop design guidelines for discretionary projects in rural areas, but not including administrative design review for single family homes on existing lots, that protect and reflect the rural character of Sonoma County. Use the following general design principles until these Design Guidelines are adopted, while assuring that Design Guidelines for agricultural support uses on agricultural lands are consistent with Policy AR-9h of the Agricultural Resources Element.

(1) New structures blend into the surrounding landscape, rather than stand out.

(2) Landscaping is included and is designed to blend in with the character of the area.

(3) Paved areas are minimized and allow for informal parking areas.

(4) Adequate space is provided for natural site amenities.

(5) Exterior lighting and signage is minimized.

Impacts

Methods of Analysis

The value attached to changes in visual character is largely subjective. This EIR does not assign a judgment of "good" or "bad" to a proposed change; rather, it identifies any "substantial adverse effect," as defined below, as a significant environmental impact.

A description of the project site and the surrounding area is derived from a site visit and photographs taken of the site and surrounding areas. The County's General Plan was reviewed to determine what visual elements have been deemed valuable by the community. The Permit Sonoma Visual Assessment Guidelines were used as guidance for analyzing and forming the visual impact analysis discussion. The impact analysis focuses on the manner in which development of the trail and staging areas could alter the visual elements or features that exist in or near the project area.

This analysis assumes that development of the project site would comply with the County's General Plan goals and policies, and any relevant improvement standards, or trail design standards; therefore, such policies and standards are not specifically identified as mitigation.

Thresholds of Significance

Consistent with Appendix G of the CEQA Guidelines and the County's General Plan, a significant impact would occur if development of the proposed project would do any of the following:

- Have a substantial adverse effect on a scenic vista.
- Substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway.
- In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings. (Public views are those that are experienced from publicly accessible vantage point).
- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

Permit Sonoma has set forth Visual Assessment Guidelines for the assessment of visual impacts in the preparation of Initial Studies and Environmental Impact Reports. The guidelines provide a procedure that first involves determining public viewing points near the project and characterizing the baseline environmental setting of the project area, then performing a photographic analysis to capture the existing project surroundings and compare them to the mass, scale, and contrast of the project. Once this is accomplished, the visual sensitivity of the project site is determined using criteria provided in the guidelines, included below in Table 3.1-1.

Table 3.1-1
Site Sensitivity

Sensitivity	Characteristics
Low	The site is within an urban land use designation and has no land use or zoning designations protecting scenic resources. The project vicinity is characterized by urban development or the site is surrounded by urban zoning designations and has no historic character and is not a gateway to a community. The project site terrain has visible slopes less than 20% and is not on a prominent ridgeline and has no significant natural vegetation of aesthetic value to the surrounding community.
Moderate	The site or portion thereof is within a rural land use designation or an urban designation that does not meet the criteria above for low sensitivity, but the site has no land use or zoning designations protecting scenic resources. The project vicinity is characterized by rural or urban development but may include historic resources or be considered a gateway to a community. This category includes building or construction sites with visible slopes less than 30% or where there is significant natural features of aesthetic value that is visible from public roads or public use areas (i.e., parks, trails etc.).
High	The site or any portion thereof is within a land use or zoning designation protecting scenic or natural resources, such as General Plan designated scenic landscape units, coastal zone, community separators, or scenic corridors. The site vicinity is generally characterized by the natural setting and forms a scenic backdrop for the community or scenic corridor. This category includes building and construction areas within the SR designation located on prominent hilltops, visible slopes less than 40% or where there are significant natural features of aesthetic value that are visible from public roads or public use areas (i.e., parks, trails etc.). This category also includes building or construction sites on prominent ridgelines that may not be designated as scenic resources but are visible from a designated scenic corridor.
Maximum	The site or any portion thereof is within a land use or zoning designation protecting scenic resources, such as General Plan designated scenic landscape units, coastal zone, community separators, or scenic corridors. The site vicinity is generally characterized by the natural setting and forms a scenic backdrop for a designated scenic corridor. This category includes building or construction sites within the scenic resource designation on or near prominent ridgelines, visible slopes greater than 40% or where there are significant natural features of aesthetic value that are visible from a designated scenic corridor.

Source: Sonoma County Permit and Resource Management Department (Permit Sonoma), 2018.

After the visual sensitivity of the project site is determined, the guidelines require the visual dominance of the project in comparison to the project site to be assigned. The visual dominance of the project is determined by comparing the contrast of visual elements such as form, line, color, texture, and night lighting of the project with its surroundings and giving a rating of inevident, subordinate, co-dominant, or dominant. The criteria for defining the visual dominance of the project site are included in Table 3.1-2, below.

Table 3.1-2
Visual Dominance

Dominance	Characteristics
Dominant	Project elements are strong – they stand out against the setting and attract attention away from the surrounding landscape. Form, line, color, texture, and night lighting contrast with existing elements in the surrounding landscape.
Co-Dominant	Project elements are moderate – they can be prominent within the setting, but attract attention equally with other landscape features. Form, line, color, texture, and night lighting are compatible with their surroundings.
Subordinate	Project is minimally visible from public view. Element contrasts are weak – they can be seen but do not attract attention. Project generally repeats the form, line, color, texture, and night lighting of its surroundings.
Inevident	Project is generally not visible from public view because of intervening natural land forms or vegetation.

Source: Permit Sonoma, 2018.

Using the project site's visual sensitivity and the project's visual dominance, the guidelines state that the determination of a project's visual impact significance can be made by comparing the site sensitivity with project visual dominance using Table 3.1-3, below.

Table 3.1-3
Thresholds of Significance for Visual Impact Analysis

Sensitivity	Visual Dominance			
	Dominant	*Co-Dominant*	*Subordinate*	*Inevident*
Maximum	Significant	Significant	Significant	Less than Significant
High	Significant	Significant	Less than Significant	Less than Significant
Moderate	Significant	Less than Significant	Less than Significant	Less than Significant
Low	Less than Significant	Less than Significant	Less than Significant	Less than Significant

Source: Permit Sonoma, 2018.

Project Impacts and Mitigation Measures

3.1-1: Implementation of the proposed project may have a substantial adverse effect on a scenic vista. This would be a less-than-significant impact.

According to the County's General Plan, the project site is located adjacent to a County designated Scenic Corridor and eligible state scenic highway, SR 1. The project site also contains views of the Estero to the south and surrounding areas to the west, east and north, hillsides, rocky outcrops, stock ponds, springs, and a perennial creek that can be deemed to have high visual quality. A scenic vista is generally defined as a viewpoint that provides expansive views of a highly valued landscape for the benefit of the general public.

As described above, Permit Sonoma Visual Assessment Guidelines contain recommendations to assist in characterizing the project site's visual sensitivity and the project's visual dominance.

Visual sensitivity is rated low, moderate, high, or maximum based on the site's land use and zoning designations, proximity to significant aesthetic features, including prominent slopes and ridgelines, and location within a Scenic Landscape Unit or visibility from a designated Scenic Corridor. Because the project site is located adjacent to a Scenic Corridor, and contains significant natural features of aesthetic value, it can be characterized as possessing high visual sensitivity.

Public views of the project site are limited and only available from SR 1 and from people boating on the Estero. The proposed project would involve constructing two approximately 5-foot-wide pedestrian-only trails, and two associated staging areas (trailheads/parking lots), not to exceed 1.5 acres in size in total combined area, to provide for low-intensity public outdoor recreational and educational uses. One staging area would be located in the northern portion of the project site near SR 1, and the other would be located south of the existing barn, as shown in Figures 2-3 and 2-4, in Chapter 2, Project Description. Staging areas would be constructed with a gravel base and concrete-paved parking stalls to enable those with disabilities access and may include portable restroom facilities, bicycle parking, picnic tables, benches, animal-proof trash and recycle containers, display case and signage**.** The trails would be constructed for pedestrian use only and are anticipated to be constructed of compacted native material or other permeable surface. Trail markers, posts, interpretive signs, and benches, would be placed along the trails. Trail markers would be constructed of wood or steel and would measure approximately 3-feet tall.

New fencing and gates would be installed as needed to minimize conflicts between trail users and staging areas, sensitive resources, and ranch activities. Fences and gates would be designed to match the existing on-site facilities and would include 5-wire wildlife fencing and "kissing gates" for trail users to access lands where livestock graze. The existing access road, access gate, and access bridge across central creek may also be improved or replaced in the same or similar locations. The access bridge would be replaced with weathered steel or wood and the bridge deck would be paved with asphalt or concrete. A new gate would be included at the end of the bridge in the same location as the current gate. The access road to the staging areas would also be gravel. Furthermore, interpretive, regulatory, and wayfinding signage would be provided in the staging areas, at the trailheads, at vista points along the trails, and at the Estero. All signage (including materials and size) would be constructed consistent with the Trail Easement and Conservation Easement requirements.

The proposed project involves constructing two trails and staging areas that would allow public access to observe scenic vistas and views of the rolling hillsides that characterize this area of the County. The project does not include any type of lighting and no buildings or structures would be constructed, with the exception of foot bridges and replacing the existing access bridge. The proposed trails, staging areas and associated amenities, signage, trail markers, posts, benches, fences, gates and bridges would be designed to blend in with the surroundings and would generally not be visible or create a barrier to scenic views. Views of the project site from SR 1

would include a sign at the project entrance, a more defined access road, and a gravel staging area with a possible free-standing portable restroom. The addition of these elements would not have a substantial adverse effect on a scenic vista because these elements would not dominate the viewshed. The project would be considered to have a subordinate visual dominance because the most visible project elements (access road, and staging area) would be visually consistent with the existing environment and would not attract attention. Project features would be considered low scale and would not impede views on or surrounding the project site. As the project does not include any elements that would adversely affect a scenic vista, impacts would be considered **less than significant**.

Mitigation Measures

No mitigation measures are required.

3.1-2: Implementation of the proposed project would not substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway. This is considered a less-than-significant impact.

The project site is adjacent to a segment of SR 1, a County designated Scenic Corridor and eligible state scenic highway (but not designated as a state scenic highway). The proposed project would not remove trees or rock outcroppings. As described above, the project would involve constructing two approximately 5-foot-wide pedestrian-only trails, and two associated staging areas (trailheads/parking lots), not to exceed 1.5 acres in size in total combined area, to provide for low-intensity public outdoor recreational and educational uses on the property. New fencing and gates would also be installed and the existing gate and bridge may be improved or replaced in the same or similar locations. The existing buildings on the project site would not be altered by the proposed project and improvements to the existing gate on the project site would not substantially change the visual characteristics of the gate.

The proposed northern staging area, trailhead, and access road improvements would be visible from the portion of SR 1 to the north of the site. The widened access road and the proposed replacement bridge, which would be located near the entrance to the project site, would be the most visible project elements from SR 1. The bridge would be replaced with weathered steel or wood and the bridge deck would be paved with asphalt or concrete. The access road to the staging areas would be gravel. However, these features would not have any prominent visual characteristics that would contrast with the project surroundings. As project elements would largely blend into the project surroundings, they would not detract from views as seen from SR 1; therefore, impacts would be **less than significant.**

Mitigation Measures

No mitigation measures are required.

3.1-3: Implementation of the proposed project would not substantially degrade the existing visual character or quality of public views of the site and its surroundings (non-urbanized area). This is a less-than-significant impact.

The existing visual character of the project site is currently of undeveloped grasslands used for grazing cattle, dominated by rolling hills with a large barn within the Bordessa Ranch property visible from SR 1. The site is characterized as rural and is similar to the surrounding ranch/pasturelands. The access road on the project site provides an entrance to the site from SR 1, and ends at a large barn that includes an off-white wood exterior and a sloped metal roof. The access road is an unpaved dirt road bordered by fencing on the west side.

As described previously, the proposed project would involve constructing two 5-foot-wide pedestrian-only trails, and two associated staging areas (trailheads/parking lots), not to exceed 1.5 acres in size in total combined area. The existing access road, gate, and bridge would be improved or replaced in the same or similar locations. The access road would be widened to 12-feet wide and the access bridge would be replaced with a weathered steel or wood and the bridge deck would be paved with asphalt or concrete.

The staging/parking areas would be constructed with a gravel base and may include portable restroom facilities, bicycle parking, picnic tables, benches, trash and recycle containers, display case and signage. New fencing and gates would be installed to ensure current cattle grazing and breeding activities would not change.

The proposed trails and access road improvements would not be visually intrusive relative to existing conditions and would not interfere with or result in substantial damage to scenic resources. Land outside of the Trail Easement is included within a Conservation Easement that limits any type of development, as shown on Figures 2-3 and 2-4 in Chapter 2, Project Description. The proposed project would generally maintain the open space/grasslands on the project site, and would preserve the creeks, drainages, rock outcroppings, hillsides and grasslands that characterize the project site. The project does not include any lighting and no buildings or structures would be constructed. As described previously, the project would have subordinate visual dominance because the project would be minimally visible from any public vantage point and the proposed changes to the site would generally be visually consistent with the project surroundings. Furthermore, due to their location it is possible only small portions of the proposed trails would be visible to motorists along SR 1, and views of the project site would be fleeting along this corridor assuming vehicles are traveling at 50 to 60 miles per hour. Trail users may be visible for short periods as they traverse the trails and vehicles parked in the

northernmost staging area would also be visible to travelers along SR 1. However, these views would only be visible for a short time as vehicles driving along this stretch of the highway are assumed to be traveling over 50 miles per hour.

One of the project objectives is to provide public access to scenic resources and preservation of open space and scenic views. The project aims to protect the existing visual character and quality of the project site to the greatest extent possible. Because the project would not propose features that would substantially degrade the existing visual character or quality of the site and its surroundings, impacts would be considered **less than significant.**

Mitigation Measures

No mitigation measures are required.

3.1-4: Implementation of the proposed project would not potentially create a new source of substantial light or glare which would adversely affect day or nighttime views in the area. The project would result in a less-than-significant impact.

The project site does not include any light sources, but within the Bordessa Ranch property exterior building lights are visible on the existing barn. Existing light sources in the project vicinity include residential uses approximately 0.5 mile to the north and east of the site and the Sonoma Coast Villa Resort & Spa, located northwest of the project site across SR 1, and vehicle headlights along SR 1. As described previously, the proposed project does not include any type of lighting or construction of buildings or structures that would produce any new source of lighting.

The project does include two staging areas that would provide parking for up to 30 vehicles. One staging area would be located across central creek near the turnoff from SR 1. The second staging area would be located over 2,000 feet further south. Daytime glare is generally associated with reflected sunlight from reflective surfaces such as glass, shiny surfaces, metal, or other reflective materials. Sunlight reflecting off parked vehicles depending upon the angle of the sun could create some daytime glare. However, the amount of glare that could be created assuming a maximum of 30 parked cars on a sunny day would be relatively minimal and would not be considered a substantial increase in glare. The proposed project would not introduce new sources of light or glare that would be considered substantial; therefore, the impact would be considered **less than significant.**

Mitigation Measures

No mitigation measures are required.

Cumulative Impacts

The geographic scope considered for cumulative aesthetic impacts is future development within southern Sonoma County.

3.1-5: The proposed project would not contribute to significant cumulative changes in the existing visual character of the area, including the introduction of light and glare. There would be no significantly considerable cumulative contribution.

The Sonoma County General Plan EIR identified that development under the County's General Plan within the southern portion of the County would not result in significant impacts to scenic vistas, scenic resources, and the visual quality and character of the County. However, buildout of the General Plan would result in significant and unavoidable lighting impacts due to the overall projected increase in light sources within the County. Although policies outlined within the General Plan would reduce impacts related to lighting, future light sources would still result in a cumulatively significant impacts (Sonoma County 2006). The proposed project would not result in any impacts to scenic vistas, scenic resources, or the existing visual character or quality of the site. The project would not introduce new sources of light on the project site. The project would introduce the potential for parked cars to create glare given the right conditions. However, the amount of glare that could be created would be very small and would not be considerable. As the proposed project would not introduce any new sources of light, the project would not contribute to this existing cumulative impact and would have no cumulatively considerable contribution related to visual resources.

Mitigation Measures

No mitigation measures are required.

References

Sonoma County. 2016. "Figure OSRC-1." In *Sonoma County General Plan 2020*. August 2, 2016.

Sonoma County. 2016. *Sonoma County General Plan 2020*. Adopted September 23, 2008. Amended August 2, 2016.

Sonoma County. 2006. *Sonoma County General Plan 2020 Draft Environmental Impact Report.* January 2006.

Caltrans. 2017. Scenic Highways. Accessed May 16, 2018. Updated July 18, 2017. Available at: http://www.dot.ca.gov/design/lap/livability/scenic-highways/index.html.

Caltrans. 2018. The California Scenic Highway Program. Accessed May 23, 2018. Available at: http://www.dot.ca.gov/dist3/departments/mtce/scenic.htm.

Permit Sonoma. 2018.

3.2 Agricultural Resources

Introduction

This section of the Draft Environmental Impact Report (EIR) presents potential agricultural resource impacts of the Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas and Construction and Operation of Recreational Amenities project (proposed project) and evaluates the potential effects on the conversion of agricultural resources associated with development and operation of the proposed trails.

Comments received in response to the Notice of Preparation (NOP) included concerns regarding potential damage to adjacent agricultural properties from trespassing; boats dragged along the trails to access the Estero Americano (Estero); unleashed dogs; potential risks to hikers from livestock; loss or harassment of cattle (and sheep) by dogs; and introduction of noxious, invasive, and non-native plants and diseases that would jeopardize crops and livestock. Commenters also expressed concerns regarding the increased risk of grass fires due to illegal campfires and smoking that could put nearby agricultural lands at risk. Issues associated with wildfires and are addressed in Section 3.11, Public Services and Safety. See Appendix A for a copy of the NOP and complete list of public comments received during the public scoping period.

Comments received in response to the prior Mitigated Negative Declaration released in October 2016, included concerns associated with the close proximity of active agricultural uses and proposed recreational uses, including the potential damage to terrain, infrastructure, and livestock on these properties. Comments also indicated concerns regarding members of the public trespassing on surrounding private properties and the potential introduction of diseases and non-native species. The California Coastal Commission recommended completing a Grazing Plan that would address these concerns. As explained in Chapter 2, Project Description, the Bordessa Ranch property is under a Conservation Easement and is private land that will continue to be operated as a cattle ranch and used for cattle grazing. The Conservation Easement limits the use of the land in order to protect its conservation value. However, as mentioned, the land is still under private ownership; therefore, preparation of a Grazing Plan would not be within the scope of the County to prepare. The conservation easement requires the landowners to prepare a rangeland management plan that integrates natural resources protection goals with cattle grazing for the property. All of the other concerns raised are addressed in this section.

To the extent that issues identified in public comments involve potentially significant effects on the environment according to the California Environmental Quality Act (CEQA), and/or were raised by responsible and trustee agencies or the public, they are identified and addressed in this EIR.

Environmental Setting

This section describes the existing setting in the project area and also identifies the site's current zoning and general plan designation and its relation to agricultural resources.

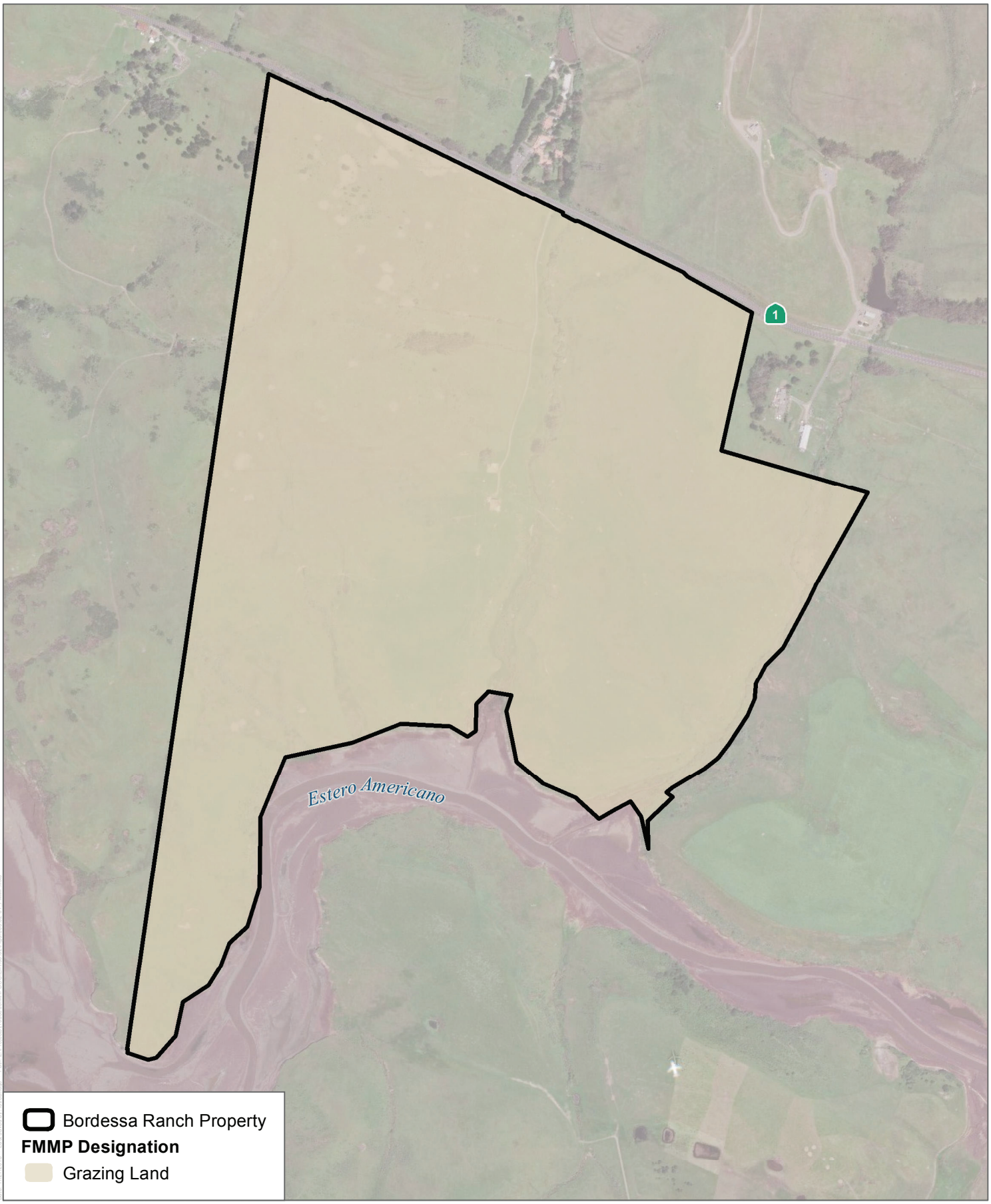
Existing Site

Farmland Classification

The Bordessa Ranch property has historically been used for grazing and is currently an active cattle ranch. The land is not irrigated and has not been used for active agriculture (other than grazing), nor does the project area contain any forestry resources. The California Department of Conservation (DOC), Division of Land Resources Protection, operates the Farmland Mapping and Monitoring Program (FMMP). The FMMP maps the state's farmland resources and monitors the conversion of farmland to (and from) other land uses. The FMMP designates the Bordessa Ranch property as Grazing Land (DOC 2017), as shown on Figure 3.2-1.

The United States Department of Agriculture Natural Resources Conservation Service (NRCS) conducts soil surveys and creates maps representing the location and type of soil in order to aid in agricultural, conservation, and land use decisions. The NRCS identifies the following soils as occurring on the Bordessa Ranch property (NRCS 2018):

- Blucher fine sandy loam, overwash, 0 to 2 percent slopes (BcA)
- Kneeland sandy loam, sandy variant, 2 to 15 percent slopes (KsD)
- Kneeland rocky sandy loam, sandy variant, 9 to 30 percent slopes (KvE)
- Los Osos clay loam, thin solum, 30 to 50 percent slopes (LsF2)
- Steinbeck loam, 2 to 9 percent slopes (SnC)
- Steinbeck loam, 9 to 15 percent slopes (SnD)
- Steinbeck loam, 9 to 15 percent slopes, eroded (SnD2)
- Steinbeck loam, 15 to 30 percent slopes, eroded (SnE2)
- Steinbeck loam, 30 to 50 percent slopes, eroded (SnF2)



SOURCE: Bing Maps 2018; Sonoma County 2015; CA Department of Conservation 2016

FIGURE 3.2-1

DUDEK

0 500 1,000 Feet

Department of Conservation Farmland Mapping and Monitoring Program Designations

Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas Project

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The majority of these soil types are not considered suitable for agricultural production. The Storie Index is a rating system that is used to classify soils that could be used for irrigated agriculture in California. The Storie Index Rating system ranks soil characteristics according to their suitability for agriculture from Grade 1 soils (80 to 100 rating), which have few or no limitations for agricultural production to Grade 6 soils (less than 10), which are not suitable for agriculture. Under this system, soils deemed less than prime can function as prime soils when limitations such as poor drainage, slopes, or soil nutrient deficiencies are partially or entirely removed. Soil units are also rated based on four properties: degree of soil profile development, texture of the surface layer, steepness of slope, and drainage class, landform, erosion class, flooding and ponding frequency and duration, soil pH, soluble salt content as measured by electrical conductivity, and sodium adsorption ratio (NRCS 2018). The Storie Index Ratings for soils on the Bordessa Ranch property are shown in Table 3.2-1, below.

Table 3.2-1
Storie Index Rating and Farmland Classification

Map unit symbol	Storie Index Rating	Percent of Property Area
BcA	Grade 2 – Good	3.0%
KsD	Grade 3 – Fair	25.9%
KvE	Grade 4 – Poor	8.7%
LsF2	Grade 4 – Poor	17.3%
SnC	Grade 2 – Good	4.7%
SnD	Grade 2 – Good	8.5%
SnD2	Grade 3 – Fair	11.8%
SnE2	Grade 3 – Fair	5.3%
SnF2	Grade 4 – Poor	14.7%

Source: NRCS 2018.

As shown in Table 3.2-1, the majority of the Bordessa Ranch property, approximately 83.8%, contains soils that are classified as fair or poor for irrigated agricultural production. Furthermore, the areas with soil units that are classified as good for irrigated agricultural production are outside of the designated Trail Easement and would not be disturbed. In addition, the land is not irrigated and has historically, and presently, been used for grazing.

The Bordessa Ranch property is not under a Williamson Land Act contract, does not contain any forest or timberland, and is not zoned for forest land, timberland, or timberland production, as defined in the California Public Resources (PRC) Code and Government Code. California PRC Section 12220(g) defines “forest land” for the purposes of CEQA as land that can support 10% native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits.

California Government Code Section 51104(g) defines "Timber," "Timberland," and "Timberland Production Zone" for the purposes of CEQA as either trees of any species maintained for eventual harvest for forest production purposes ("Timber"); privately owned land, or land acquired for State forest purposes, used for growing and harvesting timber ("Timberland"); or "Timberland Production Zone" which means an area zoned and used for growing and harvesting timber.

Existing Land Use Designation and Zoning

The Bordessa Ranch property is designated in the Sonoma County General Plan 2020 and zoning code for Land Extensive Agriculture (Sonoma County 2016). Portions of the site are within the Riparian Corridor (RC) and Scenic Resource (SR) combining districts.

There are also two easements that overlay the Bordessa Ranch property: a Conservation Easement and a Trail Easement. The Conservation Easement covers the entire Bordessa Ranch property (see Figure 3.9-1, in Section 3.9, Land Use and Planning). The purpose of the Conservation Easement is to preserve and protect the conservation values of the property, including natural resources, habitat connectivity, open space and scenic views, agricultural resources, and recreation and education. The purpose of the Trail Easement is to ensure that trails and associated staging areas are established and made available to the public in perpetuity for low-intensity public outdoor recreational and educational purposes consistent with the purpose of the Conservation Easement to preserve and protect natural resources, habitat connectivity, open space and scenic views, and agricultural resources.

Regulatory Setting

Federal Regulations

There are no federal regulations related to agricultural resources that apply to the proposed project.

State Regulations

The following state regulations pertaining to agricultural resources would apply to the proposed project.

California Civil Code Section 3482.5

Section 3482.5 of the California Civil Code specifies that no agricultural activity, operation, or facility that is conducted properly in the same location for more than three years shall be considered a nuisance to new uses in its vicinity, unless it was considered a nuisance since the time it began. This regulation also applies to activities of a district agricultural association.

Williamson Act

The Williamson Act (California Government Code § 51200), also known as the California Land Conservation Act of 1965, is the premier legislation for the protection of agricultural land in California. The act underscores the importance of preserving a maximum amount of the state's agricultural land as an economic asset that provides for the generation of adequate and nutritious food resources for the nation and state into the future. The Williamson Act operates through 10-year contracts with agricultural landowners that confirm that agricultural land is being preserved as the land's best use while providing a substantial property tax break for the landowner. The property's agricultural value is assessed and the landowner under contract is dismissed from property taxes according to the property's urban development potential.

After the 10-year contract period, the contract is automatically renewed unless the landowner submits a notice of nonrenewal with the County.

Farmland Mapping and Monitoring Program

The FMMP is a non-regulatory program implemented by the California Department of Conservation, Division of Land Resource Protection. Government Code § 65570 mandates FMMP to biennially report to the Legislature on the conversion of farmland and grazing land, and to provide maps and data to local government and the public. FMMP produces Important Farmland Maps, which are a hybrid of resource quality (soils) and land use information, based on the prior federal Natural Resource Conservation Service program. Land is classified into eight categories. Prime Farmland, Farmland of Statewide Importance, and Unique Farmland are considered "Important Farmland" for the purposes of CEQA (the conversion of which may be a significant impact).

Local Regulations

The following local/regional regulations pertaining to agriculture would apply to the proposed project.

Sonoma County General Plan 2020

The Open Space and Resource Conservation Element and the Agricultural Resources Element of the Sonoma County General Plan 2020 (Sonoma County 2016) provide objectives, policies, and programs regarding agricultural and forestry resources, including the following:

> **Goal OSRC-10**: Encourage the conservation of soil resources to protect their long term productivity and economic value.
>
> **Policy OSRC-10a**: Apply the "Land Intensive Agriculture", "Land Extensive Agriculture", and "Diverse Agriculture" land use categories to areas with productive agricultural soils.

Goal AR-4: Allow farmers to manage their operations in an efficient, economic manner with minimal conflict with nonagricultural uses.

Policy AR-4a: The primary use of any parcel within the three agricultural land use categories shall be agricultural production and related processing, support services, and visitor serving uses. Residential uses in these areas shall recognize that the primary use of the land may create traffic and agricultural nuisance situations, such as flies, noise, odors, and spraying of chemicals.

Policy AR-4d: Apply the provisions of the Right to Farm Ordinance to all lands designated within agricultural land use categories.

Policy AR-4e: Recognize provisions of existing State nuisance law (Government Code Section 3482.5).

Sonoma County Right to Farm Ordinance

Chapter 20, Article II of the Sonoma County Municipal Code, known as the Sonoma County Right to Farm Ordinance, protects agricultural operations on agricultural land within the unincorporated area of the County by limiting the circumstances under which agricultural operations may be deemed to constitute a nuisance. The Right to Farm Ordinance requires owners of agricultural land to notify neighbors of the inherent potential problems associated with being located near such operations. This notification requirement is intended to ensure that neighbors adjacent to agricultural operations are better informed about the consequences of properly conducted agricultural operations.

Impacts

Methods of Analysis

The County's General Plan, General Plan Final EIR, and DOC FMMP were all reviewed to establish the existing land use designations, zoning, and farmland status and to determine potential impacts to agricultural land associated with project construction and operation.

As noted in Chapter 3, Introduction to the Analysis, impacts of the existing environment on a project or plan (as opposed to impacts of a project or plan on the environment) are beyond the scope of required CEQA review. "[T]he purpose of an EIR is to identify the significant effects of a project on the environment, not the significant effects of the environment on the project" (*Ballona Wetlands Land Trust v. City of Los Angeles* (2011) 201 Cal.App.4th 455, 473 and *California Building Industry Association v. Bay area Air Quality Management District* (2015) Cal.App 4th.). However, information pertaining to potential impacts associated with the environment on the project is included for informational purposes.

Due to numerous concerns raised from the public regarding potential risks to hikers from proximity to livestock, damage to adjacent agricultural properties from trespassing, and introduction of noxious, invasive, and non-native plants and diseases that would jeopardize crops and livestock, these concerns, although not required to be evaluated under CEQA are further addressed under Impact 3.2-4.

Thresholds of Significance

Consistent with Appendix G of the CEQA Guidelines and the County's General Plan, a significant impact would occur if development of the proposed project would do any of the following:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use.
- Conflict with existing zoning for agricultural use, or a Williamson Act contract.
- Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g)).
- Result in the loss of forest land or conversion of forest land to non-forest use.
- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use.

Significance Criteria not Applicable to the Proposed Project

Due to the location and characteristics of the proposed project, certain significance thresholds are not applicable and therefore, are not considered potential impacts. These thresholds are addressed briefly below and are not discussed further in this document.

The project site does not include forest lands, or land zoned for forest land or timberland, nor does the project site contain an active Williamson Act contract; therefore, there would be no impacts to forest or timberland resources or removal of a Williamson Act contract. Thus, these issues are not further evaluated.

Concerns Raised Not Under the Purview of CEQA

This EIR is a public information document for use by governmental agencies and the public to identify and evaluate potential environmental consequences of the proposed project. CEQA allows agencies and members of the public an opportunity to identify relevant environmental issues to be

further evaluated in an EIR during the 30-day NOP public comment period. Comments received from the public raised concerns regarding potential conflicts between trail users and on-site cattle and the potential for crop contamination. Although these issues are not included in Appendix G of the CEQA Guidelines and the County has no adopted thresholds to evaluate these concerns, a discussion of these issues is included for informational purposes under Impact 3.2-4.

Project Impacts and Mitigation Measures

3.2-1: The proposed project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use. This is a less-than-significant impact.

As described above, the FMMP designates the Bordessa Ranch property as Grazing Land (DOC 2017). Although Grazing Land is considered agricultural land under Public Resources Code Section 21060, it is not considered Prime, Unique, or Farmland of Statewide Importance. The Bordessa Ranch property is currently used as grazing land for cattle and is an active cattle ranch. Therefore, development of trails within the Trail Easement is not expected to result in conversion of Farmland to non-agricultural uses.

The proposed project would construct two pedestrian-only trails and two associated staging areas (trailheads/parking lots) consistent with the Trail Easement. No dogs, bikes, or equestrians would be allowed on the trails. The project would provide for low-intensity public outdoor recreational and educational uses on the portion of the property consistent with the Trail Easement and the site's underlying Conservation Easement. These uses include hiking, nature study, bird watching, sightseeing, picnicking, outdoor education, docent-led tours, scientific research and observation, and other similar uses. These low-intensity activities, implemented in accordance with the mitigation measures included in this EIR, would not adversely impact the natural resources or grazing activities on the property. Trail markers, posts, and interpretive signs**,** consistent with the requirements set forth in the Trail Easement, would include wayfinding, and maps as well as signage explaining the "rules" of access would be provided at both staging areas and at the trailheads**.** Language on the signs would include information explaining that the property is an active cattle ranch and not to interfere with the livestock. No dogs or horses (pets) would be allowed on the project site; eliminating threats to livestock due to livestock encounters with pets or pet disease transmission.

The proposed project, specifically the trails, is considered compatible with existing cattle operations on the project site and would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use. Therefore, impacts to Farmland would be **less than significant**.

Mitigation Measures

No mitigation measures are required.

3.2-2: The proposed project would not conflict with existing zoning for agricultural use. This is a less-than-significant impact.

The proposed trail corridors, staging areas and access road are located within the Bordessa Ranch property that is designated in the Sonoma County General Plan 2020 and zoning code for Land Extensive Agriculture Coastal District (Sonoma County 2016). The intent of the Land Extensive Agriculture Coastal District is to protect lands suited for agriculture use and the raising, feeding, maintaining and breeding of farm animals are activities allowed within this zone (Article III Section 26C-31). The proposed project would convert less than 10 acres to trails and staging/parking areas (approximately 4.8 acres would be required for the two five-foot wide trails and 1.5 acres for the staging areas), which are allowed uses and activities within the Land Extensive Agriculture Coastal District. Cattle grazing would continue on the site consistent with the underlying zoning and the project would not introduce any uses that would conflict with the existing land use and zoning designation (see Section 3.9, Land Use and Planning). The project would not conflict with the underlying zoning that allows agricultural activities, including cattle grazing. Impacts would be considered **less than significant.**

Mitigation Measures

No mitigation measures are required.

3.2-3: The proposed project would not involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use. This is a less-than-significant impact.

The proposed project would construct two approximately 5-foot-wide pedestrian-only trails (within a 50-foot-wide Trail Corridor) and two associated staging/parking areas on the project site. As discussed above under Impact 3.2-1, the proposed low-intensity outdoor recreational uses are compatible with livestock grazing on site and would not introduce uses that would encourage the conversion of surrounding lands to developed uses. In addition, only a portion of the project site includes designated Trail Corridors and Staging Areas under the Trail Easement. The majority of the site is protected from development pursuant to the Conservation Easement that overlays the entire Bordessa Ranch property. Thus, the project would not cause other changes that would result in conversion of Farmland to non-agricultural use. Therefore, a **less-than-significant impact** would occur.

Mitigation Measures

No mitigation measures are required.

3.2-4: The proposed project would introduce trail users in close proximity to cattle grazing that could result in potential conflicts, and may contribute to the potential for crop contamination. This is considered a less-than-significant impact.

Trail Users and Cattle

Although the County does not typically evaluate potential conflicts between trail users and cattle, and the potential for crop contamination when reviewing proposed trail projects, due to public comments received in response to the NOP these concerns are addressed. Many trails throughout Sonoma County and other surrounding counties are located on lands where active cattle grazing occurs, such as Taylor Mountain Regional Park & Preserve (Taylor Mountain), a regional park located in north-central Sonoma County. This regional park has historically been used for ranching and successfully accommodates recreational uses in areas currently used for cattle grazing. County Regional Parks (Regional Parks) has not identified any issues with trail users affecting cattle, or alternatively, experienced minimal issues of cattle potentially harming trail users. From July 1, 2014 through June 30, 2018, over 624,000 people visited Taylor Mountain and Regional Parks has received no reports of conflicts between cattle and the public (pers comm. Karen Davis-Brown April 2019). Prior to 2014, there were two reports of potential conflicts one was between a dog and a bull and the other was between an equestrian and a cow. The proposed project strictly prohibits dogs or horses on the trails or the staging areas.

Recreational uses on or near grazing lands are common within California, and there is evidence that shared land between cattle and recreationists pose minimal issues. Wolf, et. al. (2017), conducted an extensive literature review that examined the interactions between livestock grazing on publicly owned recreational lands and recreationists, identified potential areas of conflict, and outlined management strategies that are used for beneficial livestock-recreationist interactions (Wolf, et. al. 2017). According to the research, over 700 million acres of public and private rangelands within the United States also support some type of recreation uses. The study focuses on California's coastal range, because this area contains many instances of grazing land and recreation land interface. The study found that in the majority of parks within California where livestock interact with recreationists, negative interactions with the public are rare. The study further stated that, as an example, only four to five serious cow attacks occur each year within the East Bay Regional Park District (EBRPD), where approximately 15 million recreationists visit parks annually and 8,000-10,000 cattle graze nearby. It is not known if any of these attacks included dogs, which are allowed on trails in the EBRPD. In addition, within the San Francisco Bay Area parks, less than 7 visitors each year, out of approximately 2 million park visitors, experience negative interactions with livestock. The study mentions that educational signage that

informs trail users of measures for safe interactions with livestock can be effective in preventing negative livestock-recreationist interactions. Furthermore, recreational uses can have a positive impact on nearby agricultural operations by attracting more people that can alert neighbors or law enforcement in the event of an emergency or illegal activity (Wolf et. al. 2017).

Research conducted by the Santa Barbara County Trails Council (SBCTC) also reaffirms the low rate of negative livestock-recreationist interactions when these uses are located near each other (SBCTC 2014). The study conducted by SBCTC compiled information gathered from organizations and land management groups throughout California that manage lands where recreational access is granted on grazing lands. The experts interviewed for this study unanimously agreed that there have been minimal negative livestock-recreationist interactions within recreational uses, with the majority of interactions being positive. The study concluded that public access and trails are compatible with grazing (SBCTC 2014). Lastly, an article by Sheila Barry, Natural Resources Advisor for the University of California Cooperative Extension, describes the experience of the EBRPD after they implemented a system for recreationists to report incidents with aggressive livestock. Over the four year time span during which data was collected, only 18 incidents were reported for the 55,516 acres of grazing land with public access. The article concluded that livestock grazing and public access and recreation appear to be compatible (Barry 2009). Therefore, the preponderance of evidence indicates that negative livestock-recreationist interactions are rare and often only occur when cattle are provoked.

The Sonoma County Farm Bureau (SCFB) is charged with protecting agricultural interests within the County. The SCFB has raised concerns in the past regarding the potential adverse effects of recreational uses located near agricultural activities. In response to the Draft Sonoma County Recreation Plan (Sonoma County 2003), which forms a basis for the planning, acquisition, management, and funding of outdoor recreation facilities within unincorporated Sonoma County, the SCFB responded with concerns related to issues such as the potential for public recreation to increase wildfire hazards, trespass and public safety concerns, crop contamination, conflicts with pesticide and fertilizer use, and agricultural landowner insurance and liability. These issues, outlined in the SCFB's February 10, 1997 letter were addressed through a series of workshops hosted by Regional Parks and led by panelists who were selected based on their respective area of expertise. Several of the issues discussed during these workshops are related to concerns regarding the proximity of agricultural uses to the proposed project. For this reason, and because these workshops are pertinent to all recreational projects within the unincorporated County, an overview of the workshop findings are summarized below.

Crop Contamination

Contamination of crops with diseases and pesticide and fertilizer exposure to trail users was another concern raised by the SCFB. The SCFB provided root rot as an example of a contaminant that could easily be transferred from hikers to nearby agricultural areas. However, the mechanism through which root rot spreads makes it an unlikely candidate to spread to nearby agricultural areas (Sonoma County 2003). Furthermore, because trail users would be confined to trails, it is unlikely that contamination or disease could be spread to adjacent private properties. In addition, non-native plants are far more likely to be spread by cattle than by trail users. Because the Bordessa Ranch property already experiences cattle grazing and the surrounding natural environment and agricultural uses have already been exposed to nearby grazing activities, it is unlikely that trail users would substantially increase the spread of invasive species to nearby agricultural areas.

The proposed project would allow trail users to share the same area as cattle that use the site for grazing, but as Regional Parks has noted they have not experienced issues with trail users affecting cattle, or alternatively, minimal issues of cattle potentially harming trail users. Therefore, the proposed project would not pose a conflict between trail users and cattle.

Mitigation Measures

No mitigation measures are required.

Cumulative Impacts

The geographic scope considered for cumulative agricultural and forestry impacts is buildout of Sonoma County.

3.2-5: The proposed project would not contribute to cumulative impacts associated with the loss or conversion of existing agricultural resources. There would be no significant cumulative contribution.

As described above, the Bordessa Ranch property is designated as Grazing Land by the FMMP, which is not considered Important Farmland by Sonoma County for the purposes of CEQA or under Public Resources Code Section 21060 (DOC 2017). The County's General Plan EIR did not identify any cumulative significant impacts related to future loss or conversion of agricultural resources. The proposed project would construct two pedestrian-only trails and two associated staging areas (trailheads/parking lots) within a designated Trail Easement. The Bordessa Ranch property would retain its existing agricultural uses, and the proposed project would not interfere with existing cattle ranching operations. The proposed project would not convert agricultural land to non-agricultural uses. Therefore, the proposed project would not contribute to an existing cumulative impact.

Mitigation Measures

No mitigation measures are required.

References

Barry, Sheila J. 2009. Cows, bikes, hikes and kites: Minimizing conflict between public recreation and grazing livestock. Accessed August 3, 2018. Available at: http://cesantaclara.ucanr.edu/newsletters/Keeping_Landscapes_Working__Fall_200925458.pdf.

DOC (California Department of Conservation). 2017. Farmland Mapping and Monitoring Program. Accessed August 6, 2018. Available at: https://maps.conservation.ca.gov/DLRP/CIFF/.

NRCS (Natural Resources Conservation Service). 2018. Web Soil Survey. Accessed August 6, 2018. Available at: https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx.

Personal communication. Email from Karen Davis-Brown on April 17, 2019.

Regional Parks (Sonoma County Regional Parks). 2018. Cattle Grazing. Accessed August 3, 2018. Available at: https://parks.sonomacounty.ca.gov/Visit/Taylor-Mountain-Regional-Park-and-Open-Space-Preserve/Cattle-Grazing/.

SBCTC (Santa Barbara County Trails Council). 2014. Las Varas Ranch: Analysis of Issues Related to Livestock Grazing Operation and Trail Use. March 2014.

Sonoma County. 2006. Sonoma County General Plan 2020 Draft Environmental Impact Report. January 2006.

Sonoma County. 2016. *Sonoma County General Plan 2020*. Adopted September 23, 2008. Amended August 2, 2016.

Sonoma County. 2003. Draft Sonoma County Outdoor Recreation Plan. March 2003.

Wolf, et. al. 2017. Compatibility of Livestock Grazing and Recreational Use on Coastal California Public Lands: Importance, Interactions, and Management Solutions. Rangeland Ecology & Management, 70(2):192-201. Accessed August 3, 2018. Available at: http://www.bioone.org/doi/full/10.1016/j.rama.2016.08.008.

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3.3 Air Quality

Introduction

This section of the Draft Environmental Impact Report (EIR) presents potential air quality impacts of the Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas and Construction and Operation of Recreational Amenities project (proposed project). The analysis and findings are based on the air quality emissions modeling conducted for the project. This section presents the environmental setting and existing air quality conditions, regulatory framework, potential short-term and long-term air quality impacts, and proposed measures to mitigate any identified significant impacts.

No comments were received that raised concerns regarding air quality in response to the Notice of Preparation (NOP). Comments received in response to the prior Mitigated Negative Declaration released in October 2016, included concerns associated with the analysis of regional pollutant impacts. A comment letter expressed concern that the thresholds of significance could be exceeded for construction or maintenance activities, and that cumulative impacts would not be significant. The commenter also stressed the importance of specific performance criteria for fugitive dust control. All of these issues are addressed in this section. See Appendix A for a copy of the NOP and complete list of public comments received during the public scoping period.

To the extent that issues identified in public comments involve potentially significant effects on the environment according to the California Environmental Quality Act (CEQA), and/or were raised by responsible and trustee agencies or the public, they are identified and addressed in this EIR. The results of the modeling conducted for the project and the model outputs can be found in Appendix B.

Environmental Setting

The project site is located in the County of Sonoma (County), within the boundaries of the San Francisco Bay Area Air Basin (SFBAAB). The SFBAAB encompasses all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara counties, and the southern portions of Solano and Sonoma counties.

Air pollutants are emitted by a variety of sources, including mobile sources (vehicles), area sources (hearths (fireplaces), consumer product use, architectural coatings, and landscape maintenance equipment), energy sources (natural gas), and stationary sources (generators or other stationary equipment). Some air pollutants need to be examined at the local level, and others are predominately an issue at the regional level. For instance, ozone (O_3) is formed in the atmosphere in the presence of sunlight by a series of chemical reactions involving oxides of nitrogen (NO_x) and reactive organic gas (ROG) (also termed volatile organic compounds). Because these reactions are broad-scale in effects, O_3 is typically analyzed at the regional level

(i.e., in the Air Basin) rather than the local level. On the other hand, air pollutants such as coarse particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), carbon monoxide (CO), and toxic air contaminants (TACs) are a potential concern in the immediate vicinity of the pollutant source because the pollutants are emitted directly by or are formed close to the source. Therefore, the study area for emissions of PM_{10}, $PM_{2.5}$, CO, and TACs is the local area near the source, such as in the vicinity of the project site, and the study area for regional pollutants such as NO_x and ROGs is the entire SFBAAB.

Regional Climatology

Air quality is a function of the rate and location of pollutant emissions under the influence of meteorological conditions and topographic features that influence pollutant movement and dispersal. Atmospheric conditions such as wind speed, wind direction, atmospheric stability, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants, and consequently affect air quality.

The climate of the SFBAAB is determined largely by a high-pressure system that is almost always present over the eastern Pacific Ocean off the west coast of North America. During winter, the Pacific high-pressure system shifts southward, allowing more storms to pass through the region. During summer and early fall, when few storms pass through the region, emissions generated within the Bay Area can combine with abundant sunshine under the restraining influences of topography and subsidence inversions to create conditions that are conducive to the formation of photochemical pollutants, such as O_3, and secondary particulates, such as nitrates and sulfates.

The project site is located in the Cotati and Petaluma Valleys climatological subregion that stretches from Santa Rosa to the San Pablo Bay. Specific topographic and climatological conditions for the subregion are described in the Bay Area Air Quality Management District's (BAAQMD) California Environmental Quality Act Air Quality Guidelines (BAAQMD 2017a). Wind patterns in the Petaluma and Cotati Valleys are strongly influenced by the Petaluma Gap, with winds flowing predominantly from the west. As marine air travels through the Petaluma Gap, which is the region from the Estero Lowlands to the San Pablo Bay, it splits into northward and southward paths moving into the Cotati and Petaluma valleys. The southward path crosses San Pablo Bay and moves eastward through the Carquinez Strait. The northward path contributes to Santa Rosa's prevailing winds from the south and southeast. Petaluma's prevailing winds are from the northwest (BAAQMD 2017a).

When the ocean breeze is weak, strong winds from the east can predominate, carrying pollutants from the Central Valley and the Carquinez Strait. During these periods, upvalley flows can carry the polluted air as far north as Santa Rosa. Winds are usually stronger in the Petaluma Valley than the Cotati Valley because the former is directly in line with the Petaluma Gap. Petaluma's climate is similar to areas closer to the coast even though Petaluma is 28 miles inland from the ocean. Average annual wind speed at the Petaluma Airport is 7 miles per hour

(mph). The Cotati Valley, being slightly north of the Petaluma Gap, experiences lower wind speeds. The annual average wind speed in Santa Rosa is 5 mph (BAAQMD 2017a). Generally, air pollution potential is low in the Petaluma Valley because of its link to the Petaluma Gap and because of its low population density. The two scenarios which could produce elevated pollutant concentrations includes stagnant conditions in the morning hours created when a weak ocean breeze meets a weak bay breeze and an eastern or southeastern wind pattern in the afternoon brings in pollution from the Carquinez Strait Region and the Central Valley (BAAQMD 2017a).

Pollutants and Effects

Criteria Air Pollutants

Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. The federal and state standards have been set, with an adequate margin of safety, at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive persons from illness or discomfort. Pollutants of concern include O_3, nitrogen dioxide (NO_2), CO, sulfur dioxide (SO_2), PM_{10}, $PM_{2.5}$, and lead (Pb). These pollutants, as well as TACs, are discussed in the following paragraphs.[1] In California, sulfates, vinyl chloride, hydrogen sulfide, and visibility-reducing particles are also regulated as criteria air pollutants.

Ozone. O_3 is a strong-smelling, pale blue, reactive, toxic chemical gas consisting of three oxygen atoms. It is a secondary pollutant formed in the atmosphere by a photochemical process involving the sun's energy and O_3 precursors. These precursors are mainly NO_X and ROG. The maximum effects of precursor emissions on O_3 concentrations usually occur several hours after they are emitted and many miles from the source. Meteorology and terrain play major roles in O_3 formation, and ideal conditions occur during summer and early autumn on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. O_3 exists in the upper atmosphere O_3 layer (stratospheric ozone) and at Earth's surface in the lower atmosphere (tropospheric ozone).[2] The O_3 that the U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) regulate as a criteria air pollutant is produced close to the ground level, where people live, exercise, and breathe. Ground-level O_3 is a harmful air pollutant that causes numerous adverse health effects and is thus considered "bad" O_3. Stratospheric, or "good," O_3 occurs naturally in the upper atmosphere, where it reduces the amount of ultraviolet light (i.e., solar radiation) entering Earth's atmosphere. Without the protection of the beneficial stratospheric O_3 layer, plant and animal life would be seriously harmed.

O_3 in the troposphere causes numerous adverse health effects; short-term exposures (lasting for a few hours) to O_3 at levels typically observed in Southern California can result in breathing pattern

[1] The descriptions of each of the criteria air pollutants and associated health effects are based on the EPA's Criteria Air Pollutants (2016) and the CARB Glossary of Air Pollutant Terms (2016).

[2] The troposphere is the layer of Earth's atmosphere nearest to the surface of Earth, extending outward approximately 5 miles at the poles and approximately 10 miles at the equator.

changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes (EPA 2013). These health problems are particularly acute in sensitive receptors such as the sick, the elderly, and young children.

Nitrogen Dioxide. NO_2 is a brownish, highly reactive gas that is present in all urban atmospheres. The major mechanism for the formation of NO_2 in the atmosphere is the oxidation of the primary air pollutant nitric oxide (NO), which is a colorless, odorless gas. NO_x plays a major role, together with ROG, in the atmospheric reactions that produce O_3. NO_x is formed from fuel combustion under high temperature or pressure. In addition, NO_x is an important precursor to acid rain and may affect both terrestrial and aquatic ecosystems. The two major emissions sources are transportation and stationary fuel combustion sources such as electric utility and industrial boilers. NO_2 can irritate the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections (EPA 2016).

Carbon Monoxide. CO is a colorless, odorless gas formed by the incomplete combustion of hydrocarbon, or fossil fuels. CO is emitted almost exclusively from motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains. In urban areas, automobile exhaust accounts for the majority of CO emissions. CO is a nonreactive air pollutant that dissipates relatively quickly; therefore, ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions—primarily wind speed, topography, and atmospheric stability. CO from motor vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, which is a typical situation at dusk in urban areas from November to February. The highest levels of CO typically occur during the colder months of the year, when inversion conditions are more frequent.

In terms of adverse health effects, CO competes with oxygen, often replacing it in the blood, reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can include dizziness, fatigue, and impairment of central nervous system functions.

Sulfur Dioxide. SO_2 is a colorless, pungent gas formed primarily from incomplete combustion of sulfur-containing fossil fuels. The main sources of SO_2 are coal and oil used in power plants and industries; as such, the highest levels of SO_2 are generally found near large industrial complexes. In recent years, SO_2 concentrations have been reduced by the increasingly stringent controls placed on stationary source emissions of SO_2 and limits on the sulfur content of fuels.

SO_2 is an irritant gas that attacks the throat and lungs and can cause acute respiratory symptoms and diminished ventilator function in children. When combined with particulate matter, SO_2 can injure lung tissue and reduce visibility and the level of sunlight. SO_2 can also yellow plant leaves and erode iron and steel.

Particulate Matter. Particulate matter pollution consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids, and metals. Particulate matter can form when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. $PM_{2.5}$ and PM_{10} represent fractions of particulate matter. Coarse particulate matter (PM_{10}) is about 1/7 the thickness of a human hair. Major sources of PM_{10} include crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood-burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions. Dust is generated on the project site through vehicles driving on the gravel/dirt access road and from livestock. Fine particulate matter ($PM_{2.5}$) is roughly 1/28 the diameter of a human hair. $PM_{2.5}$ results from fuel combustion (e.g., from motor vehicles and power generation and industrial facilities), residential fireplaces, and woodstoves. In addition, $PM_{2.5}$ can be formed in the atmosphere from gases such as sulfur oxides (SO_x), NO_x, and ROG.

$PM_{2.5}$ and PM_{10} pose a greater health risk than larger-size particles. When inhaled, these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract. $PM_{2.5}$ and PM_{10} can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Very small particles of substances such as lead, sulfates, and nitrates can cause lung damage directly or be absorbed into the blood stream, causing damage elsewhere in the body. Additionally, these substances can transport adsorbed gases such as chlorides or ammonium into the lungs, also causing injury. PM_{10} tends to collect in the upper portion of the respiratory system, whereas $PM_{2.5}$ is small enough to penetrate deeper into the lungs and damage lung tissue. Suspended particulates also produce haze and reduce regional visibility and damage and discolor surfaces on which they settle.

People with influenza, people with chronic respiratory and cardiovascular diseases, and the elderly may suffer worsening illness and premature death as a result of breathing particulate matter. People with bronchitis can expect aggravated symptoms from breathing in particulate matter. Children may experience a decline in lung function due to breathing in PM_{10} and $PM_{2.5}$ (EPA 2009).

Lead. Lead in the atmosphere occurs as particulate matter. Sources of lead include leaded gasoline; the manufacturing of batteries, paints, ink, ceramics, and ammunition; and secondary lead smelters. Prior to 1978, mobile emissions were the primary source of atmospheric lead. Between 1978 and 1987, the phase out of leaded gasoline reduced the overall inventory of airborne lead by nearly 95%. With the phase out of leaded gasoline, secondary lead smelters, battery recycling, and manufacturing facilities are becoming lead-emissions sources of greater concern.

Prolonged exposure to atmospheric lead poses a serious threat to human health. Health effects associated with exposure to lead include gastrointestinal disturbances, anemia, kidney disease,

and, in severe cases, neuromuscular and neurological dysfunction. Of particular concern are low-level lead exposures during infancy and childhood. Such exposures are associated with decrements in neurobehavioral performance, including intelligence quotient performance, psychomotor performance, reaction time, and growth. Children are highly susceptible to the effects of lead.

Sulfates. Sulfates are the fully oxidized form of sulfur, which typically occur in combination with metals or hydrogen ions. Sulfates are produced from reactions of SO_2 in the atmosphere. Sulfates can result in respiratory impairment, as well as reduced visibility.

Reactive Organic Gases. Hydrocarbons are organic gases that are formed from hydrogen and carbon and sometimes other elements. Hydrocarbons that contribute to formation of O_3 are referred to and regulated as ROG. Combustion engine exhaust, oil refineries, and fossil-fueled power plants are the sources of hydrocarbons. Other sources of hydrocarbons include evaporation from petroleum fuels, solvents, dry cleaning solutions, and paint.

The primary health effects of ROG result from the formation of O_3 and its related health effects. High levels of ROG in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement. Carcinogenic forms of hydrocarbons, such as benzene, are considered TACs. There are no separate health standards for ROG as a group.

Odorous Compounds. Odors are generally regarded as an annoyance rather than a health hazard. Manifestations of a person's reaction to odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache). The ability to detect odors varies considerably among the population and overall is quite subjective. People may have different reactions to the same odor. An odor that is offensive to one person may be perfectly acceptable to another (e.g., coffee roaster). An unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. Known as odor fatigue, a person can become desensitized to almost any odor, and recognition may only occur with an alteration in the intensity. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receptors. Due to presence of cattle throughout the project site odors currently exist.

Sensitive Receptors

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Children, pregnant women, older adults, and people with existing health problems are especially vulnerable to the effects of air pollution. Accordingly, land uses that are typically considered "sensitive receptors" include residences, schools, day care centers, playgrounds, and medical facilities. The nearest sensitive receptors are similar ranches with residences located approximately 1,000 feet east of the proposed East Trail boundary.

Regulatory Setting

Federal Regulations

Criteria Air Pollutants

The federal Clean Air Act, passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. The EPA is responsible for implementing most aspects of the Clean Air Act, including setting National Ambient Air Quality Standards (NAAQS) for major air pollutants; setting hazardous air pollutants (HAPs) standards; approving state attainment plans; setting motor vehicle emissions standards; issuing stationary source emissions standards and permits; and establishing acid rain control measures, stratospheric O_3 protection measures, and enforcement provisions. Under the Clean Air Act, NAAQS are established for the following criteria pollutants: O_3, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead.

The NAAQS describe acceptable air quality conditions designed to protect the health and welfare of citizens of the nation. The NAAQS (other than for O_3, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. NAAQS for O_3, NO_2, SO_2, PM_{10}, and $PM_{2.5}$ are based on statistical calculations over 1- to 3-year periods, depending on the pollutant. The Clean Air Act requires the EPA to reassess the NAAQS at least every 5 years to determine whether adopted standards are adequate to protect public health based on current scientific evidence. States with areas that exceed the NAAQS must prepare a state implementation plan that demonstrates how those areas will attain the standards within mandated time frames.

Hazardous Air Pollutants

At the federal level, TACs are identified as HAPs. The 1977 federal Clean Air Act amendments required the EPA to identify National Emission Standards for Hazardous Air Pollutants to protect public health and welfare. HAPs include certain volatile organic chemicals, pesticides, herbicides, and radionuclides that present a tangible hazard based on scientific studies of exposure to humans and other mammals. Under the 1990 federal Clean Air Act Amendments, which expanded the control program for HAPs, 189 substances and chemical families were identified as HAPs.

State Regulations

Criteria Air Pollutants

The federal Clean Air Act delegates the regulation of air pollution control and the enforcement of the NAAQS to the states. In California, the task of air quality management and regulation has been legislatively granted to CARB, with subsidiary responsibilities assigned to air quality management

districts and air pollution control districts at the regional and county levels. CARB, which became part of the California Environmental Protection Agency in 1991, is responsible for ensuring implementation of the California Clean Air Act of 1988, responding to the federal Clean Air Act, and regulating emissions from motor vehicles and consumer products.

CARB has established California Ambient Air Quality Standards (CAAQS), which are generally more restrictive than the NAAQS. The CAAQS describe adverse conditions; pollution levels must be below these standards before a basin can attain the standard. Air quality is considered "in attainment" if pollutant levels are continuously below the CAAQS and violate the standards no more than once each year. The CAAQS for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, PM_{10}, $PM_{2.5}$, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded.

An area is designated as "in attainment" when it is in compliance with the federal and/or state standards. The NAAQS, CAAQS, and attainment classifications for the criteria pollutants are outlined in Table 3.3-1.

Table 3.3-1
State and Federal Ambient Air Quality Standards and Attainment Status

Pollutant	Averaging Time	California Standards[a]		National Standards[b]	
		Standard	*Attainment Status*	*Standard*	*Attainment Status*
Ozone (O_3)	1 hour	0.09 ppm	N	NA	NA
	8 hour	0.07 ppm	N	0.070 ppm	N/Marginal[c]
Carbon Monoxide (CO)	1 hour	20 ppm	A	35 ppm	A
	8 hour	9 ppm	A	9 ppm	A
Nitrogen Dioxide (NO_2)	1 hour	0.18 ppm	A	0.100 ppm	U
	Annual	0.030 ppm	NA	0.053 ppm	A
Sulfur Dioxide (SO_2)	1 hour	0.25 ppm	A	0.075 ppm	A
	24 hour	0.04 ppm	A	0.14 ppm	A
	Annual	NA	NA	0.03 ppm	A
Particulate Matter (PM_{10})	24 hour	50 µg/m^3	N	150 µg/m^3	U
	Annual	20 µg/m^3	N	NA	NA
Fine Particulate Matter ($PM_{2.5}$)	24 hour	NA	NA	35 µg/m^3	N[d]
	Annual	12 µg/m^3	N	12 µg/m^3	U/A[e]
Sulfates	24 hour	25 µg/m^3	A	NA	NA
Lead	30 day	1.5 µg/m^3	NA	NA	A
	Cal. Quarter	NA	NA	1.5 µg/m^3	A
	Rolling 3-Month Average	NA	NA	0.15 µg/m^3	U/A

Table 3.3-1
State and Federal Ambient Air Quality Standards and Attainment Status

Pollutant	Averaging Time	California Standards[a]		National Standards[b]	
		Standard	*Attainment Status*	*Standard*	*Attainment Status*
Hydrogen Sulfide	1 hour	0.03 ppm	U	NA	NA
Visibility-Reducing Particles	8 hour	See Note "f"	U	NA	NA

Source: BAAQMD 2017b.

$\mu g/m^3$ = micrograms per cubic meter; mg/m^3= milligrams per cubic meter; PM_{10} = particulate matter with an aerodynamic diameter less than or equal to 10 microns; $PM_{2.5}$ = particulate matter with an aerodynamic diameter less than or equal to 2.5 microns; ppm = parts per million by volume; A = Attainment; N = Nonattainment; U = Unclassified; NA = Not Applicable (no applicable standard)

a California standards for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, suspended particulate matter (PM_{10}, $PM_{2.5}$), and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. CAAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

b National standards shown are the "primary standards" designed to protect public health. NAAQS (other than O_3, NO_2, SO_2, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once per year. The O_3 standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

c On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm. An area will meet the standard if the fourth-highest maximum daily 8-hour ozone concentration per year, averaged over three years, is equal to or less than 0.070 ppm. EPA will make recommendations on attainment designations by October 1, 2016, and issue final designations October 1, 2017. Nonattainment areas will have until 2020 to late 2037 to meet the health standard, with attainment dates varying based on the ozone level in the area.

d On January 9, 2013, the EPA issued a final rule to determine that the Bay Area attains the 24-hour $PM_{2.5}$ national standard. This EPA rule suspends key SIP requirements as long as monitoring data continues to show that the Bay Area attains the standard. Despite this EPA action, the Bay Area will continue to be designated as "nonattainment" for the national 24-hour $PM_{2.5}$ standard until such time as the BAAQMD submits a "redesignation request" and a "maintenance plan" to EPA, and EPA approves the proposed redesignation.

e In December 2012, the EPA strengthened the annual $PM_{2.5}$ NAAQS from 15.0 to 12.0 $\mu g/m^3$. In December 2014, EPA issued final area designations for the 2012 primary annual $PM_{2.5}$ NAAQS. Areas designated "unclassifiable/attainment" must continue to take steps to prevent their air quality from deteriorating to unhealthy levels. The effective date of this standard is April 15, 2015.

f Statewide visibility reducing particle standard (except Lake Tahoe Air Basin): Particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer when the relative humidity is less than 70%. This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.

The SFBAAB is designated as a nonattainment area for federal and state O_3 and $PM_{2.5}$ standards. The SFBAAB is also designated as a nonattainment area for the state PM_{10} standards. The SFBAAB is designated as "unclassified" or "attainment" for all other criteria air pollutants. Notably, "unclassified" areas cannot be classified based on available information as meeting or not meeting the ambient air quality standard for the pollutant.

Local Regulations

Bay Area Air Quality Management District

The BAAQMD is the regional agency responsible for the regulation and enforcement of federal, state, and local air pollution control regulations in the SFBAAB, where the project site is located. The clean air strategy of the BAAQMD includes the preparation of plans for the attainment of

ambient air quality standards, adoption and enforcement of rules and regulations concerning sources of air pollution, issuance of permits for stationary sources of air pollution, inspection of stationary sources of air pollution and response to citizen complaints, monitoring of ambient air quality and meteorological conditions, and implementation of programs and regulations required by the federal and California Clean Air Acts.

On April 19, 2017, the BAAQMD adopted the *Spare the Air: Cool The Climate Final 2017 Clean Air Plan* (2017 Clean Air Plan - BAAQMD 2017c). The 2017 Clean Air Plan provides a regional strategy to protect public health and protect the climate. To protect public health, the 2017 Clean Air Plan includes all feasible measures to reduce emissions of O_3 precursors (ROG and NO_x) and reduce O_3 transport to neighboring air basins. In addition, the 2017 Clean Air Plan builds on BAAQMD efforts to reduce $PM_{2.5}$ and TACs. To protect the climate, the Clean Air Plan defines a vision for transitioning the region to a post-carbon economy needed to achieve ambitious greenhouse gas reduction targets for 2030 and 2050, and provides a regional climate protection strategy that will put the Bay Area on a pathway to achieve those greenhouse gas reduction targets.

BAAQMD establishes and administers a program of rules and regulations to attain and maintain state and national air quality standards and regulations related to TACs. The rules and regulations that may apply to the proposed project include the following:

- **Regulation 2, Rule 1 – Permits.** This rule specifies the requirements for authorities to construct and permits.
- **Regulation 6, Rule 1 – Particulate Matter.** This rule limits the quantity of particulate matter in the atmosphere through the establishment of limitations on emission rates, concentration, visible emissions, and opacity.
- **Regulation 8, Rule 1 – General Provisions.** This rule limits the emission of organic compounds into the atmosphere.

Sonoma County General Plan 2020

The Open Space and Resource Element of the Sonoma County General Plan (Sonoma County 2016) provides objectives, policies, and programs regarding Air Quality, including the following:

Goal OSRC-16: Preserve and maintain good air quality and provide for an air quality standard that will protect human health and preclude crop, plant, and property damage in accordance with the requirements of the Federal and State Clean Air Acts.

Objective OSRC-16.1: Minimize air pollution and greenhouse gas emissions.

Policy OSRC-16c: Refer projects to the local air quality districts for their review.

Regional and Local Air Quality

Local Ambient Air Quality

CARB, air districts, and other agencies monitor ambient air quality at approximately 250 air quality monitoring stations across the state. The BAAQMD monitors local ambient air quality at the proposed project site. Air quality monitoring stations usually measure pollutant concentrations 10 feet above ground level; therefore, air quality is often referred to in terms of ground-level concentrations. The most recent background ambient air quality data from 2014 to 2016 are presented in Table 3.3-2. The Sebastopol monitoring station, located at 103 Morris Street, Sebastopol, CA 95472, is the nearest air quality monitoring station to the project site, located approximately 9.2 miles to the southwest. Air quality data for O_3, NO_2, CO, and $PM_{2.5}$ from the Sebastopol monitoring station monitoring station are provided in Table 3.3-2. Because SO_2 and PM_{10} are not monitored at the Sebastopol monitoring station, SO_2 measurements were taken from the Vallejo monitoring station (304 Tuolumne Street, California 94590, approximately 42.3 miles southeast from the project site). The air quality data for PM_{10} measurements were taken from the Guerneville monitoring station (16255 First Street, California 95446, approximately 12 miles south from the project site). The data collected at these stations are considered generally representative of the air quality experienced in the project vicinity. The number of days exceeding the ambient air quality standards is also shown in Table 3.3-2.

Table 3.3-2
Local Ambient Air Quality Data

Monitoring Station	Unit	Averaging Time	Agency/ Method	Ambient Air Quality Standard	Measured Concentration by Year			Exceedances by Year		
					2014	*2015*	*2016*	*2014*	*2015*	*2016*
Ozone (O_3)										
Sebastopol-103 Morris Street	ppm	Maximum 1-hour concentration	State	0.09	0.067	0.068	0.073	0	0	0
	ppm	Maximum 8-hour concentration	State	0.070	0.061	0.062	0.064	0	0	0
			Federal	0.070	0.062	0.063	0.065	0	0	0
Nitrogen Dioxide (NO_2)										
Sebastopol-103 Morris Street	ppm	Maximum 1-hour concentration	State	0.18	0.036	0.067	0.031	0	0	0
			Federal	0.100	0.037	0.032	0.0545	0	0	0
	ppm	Annual concentration	State	0.030	0.004	0.004	0.004	—	—	—
			Federal	0.053	—	—	—	—	—	—
Carbon Monoxide (CO)										
Sebastopol-	ppm	Maximum 1-	State	20	—	—	—	—	—	—

Table 3.3-2
Local Ambient Air Quality Data

Monitoring Station	Unit	Averaging Time	Agency/ Method	Ambient Air Quality Standard	Measured Concentration by Year			Exceedances by Year		
					2014	*2015*	*2016*	*2014*	*2015*	*2016*
103 Morris Street		hour concentration	Federal	35	1.4	1.3	1.6	0	0	0
	ppm	Maximum 8-hour concentration	State	9.0	—	—	—	—	—	—
			Federal	9	0.9	0.9	1.0	0	0	0
Sulfur Dioxide (SO_2)										
Vallejo-304 Tuolumne Street	ppm	Maximum 1-hour concentration	Federal	0.075	0.024	0.005	0.010	0	0	0
	ppm	Maximum 24-hour concentration	Federal	0.14	0.002	0.002	0.002	0	0	0
	ppm	Annual concentration	Federal	0.030	0.0007	0.0007	0.0007	0	0	0
Coarse Particulate Matter (PM_{10})[a]										
Guerneville-Church and 1st	µg/m3	Maximum 24-hour concentration	State	50	42.3	56.7	45.0	0.0 (0)	2.0 (2)	0.0 (0))
			Federal	150	38.9	56.5	43.2	0.0 (0)	ND (0)	ND (ND)
	µg/m3	Annual concentration	State	20	14.8	17.3	ND	—	—	—
Fine Particulate Matter ($PM_{2.5}$)[a]										
Sebastopol-103 Morris Street	µg/m3	Maximum 24-hour concentration	Federal	35	26.2	29.9	18.7	0.0 (0)	0.0 (0)	0.0 (0)
	µg/m3	Annual concentration	State	12	ND	ND	4.9	—	—	—
			Federal	12.0	ND	ND	6.5	—	—	—

Sources: CARB 2017; EPA 2018.

Notes: '—' = data not available; µg/m3 = micrograms per cubic meter; ND = insufficient data available to determine the value; ppm = parts per million

Data taken from CARB iADAM (http://www.arb.ca.gov/adam) and EPA AirData (http://www.epa.gov/airdata/) represent the highest concentrations experienced over a given year.

Exceedances of federal and state standards are only shown for O_3 and particulate matter. Daily exceedances for particulate matter are estimated days because PM_{10} and $PM_{2.5}$ are not monitored daily. All other criteria pollutants did not exceed federal or state standards during the years shown. There is no federal standard for 1-hour ozone, annual PM_{10}, or 24-hour SO_2, nor is there a state 24-hour standard for $PM_{2.5}$.

Sebastopol Monitoring Station is located at 103 Morris Street, Sebastopol, California 95472.

Vallejo Monitoring Station is located at 304 Tuolumne Street, Vallejo, California 94590.

Guerneville Monitoring Station is located at 16255 First Street, Guerneville, California 95446.

[a] Measurements of PM_{10} and $PM_{2.5}$ are usually collected every 6 days and every 1 to 3 days, respectively. Number of days exceeding the standards is a mathematical estimate of the number of days concentrations would have been greater than the level of the standard had each day been monitored. The numbers in parentheses are the measured number of samples that exceeded the standard.

Impacts

Methods of Analysis

Construction

Emissions from the construction of the trails, access road, staging areas, and bridge were estimated using the CalEEMod Version 2016.3.2 model. CalEEMod is a statewide computer model developed in cooperation with air districts throughout the state to quantify criteria air pollutant emissions associated with the construction and operational activities from a variety of land use projects, such as residential, commercial, and industrial facilities. Construction scenario assumptions, including phasing, equipment mix, and vehicle trips, were based on information provided by the County and CalEEMod generated default values. Complete detailed construction assumptions are included in Appendix B. Implementation of the project would include the construction of two 5-foot-wide pedestrian or hikers use only trails (West Trail and East Trail), up to a cumulative maximum of 5 miles in length, and two associated staging areas (trailheads/parking lots), not to exceed 1.5 acres in size in total combined area. Notably, for purposes or this analysis construction activities were conservatively assumed to disturb two 50 foot-wide corridors within the project site where the trails would be located. Furthermore, the existing access road, gate, and bridge would be improved or replaced in the same or similar locations. The access road would be widened to 12-feet wide, re-graded with a gravel base, and turnouts may be provided, as necessary for two-way traffic. The bridge would be replaced and paved with asphalt or concrete.

The East Trail heads south to the Estero Americano (Estero). Boater access to the Estero would be provided through placement of a removable matt system that would allow non-motorized boats (i.e., kayaks, canoes) easy access to the water's edge of the Estero.

For purposes of estimating project emissions, and based on information provided by County, it is assumed that construction of the project would occur over an approximately 3 to 4 year period. For the purposes of the analysis it was assumed construction would begin in May 2020; however, this date is arbitrary and if construction commenced in 2020 or later the analysis of construction emissions would not change. Construction activities would occur from May through October each year. The analysis contained herein is based on the following assumptions as shown in Table 3.3-3 (duration of phases is approximate):

Table 3.3-3
Construction Phasing Assumptions Schedule

Phase	Start Date	End Date	Duration
West Trail			
Site preparation (clearing and grubbing)	05/01/2020	07/31/2020	3 months

Table 3.3-3
Construction Phasing Assumptions Schedule

Phase	Start Date	End Date	Duration
Grading	08/01/2020	11/02/2020	5 months
	05/01/2021	06/30/2021	
Trail construction (installation of wet crossings/foot bridges)	07/01/2021	07/21/2021	3 weeks
Paving (application of gravel base parking lots)	07/22/2021	07/28/2021	1 week
Finish work (i.e., signage, fencing, seating, etc.)	07/29/2021	08/04/2021	1 week
East Trail			
Site preparation (clearing and grubbing)	08/05/2021	11/01/2021	3 months
Grading	05/01/2022	09/29/2022	5 months
Installation of wet crossings/foot bridges	10/01/2022	10/21/2022	3 weeks
Building construction (kayak/boat launch area)	05/01/2023	05/19/2023	3 weeks
Paving (application of gravel base parking lot)	05/21/2023	05/26/2023	1 week
Finish work (i.e., signage, fencing, seating, etc.)	05/28/2023	06/02/2023	1 week
Other Improvements (access road and bridge)			
Grading	06/04/2023	06/09/2023	5 days
Access road/bridge construction	06/11/2023	06/30/2023	3 weeks
Paving	07/02/2023	07/05/2023	3 days
Finish Work (i.e., signage, fencing, etc.)	07/07/2023	07/10/2023	2 days

Source: See Appendix B for details.

The construction equipment mix used for estimating the construction emissions of the proposed project is based on information provided by the County and is shown in Table 3.3-4.

Table 3.3-4
Construction Scenario Assumptions

	One-way Vehicle Trips			Equipment		
Construction Phase	*Average Daily Worker Trips*	*Average Daily Vendor Truck Trips*	*Total Haul Truck Trips*	*Equipment Type*	*Quantity*	*Usage Hours*
West Trail						
Site Preparation (clearing and grubbing)	4	0	0	Backhoe	1	8
				Small bulldozer (crawler tractor)	1	8
Grading	4	0	0	Backhoe	1	8
				Small bulldozer (crawler tractor)	1	8
Installation of wet crossings/foot bridges	6	2	0	N/A	N/A	N/A
Paving (gravel/concrete parking lots)	4	0	0	Roller	1	8
				Small bulldozer (crawler tractor)	1	8

Table 3.3-4
Construction Scenario Assumptions

Construction Phase	One-way Vehicle Trips			Equipment		
	Average Daily Worker Trips	*Average Daily Vendor Truck Trips*	*Total Haul Truck Trips*	*Equipment Type*	*Quantity*	*Usage Hours*
Finish Work (i.e., signage, fencing, seating, etc)	2	2	0	N/A	N/A	N/A
East Trail						
Site Preparation (clearing and grubbing)	4	0	0	Backhoe	1	8
				Small bulldozer (crawler tractor)	1	8
Grading	4	0	0	Backhoe	1	8
				Small bulldozer (crawler tractor)	1	8
Installation of wet crossings/foot bridges	6	2	0	N/A	N/A	N/A
Building Construction (kayak/boat launch area)	8	4	0	N/A	N/A	N/A
Paving (gravel/concrete parking lots)	4	0	0	Roller	1	8
				Small bulldozer (crawler tractor)	1	8
Finish Work (i.e., signage, fencing, seating, etc)	2	2	0	N/A	N/A	N/A
Other Improvements						
Grading	4	0	0	Backhoe	1	8
				Small bulldozer (crawler tractor)	1	8
Building Construction (access road bridge)	8	4	0	Boom truck	1	8
				Pumping equipment	1	8
				Crane	1	8
Paving (gravel road/asphalt bridge)	4	0	0	Roller	1	8
				Small bulldozer (crawler tractor)	1	8
Finish Work (i.e., signage, fencing, seating, etc.)	2	2	0	N/A	N/A	N/A

Notes: See Appendix B for details.
N/A = not applicable (no off-road construction equipment is associated with the proposed activity phase; however, hand tools, haul trips, vendor trips, or worker trips may be required).
Equipment types noted in parenthesis represent the equipment equivalent used in CalEEMod.

The construction equipment mix presented in Table 3.3-4 was based on information provided by the County. This equipment mix accounts for both on-site construction equipment, as well as construction equipment required for off-site improvements. For the analysis, it was generally

assumed that heavy construction equipment would be operating on the project site for approximately 8 hours per day, 5 days per week (22 days per month) during project construction, which would primarily be used for constructing the access road and staging/parking areas. All other activities would likely use smaller pieces of construction equipment and hand tools. CalEEMod defaults were applied for the worker, haul, and vendor trips (CAPCOA 2017).

Operation

Emissions from long-term operation of the proposed project were not estimated because the project does not include any uses (i.e., new residential or commercial) that would generate emissions due to operation with the exception of vehicle trips accessing the site. The main source of emissions from operation of the proposed project would include motor vehicle emissions generated by visitors and maintenance of the trail facilities. As presented in Section 3.13, Transportation and Circulation, trip generation for the proposed project was estimated from surveys conducted in the summer of 2017 at three trailhead parking lots (Taylor Mountain Regional Park, Laguna Wetlands Preserve, and Shell Beach) within the County (W-Trans 2018). Using an average of the trip generation rates observed at the three trailhead parking lots and the average acreage based on the area of trails served, the proposed project was projected to result in approximately 26 p.m. weekday trips and 43 weekend midday trips (W-Trans 2018).

Thresholds of Significance

Consistent with Appendix G of the CEQA Guidelines, the BAAQMD thresholds, and the County's General Plan, a significant impact would occur if development of the proposed project would do any of the following:

- Conflict with or obstruct implementation of the applicable air quality plan.
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.
- Expose sensitive receptors to substantial pollutant concentrations.
- Result in other emissions (such as those leading to odors affecting a substantial number of people).

Notably, in the *California Building Industry Association v. Bay Area Air Quality Management District* case decided in 2015, the California Supreme Court held that CEQA does not generally require lead agencies to consider how existing environmental conditions might impact a project's occupants, except where the project would significantly exacerbate an existing environmental condition. Accordingly, the significance criteria above related to exposure of

sensitive receptors to substantial pollutant concentrations is relevant only to the extent that the project exacerbates air quality conditions. The impact is considered significant if the project would exacerbate existing or future air quality conditions.

The BAAQMD adopted updated CEQA Air Quality Guidelines, including new thresholds of significance, in June 2010 (BAAQMD 2010), and revised guidelines were finalized in May 2017.[3] These thresholds are based on substantial evidence identified in BAAQMD's 2009 Justification Report (BAAQMD 2009) and are used herein.

Current BAAQMD significance thresholds are summarized in Table 3.3-5. In general, the BAAQMD significance criteria pollutant (ROG, NO_x, PM_{10}, $PM_{2.5}$, and CO) thresholds address the first two air quality Appendix G CEQA checklist questions (also listed above). The BAAQMD maintains that these criteria pollutant thresholds are intended to maintain ambient air quality concentrations below state and federal standards and to prevent a cumulatively considerable contribution to regional nonattainment with ambient air quality standards. The TAC thresholds (cancer and noncancer risks) and local CO thresholds address the third Appendix G checklist question, and the BAAQMD odors threshold addresses the fourth Appendix G checklist question.

Table 3.3-5
Thresholds of Significance

Pollutant	Construction Thresholds	Operational Thresholds	
	Average Daily Emissions (lbs/day)	*Average Daily Emissions (lbs/day)*	*Maximum Annual Emissions (tons/year)*
ROG	54	54	10
NO_x	54	54	10
PM_{10}	82 (exhaust)	82	15
$PM_{2.5}$	54 (exhaust)	54	10
PM_{10}/$PM_{2.5}$ (fugitive dust)	Best Management Practices	None	
Local CO	None	9.0 ppm (8-hour average, 20.0 ppm (1-hour average)	
Risks and Hazards (Individual Project)	Compliance with Qualified Community Risk Reduction Plan or Increased cancer risk of >10.0 in a million		

[3] The CEQA Air Quality Guidelines advise lead agencies on how to evaluate potential air quality impacts, including establishing quantitative and qualitative thresholds of significance. The BAAQMD resolutions adopting and revising the significance thresholds in 2011 were set aside by a judicial writ of mandate on March 5, 2012. In May 2012, the BAAQMD updated its CEQA Air Quality Guidelines to continue to provide direction on recommended analysis methodologies, but without recommended quantitative significance thresholds (BAAQMD 2012). On August 13, 2013, the First District Court of Appeal ordered the trial court to reverse the judgment and upheld the BAAQMD's CEQA thresholds. The BAAQMD CEQA Air Quality Guidelines were finalized in May 2017 (BAAQMD 2017a) and include the same thresholds as in the 2010 and 2011 Guidelines for criteria air pollutants, TACs, and greenhouse gases. The Guidelines also address the December 2015 Supreme Court's opinion (*California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal. 4th 369).

Table 3.3-5
Thresholds of Significance

Pollutant	Construction Thresholds	Operational Thresholds	
	Average Daily Emissions (lbs/day)	*Average Daily Emissions (lbs/day)*	*Maximum Annual Emissions (tons/year)*
	Increased noncancer risk of >1.0 Hazard Index (Chronic or Acute) Ambient $PM_{2.5}$ increase >0.3 µg/m^3 annual average Zone of Influence: 1,000-foot radius from property line of source or receptor		
Risks and Hazards (Cumulative)	Compliance with Qualified Community Risk Reduction Plan or Cancer risk of >100 in a million (from all local sources) Noncancer risk of >10.0 Hazard Index (chronic, from all local sources) Ambient $PM_{2.5}$ >0.8 µg/m^3 annual average (from all local sources) Zone of Influence: 1,000-foot radius from property line of source or receptor		
Accidental Release of Acutely Hazardous Air Pollutants	None	Storage or use of acutely hazardous material located near receptors or new receptors located near stored or used acutely hazardous materials considered significant	
Odors	None	Five confirmed complaints to BAAQMD per year averaged over 3 years	

Source: BAAQMD 2017a.
Notes: lbs/day = pounds per day; tons/year = tons per year; ppm = parts per million; µg/m^3 = micrograms per cubic meter; ROG = reactive organic gases; NO_x = oxides of nitrogen; PM_{10} = particulate matter with an aerodynamic resistance diameter of 10 micrometers or less; $PM_{2.5}$ = fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less; CO = carbon monoxide

Significance Criteria Not Applicable to the Proposed Project

Due to the location and characteristics of the proposed project, certain significance thresholds are not applicable to the proposed project and therefore, are not considered potential impacts. These thresholds are addressed briefly below, but are not discussed further in this document.

The BAAQMD has identified typical sources of odor in the CEQA Air Quality Guidelines, a few examples of which include manufacturing plants, rendering plants, coffee roasters, wastewater treatment plants, sanitary landfills, and solid waste transfer stations. While sources that generate objectionable odors must comply with air quality regulations, the public's sensitivity to locally produced odors often exceeds regulatory thresholds. An active cattle ranch occupies land that surrounds the proposed trail alignments and odors and dust associated with this existing use would be present. However, the dust and odors associated with this existing use are commonplace and expected in rural areas of the County and hikers using the trails would only be exposed for a short time. Because the proposed project includes development of a hiker-use only trail, the proposed project is not a typical land use associated with the generation of a source of odor and would not generate odor impacts. Thus, project-related odor issues are not further evaluated.

Project Impacts and Mitigation Measures

3.3-1: Implementation of the proposed project may conflict with or obstruct implementation of the applicable air quality plan. This would be a less-than-significant impact.

An area is designated as "in attainment" when it is in compliance with the federal and/or state standards. These standards are set by the EPA or CARB for the maximum level of a given air pollutant that can exist in the outdoor air without unacceptable effects on human health or public welfare with a margin of safety. The project site is located within the SFBAAB, which is designated non-attainment for the federal 8-hour O_3 and 24-hour $PM_{2.5}$ standards. The area is in attainment or unclassified for all other federal standards. The area is designated non-attainment for state standards for 1-hour and 8-hour O_3, 24-hour PM_{10}, annual PM_{10}, and annual $PM_{2.5}$.

On April 19, 2017, the BAAQMD adopted the *Spare the Air: Cool The Climate - Final 2017 Clean Air Plan* (BAAQMD 2017c). The BAAQMD Guidelines identify a three-step methodology for determining a project's consistency with the current Clean Air Plan. If the responses to these three questions can be concluded in the affirmative and those conclusions are supported by substantial evidence, then the BAAQMD considers the project to be consistent with air quality plans prepared for the Bay Area.

The first question to be assessed in this methodology is "does the project support the goals of the Air Quality Plan"? The BAAQMD-recommended measure for determining project support for these goals is consistency with BAAQMD thresholds of significance. If a project would not result in significant and unavoidable air quality impacts, after the application of all feasible mitigation measures, the project would be consistent with the goals of the 2017 Clean Air Plan. As indicated in the following discussion with regard to Impacts 3.3-2 and 3.3-3 below, the proposed project would result in less than significant construction and operational emissions and would not result in long-term adverse air quality impacts. Therefore, the proposed project would be considered to support the primary goals and be consistent with the BAAQMD current Clean Air Plan.

The second question to be assessed is "does the project include applicable control measures from the Clean Air Plan"? The 2017 Clean Air Plan contains 85 control measures aimed at reducing air pollution in the Bay Area. Projects that incorporate all feasible air quality plan control measures are considered consistent with the Clean Air Plan. The control strategies of the 2017 Clean Air Plan include measures in the categories of stationary sources, the transportation sector, the buildings sector, the energy sector, the agriculture sector, natural and working lands, the waste sector, the water sector, and super-GHG pollutant measures. Because the proposed project involves the construction of a pedestrian use only trail and does not include constructing any permanent buildings, many of the control measures would not be directly applicable to the proposed project. Notably, the 85 control measures presented in the

2017 Clean Air Plan are categorized into 9 economic sectors including: agriculture, buildings, energy, natural and working lands, super-GHGs, stationary sources, transportation, waste, and water. Applicable measures from the 2017 Clean Air Plan would include transportation measures TR14 and TR22. TR14 would apply to vehicles traveling to the proposed project site which requires the promotion of hybrid electric vehicles and other fuel efficient vehicles. Measure TR22 incentivizes early adoption of Tier 3 and 4 off-road engines used for construction. In addition, the proposed project would comply with all applicable BAAQMD rules including reducing fugitive dust exposure generated by construction activities. Therefore, the proposed project would not conflict with any of the control measures from the Clean Air Plan.

The third question is "does the project disrupt or hinder implementation of any control measures from the Clean Air Plan"? Examples of how a project may cause the disruption or delay of control measures include a project that precludes an extension of a transit line or bike path, or proposes excessive parking beyond parking requirements. The proposed project would not create any barriers or impediments to planned or future improvements to transit or bicycle facilities in the area, nor would it include excessive parking. Therefore, the proposed project would not hinder implementation of the Clean Air Plan control measures.

In summary, the responses to all three of the questions with regard to Clean Air Plan consistency are affirmative and the proposed project would not conflict with or obstruct implementation of the Clean Air Plan. This is a **less-than-significant impact**.

Mitigation Measures

No mitigation measures are required.

3.3-2: Implementation of the proposed project may result in a cumulatively considerable net increase of any criteria pollutant for which the proposed project region is non-attainment under an applicable federal or state ambient air quality standard. This would be a less-than-significant impact.

Past, present, and future development projects may contribute to the SFBAAB adverse air quality impacts on a cumulative basis. Per BAAQMD's CEQA Guidelines, by its nature air pollution is largely a cumulative impact; no single project is sufficient in size to, by itself, result in nonattainment of ambient air quality standards. In developing thresholds of significance for air pollutants, BAAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, its emissions would be considered cumulatively considerable, resulting in a significant adverse air quality impact to the region's existing air quality conditions. Therefore, if the proposed project's emissions are below the BAAQMD thresholds or screening criteria, then the proposed project's cumulative impact would be considered less than significant.

The CalEEMod Version 2016.3.2 model was used to estimate emissions related to construction activities. CalEEMod input parameters, including the proposed project land use type and size, construction schedule, and anticipated construction equipment, were based on information provided by the project applicant, or default model assumptions if project specifics were unavailable.

Construction

The proposed project would involve construction of a pedestrian use only trail. Construction activities are anticipated to occur within a 6-month period each year and are estimated to be completed within approximately 4 years. Sources of emissions would include: off-road construction equipment exhaust, on-road vehicle exhaust and entrained road dust (i.e., material delivery trucks and worker vehicles), fugitive dust associated with site preparation and grading activities, and development of the gravel-base parking areas and access road. The majority of assumptions for the proposed project were based on CalEEMod defaults and are included in Appendix B.

Average daily emissions were computed by dividing the total construction emissions by the number of active construction days, which were then compared to the BAAQMD construction thresholds of significance. Table 3.3-6 shows average daily construction emissions of O_3 precursors (ROG and NO_x), PM_{10} exhaust, and $PM_{2.5}$ exhaust during project construction compared to the BAAQMD thresholds.

Table 3.3-6
Average Daily Unmitigated Construction Emissions

Year	ROG	NO_x	PM_{10} Exhaust	$PM_{2.5}$ Exhaust
	pounds per day			
2020-2023 Construction	0.6	6.0	0.3	0.3
BAAQMD Construction Thresholds	*54*	*54*	*82*	*54*
Exceed Threshold?	**No**	**No**	**No**	**No**

Notes: The values shown are average daily emissions based on total overall tons of construction emissions, converted to pounds, and divided by 437 active work days.
ROG = reactive organic gases; NO_x = oxides of nitrogen; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter
Source: See Appendix B for detailed results.

As shown in Table 3.3-6, construction of the proposed project would not exceed BAAQMD significance thresholds. Criteria air pollutant emissions during construction would be less than significant. Although the BAAQMD does not have a quantitative significance threshold for fugitive dust, the BAAQMD's CEQA Guidelines recommend that projects determine the significance for fugitive dust through application of best management practices (BMPs). The project contractor would be required as conditions of approval to implement the following BMPs that are required of all projects in the County:

1. All exposed surfaces (e.g., parking/staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.

2. All haul trucks transporting soil, sand, or other loose material off site shall be covered.
3. All visible mud or dirt track-out onto SR 1 shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
4. All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph).
5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California Airborne Toxics Control Measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
8. Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

Implementation of the required fugitive dust control measures would ensure air quality and fugitive dust-related impacts associated with construction would remain **less than significant**.

Operation

Once operational, the proposed project would consist of a pedestrian-use only trail. Long-term operation of the proposed project would require minimal upkeep and maintenance. The main source of emissions from operation of the proposed project would include motor vehicle emissions generated by visitors to the site and County maintenance vehicles. As presented in Section 3.13, Transportation and Circulation, because the standard trip generation rates published by the Institute of Transportation Engineers (ITE) in the Trip Generation Manual, 10th Edition, 2017 for a public park would overestimate vehicle trips for the proposed project, surveys were conducted to establish vehicle trip rates for trailhead parking lots in Sonoma County (W-Trans 2018). The surveys were conducted at three separate County Parks and based on the data collected, the average of these three surveyed parks were used to estimate the trips for the project. The proposed project was estimated to generate approximately 26 weekday p.m. peak hour trips and 43 weekend midday peak hour trips (W-Trans 2018). Because the proposed project would generate a minimal amount of vehicle trips, operational emissions would be **less than significant**.

Criteria pollutant emissions generated by short-term construction and long-term operations of the proposed project would not exceed the BAAQMD significance thresholds. Thus, the proposed project would have a less than significant cumulative impact in relation to regional emissions. In addition, the project would result in minimal new traffic trips that would not exceed the BAAQMD CO screening criteria resulting in a **less-than-significant cumulative impact** in relation to localized CO.

Mitigation Measures

No mitigation measures are required.

3.3-3: Implementation of the proposed project could expose sensitive receptors to substantial pollutant concentrations. This would be a less-than-significant impact.

Toxic Air Contaminants

The BAAQMD has adopted project and cumulative thresholds for three risk-related air quality indicators to sensitive receptors: cancer risks, noncancer health effects, and increases in ambient air concentrations of $PM_{2.5}$. These impacts are addressed on a localized, rather than regional, basis in relation to sensitive receptors identified for the project. Sensitive receptors are groups of individuals, including children, older adults, the acutely ill, and the chronically ill, that may be more susceptible to health risks due to chemical exposure. Sensitive-receptor population groups are likely to be located at hospitals, medical clinics, schools, playgrounds, childcare centers, residences, and retirement homes. As previously discussed, the closest sensitive receptors are residences located approximately 1,000 feet east of the proposed East Trail.

The greatest potential for toxic air contaminants (TAC) emissions during construction would be diesel particulate matter (DPM) emissions from heavy equipment operations and heavy-duty trucks during construction of the proposed project, and the associated health impacts to sensitive receptors. As shown in Table 3.3-6, average daily particulate matter (PM_{10} or $PM_{2.5}$) exhaust emissions generated by construction equipment operation would be well below the BAAQMD significance thresholds. Moreover, total construction of the proposed project would occur within a 6-month period each year (May through October) and would last 3 to 4 years (which equates to approximately 7% of the total 30-year analysis exposure period), after which project-related TAC emissions would cease. The proposed project would not require the extensive use of heavy-duty construction equipment, which is subject to CARB's Airborne Toxic Control Measures for in-use diesel construction equipment to reduce DPM emissions, and it would not involve extensive use of diesel trucks.

Operation of the proposed project would not result in any non-permitted direct emissions (e.g., those from a point source such as diesel generators) or result in substantial diesel vehicle trips (i.e., delivery trucks). Therefore, the proposed project would not result in exposure of sensitive

receptors in the vicinity of the project site to substantial TAC concentrations due to either construction or operation and impacts would be **less than significant**.

Local Carbon Monoxide Concentrations

The BAAQMD thresholds of significance for local CO emissions is the 1-hour and 8-hour CAAQS of 20 parts per million and 9 parts per million, respectively. By definition, these represent levels that are protective of public health. According to the BAAQMD, a proposed project would result in a less-than-significant impact to localized CO concentrations if the following screening criteria are met (BAAQMD 2017a):

1. Project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, regional transportation plan, and local congestion management agency plans.
2. The project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.
3. The project traffic would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).

As previously discussed, the proposed project would generate minimal new vehicle traffic trips. The proposed project would be expected to generate 26 weekday p.m. peak hour trips and 43 weekend midday peak hour trips (W-Trans 2018) and would comply with the BAAQMD screening criteria. Based on the BAAQMD's criteria, project-related traffic would not exceed CO standards and, therefore, no further analysis was conducted for CO impacts. The CO emissions impact would be **less than significant** on both a project level and cumulative basis.

Health Impacts of Other Criteria Air Pollutants

Construction and operation of the proposed project would not result in emissions that exceed the BAAQMD emission thresholds for any criteria air pollutants.

In addition, ROG and NO_x are precursors to O_3, for which the SFBAAB is designated as nonattainment with respect to the NAAQS and CAAQS. The health effects associated with O_3 are generally associated with reduced lung function. The contribution of ROG and NO_x to regional ambient O_3 concentrations is the result of complex photochemistry. The increases in O_3 concentrations in the SFBAAB due to O_3 precursor emissions tend to be found downwind from the source location to allow time for the photochemical reactions to occur. However, the potential for exacerbating excessive O_3 concentrations would also depend on the time of year

that the ROG emissions would occur because exceedances of the O_3 AAQS tend to occur between April and October when solar radiation is highest.

The holistic effect of a single project's emissions of O_3 precursors is speculative due to the lack of quantitative methods to assess this impact. Nonetheless, the ROG and NO_x emissions associated with project construction could minimally contribute to regional O_3 concentrations and the associated health impacts. Due to the minimal contribution during construction and operation, as well as the existing good air quality in project area, health impacts would be considered less than significant.

Similar to O_3, construction of the proposed project would not exceed thresholds for PM_{10} or $PM_{2.5}$ and would not contribute to exceedances of the NAAQS and CAAQS for particulate matter. The proposed project would also not result in substantial DPM emissions during construction and operation and therefore, would not result in significant health effects related to DPM exposure. Due to the minimal contribution of particulate matter during construction and operation, health impacts would be considered less than significant.

Regarding NO_2, according to the construction emissions analysis, construction of the proposed project would not contribute to exceedances of the NAAQS and CAAQS for NO_2. NO_2 and NO_x health impacts are associated with respiratory irritation, which may be experienced by nearby receptors during the periods of heaviest use of off-road construction equipment. Off-road construction equipment would primarily be used for development of the staging/parking area, replacement of the bridge and widening and re-graveling of the access road. It should be noted that construction of the trails would require the use of smaller equipment and hand tools. Construction of the proposed project would not require any stationary emission sources that would create substantial, localized NO_x impacts. Therefore, health impacts would be considered less than significant.

The ROG and NO_x emissions, as described previously, would minimally contribute to regional O_3 concentrations and the associated health effects. In addition to O_3, NO_x emissions would not contribute to potential exceedances of the NAAQS and CAAQS for NO_2. As shown in Table 3.3-2, the existing NO_2 concentrations in the area are well below the NAAQS and CAAQS standards. Thus, it is not expected the proposed project's operational NO_x emissions would result in an exceedance of the NO_2 standards or contribute to the associated health effects. CO tends to be a localized impact associated with congested intersections. The potential CO "hotspots" were discussed previously as a less-than-significant impact. Thus, the proposed project's CO emissions would not contribute to significant health effects associated with this pollutant. In addition, PM_{10} and $PM_{2.5}$ would not contribute to potential exceedances of the NAAQS and CAAQS for particulate matter and would not obstruct the SFBAAB from coming into attainment for these pollutants and would not contribute to significant health effects associated with particulates. Therefore, health impacts associated with criteria air pollutants would be considered **less than significant**.

Mitigation Measures

No mitigation measures are required.

Cumulative Impacts

The cumulative context of an air pollutant is dependent on the specific pollutant being considered. O_3 precursors are a regional pollutant; therefore, the cumulative context would be existing and future development within the entire SFBAAB. This means that O_3 precursors generated in one location do not necessarily have O_3 impacts in that area. Instead, precursors from across the region can combine in the upper atmosphere and be transported by winds to various portions of the air basin. Consequently, all O_3 precursors generated throughout the air basin are part of the cumulative context.

The geographic scope for the cumulative analysis is the County and surrounding areas, which is located within the SFBAAB for O_3. The SFBAAB includes all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara counties as well as the southern half of Sonoma County and the southwestern portion of Solano County. The BAAQMD establishes emissions thresholds for regional emissions.

Particulates (fugitive dust and DPM) and TACs would result in localized impacts in close proximity to pollutant sources. There are no other active cumulative projects in the immediate vicinity of the proposed project site that are anticipated to contribute to localized TAC exposure; therefore, an analysis of the cumulative effects is not addressed below.

3.3-4: The proposed project could contribute to cumulative air quality emissions within the existing area. The project's contribution would not be considerable.

As previously discussed under Impact 3.3-3, the proposed project would not result in a cumulatively considerable increase in emissions of nonattainment pollutants. Therefore, the project's cumulative contribution would be negligible and not considerable and cumulative impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

References

14 CCR 15000–15387 and Appendices A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

BAAQMD (Bay Area Air Quality Management District). 2009. *Revised Draft Options and Justification Report, California Environmental Quality Act Thresholds of Significance*. October 2009. Accessed March 2017. http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/revised-draft-ceqa-thresholds-justification-report-oct-2009.pdf?la=en.

BAAQMD. 2010. *California Environmental Quality Act Air Quality Guidelines*. May 2010. Accessed March 2017. http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/draft_baaqmd_ceqa_guidelines_may_2010_final.pdf?la=en.

BAAQMD. 2012. *California Environmental Quality Act Air Quality Guidelines*. Updated May 2012. Accessed March 2017. http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/CEQA/BAAQMD%20CEQA%20Guidelines_Final_May%202012.ashx?la=en.

BAAQMD. 2017a. *California Environmental Quality Act Air Quality Guidelines.* Updated May 2017. http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en.

BAAQMD. 2017b. "Air Quality Standards and Attainment Status." Last updated January 5, 2017. Accessed July 2018. http://www.baaqmd.gov/research-and-data/air-quality-standards-and-attainment-status.

BAAQMD. 2017c. *Spare the Air: Cool the Climate - Final 2017 Clean Air Plan.* April 19, 2017. http://www.baaqmd.gov/~/media/files/planning-and-research/plans/2017-clean-air-plan/attachment-a_-proposed-final-cap-vol-1-pdf.pdf?la=en.

CAPCOA (California Air Pollution Control Officers Association). 2017. *California Emissions Estimator Model (CalEEMod) User's Guide Version 2016.3.2*. Prepared by BREEZE Software, A Division of Trinity Consultants in collaboration with South Coast Air Quality Management District and the California Air Districts. Accessed December 2017. http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4.

CARB (California Air Resources Board). 2017. "iADAM: Air Quality Data Statistics." Accessed July 2018. http://www.arb.ca.gov/adam/topfour/topfour1.php.

EPA (U.S. Environmental Protection Agency). 2009. “Integrated Science Assessment for Particulate Matter.” EPA/600/R-08/139F. Accessed September 2017. http://ofmpub.epa.gov/eims/eimscomm.getfile?p_download_id=494959.

EPA. 2013. “Integrated Science Assessment of Ozone and Related Photochemical Oxidants.” https://cfpub.epa.gov/ncea/isa/recordisplay.cfm?deid=247492.

EPA. 2016. “Criteria Air Pollutants.” July 21, 2016. Accessed June 2018. https://www.epa.gov/criteria-air-pollutants.

EPA. 2018. “AirData: Access to Air Pollution Data.” Last updated June 13, 2018. Accessed July 2018. http://www.epa.gov/airdata/ad_rep_mon.html.

OEHHA (Office of Environmental Health Hazard Assessment). 2015. *Air Toxics Hot Spots Program, Risk Assessment Guidelines, Guidance Manual for Preparation of Health Risk Assessments*. February 2015.

Sonoma County. 2016. *Sonoma County General Plan 2020*. Adopted September 23, 2008. Amended updated August 2, 2016.

3.4 Biological Resources

Introduction

This section of the Draft Environmental Impact Report (EIR) presents a description of biological resources that occur within the Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas and Construction and Operation of Recreational Amenities project (proposed project) site, as well as the entire Bordessa Ranch property (project site). Biological resources include special-status plant and wildlife species, vegetation communities, and sensitive natural habitats/communities. This section also includes a discussion of local, state, and federal laws, regulations, and policies that are applicable to these biological resources; an analysis of potential impacts to these resources due to implementation of the proposed project; and measures to minimize and mitigate for potentially significant impacts to these resources.

Comments received in response to the Notice of Preparation (NOP) included concerns associated with the proposed locations of the two trails; adequacy of biological surveys; impacts and/or loss of wetlands; and impacts to a wide variety of wildlife species. Comment letters expressed concern over the trail locations with regards to documented avian species of special concern, particularly ground nesting, burrowing, and foraging species. Comments note that trail construction and subsequent human encroachment could interrupt establishing nesting and foraging patterns and result in disturbance and negative impacts. Several commenters, including the California Department of Fish and Wildlife (CDFW), noted that previous botanical surveys for rare plants were not conducted during the appropriate blooming period and recommended that protocol-level surveys be repeated during the blooming season to minimize potential impacts to special-status plant species. CDFW also recommended conducting burrowing owl and American badger surveys as they are both California species of special concern. CDFW also noted several special-status species may be present in the project vicinity, including California clapper rail, California black rail, salt marsh harvest mouse, and western pond turtle, and provided recommendations for avoidance and survey guidelines. A copy of the NOP and comments received is included in Appendix A.

Comments received in response to the prior Mitigated Negative Declaration released in October 2016, included comments from the Audubon Society regarding the extensiveness of the proposed trails and a suggestion to reduce the configuration to only one trail; the close proximity of the trail(s) to avian nest sites and potential impacts to these nest sites; the presence of burrowing owls within the project site; human encroachment and the associated disturbance to wildlife species; and the lack of American badger surveys performed to determine baseline use of the site (three years of seasonally timed badger surveys was suggested). Other concerns raised included potential impacts to roosting bats that may be present in the adjacent barn on the property and nesting birds along the trail route; wildlife disturbance from construction and operation activities; feasibility of mitigation for California red-legged frog and western pond turtle; lack of Best Management Practices (BMPs) to prevent sedimentation of waters that could

affect fish in the Estero Americano (Estero); lack of surveys for special-status plants; wetland mitigation ratios; and the potential for off-site wetland mitigation to impact hydrology and water quality within the site. CDFW expressed concerns about impacts to wildlife from domestic animals (i.e., dogs); impacts from light pollution, noise and human activity during and after construction; a lack of surveys for special-status plants during the blooming period; recommended protocol level surveys for burrowing owl; recommended American badger surveys; permanent loss of burrowing owl and American badger habitat; avoidance of salt marsh habitat adjacent to the site; and avoidance of wetland and stream habitats within the site; and inclusion of a Mitigation Monitoring Program. The lack of western dog violet (*Viola adunca*) and silverspot butterfly surveys along the trail alignment was also a concern raised.

Both CDFW and the Greater Farallones National Marine Sanctuary (GFNMS) reiterated the importance of avoiding potential impacts to wetlands, streams, and riparian habitat. GFNMS also noted that trail routing and signage should not be placed within riparian or wetland habitat or within the Estero. The California Coastal Commission (CCC) recommended expanding buffer distances from wetlands and sensitive habitat areas. The CCC letter also recommended a Grazing Plan be developed to describe how recreational uses and surrounding active agricultural resources could coexist and continue to protect sensitive habitats. As explained in Chapter 2, Project Description, the entire site is under a Conservation Easement and is private land that will continue to be operated as a cattle ranch and used for cattle breeding and grazing. Per the terms of the Conservation Easement, the landowners are required to prepare a rangeland management plan (RMP) that integrates natural resources protection goals with cattle grazing for the entire project site. The RMP would be prepared in consultation with a certified rangeland manager, the Sonoma County Agricultural and Preservation Open Space District (District), and State Coastal Conservancy staff and would govern the landowners' management of the property.

To the extent that issues identified in public comments involve potentially significant effects on the environment according to the California Environmental Quality Act (CEQA), and/or were raised by responsible and trustee agencies or the public, they are identified and addressed in this EIR. See Appendix A for a copy of the NOP and complete list of public comments received during the public scoping period.

Methods

The description of biological resources described in the Environmental Setting section below is largely based on a review of previously conducted studies on the property, a review of available agency databases on documented occurrences of special-status species in the project region, as well as on technical surveys and assessments conducted by Dudek in 2018 in preparation for this EIR and associated impact analysis. Previous studies reviewed and the 2018 technical studies that were conducted are briefly described below. An overview of the databases queried is included in the Methods of Analysis provided in the Impacts section.

Summary of Previous Studies

Summary of Findings from Bird Surveys on the Bordessa Ranch Final Report: 2011 and 2012 Surveys (Heaton 2012)*:* The report summarizes the results of general avian surveys conducted on the Bordessa Ranch in 2011 and early 2012. A total of seven surveys were conducted with the stated objective to focus on use of the site by burrowing owl and short-eared owl, but to also document use of other avian species. Special-status bird species observed or otherwise detected from calls or sign (such as feathers and pellets) during the survey included northern harrier, burrowing owl, short-eared owl, Bryant's savannah sparrow, grasshopper sparrow, and white-tailed kite (these species are discussed in more detail below). No state- or federally-listed threatened or endangered species were detected. The author included a number of recommendations for conservation easement terms associated with the Forever Wild Area.

The Estero Trail Wildlife Resources Evaluation* (*Sonoma County Agricultural Preservation and Open Space District 2014): County biologists conducted two reconnaissance-level assessments of the project site in April and June 2014, to characterize and document biological resources within and in the vicinity of proposed trail corridors and staging areas. No focused or protocol-level surveys were conducted for special-status species. The focus of the assessments was on the potential for special-status species to occur on the site and to recommend measures to minimize potential impacts associated with trail development, maintenance, and operation on those special-status species. Special-status species observed during the 2014 site visits included Bryant's savannah sparrow, American white pelican (Estero), California red-legged frog, and western pond turtle. Several other special-status species were determined to have potential to occur based on the presence of suitable habitat and known occurrences in the region.

Rare Plant and Wetland Habitat Assessment* (*Sonoma County Agricultural Preservation and Open Space District 2014)*:* County biologists conducted a site assessment in 2014 focused on rare plants and any wetland areas. The assessment describes several intermittent drainages, seeps, swales, wetlands, wet meadows, and creek corridors (the central channel that runs north to south through the site) within the site that have potential to be under jurisdiction of the U.S. Army Corps of Engineers or the CDFW. A formal wetland delineation was not performed as part of this habitat assessment. Two special-status plant species, congested-headed hayfield tarplant and western dog violet were observed during the field survey.

Literature/Database Review

Dudek biologists conducted a literature/database review to determine if special-status biological resources are present or potentially present on the project site. The desktop literature search reviewed the following sources: U.S. Fish and Wildlife Service (USFWS) Information, Planning and

Conservation (IPaC) Trust Resource Report; CDFW California Natural Diversity Database (CNDDB); and the California Native Plant Society (CNPS) online Inventory of Rare and Endangered Vascular Plants. The database searches for the CNDDB and CNPS reports included the 7.5' USGS Valley Ford quadrangle and surrounding eight quadrangles. The IPaC search included the project site and a five-mile buffer surrounding the site. California Rare Plant Rank (CRPR) 1 and 2 plant species were included in the CNPS search (CNPS 2018). Following a review of these resources, Dudek determined the potential for each species to occur within the site based on a review of vegetation communities and available land cover types, habitat types, soils, and elevation preferences, as well as the known geographic range of each species (see Appendix C). Species were not expected to occur when the site was clearly outside the known geographic range of the species, or if there was no suitable habitat for the species on or adjacent to the site. Additionally, the Natural Resources Conservation Service (USDA 2017), Web Soil Survey (WSS) was queried to determine soil types that exist within the boundary of the project site.

Technical Studies Conducted as part of this Project

The following technical studies and habitat assessments were conducted in 2017 and/or 2018 by Dudek and are included in Appendix C:

- A biological reconnaissance survey to generally assess on-site habitats and their potential to support various special-status plant and wildlife species and to characterize and map on-site vegetation communities was conducted in 2017. The assessment consisted of pedestrian transects throughout the project site and along the proposed trail alignments to collect data related to biological resources present or potentially present within the site. An aerial photograph (Google Earth 2017) and digital georeferenced map with an overlay of the property boundary was used to map the vegetation communities and record any anecdotally observed special-status or sensitive biological resources while in the field. Incidental observations of wildlife (common and/or special-status) or wildlife sign (e.g., tracks, scat) were also recorded. The field assessment included the project site only; however, general characteristics of adjacent properties were also noted during the survey by scanning with and without binoculars
- A habitat assessment and focused surveys to determine suitability and presence/absence for California red-legged frog and western pond turtle were conducted in September 2017 at all aquatic sites that contained water on the project site. Aquatic habitat areas evaluated as part of the assessment and surveys included four man-made ponds, two intermittent drainages, and several springs/seeps. The assessment and daytime surveys for the red-legged frog were based on habitat requirements and survey protocols as described in the *Revised Guidance on Site Assessments and Field Surveys for the California Red-Legged Frog* (USFWS 2005). Western pond turtle surveys were conducted according to protocols developed by Holland (1991).

- A jurisdictional delineation to characterize and map wetland/aquatic areas potentially under the jurisdiction of the U.S. Army Corps of Engineers pursuant to Section 404 of the federal Clean Water Act and under California Department of Fish and Wildlife jurisdiction pursuant to Section 1600 of the California Fish and Game Code was conducted in May and September, 2017. Potentially jurisdictional features were identified based on aerial signatures and field observations according to the *Federal Manual for Identifying and Delineating Jurisdictional Wetlands, Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region, and the U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook*. The delineation was also intended to address concerns raised in comments on the NOP about potential impacts on wetlands.
- Focused protocol-level surveys for special-status plant species known to occur in the region and potentially occurring on the project site were conducted in April, May, and August, 2017, to coincide with the blooming periods of those species previously identified, based on the availability of suitable habitat and soil types within the project site, as potentially occurring on the project site. During the surveys, a comprehensive list of plant species observed on the site was compiled. These surveys also address concerns stated in the NOP comments that previous botanical surveys for rare plants were not conducted during the appropriate blooming period and that additional surveys be conducted.
- A habitat assessment for Ridgway's rail (*Rallus obsoletus*), an avian marsh species that is a federal- and state-listed endangered species, and the salt marsh harvest mouse (*Reithrodontomys raviventris*), also a federal- and state-listed endangered species, was conducted by California Environmental Scientists, Inc., in June 2018.

The results of these surveys and assessments are incorporated into the appropriate topic areas within the Environmental Setting section below. The potential for other special-status wildlife species to occur on the site, based on the various surveys and habitat assessments discussed above, are addressed in Table 3.4-3 (see p. 3.4-22), and within each separate species description provided further below. Reports documenting the methods and results of these surveys and assessments can be found in Appendix C.

Environmental Setting

This section describes the existing biological setting within the entire Bordessa Ranch property, with particular focus on the 50-foot-wide trail corridors (approximately 30.3 acres) designated within the Trail Easement and two staging areas, not to exceed 1.5 acres for a total combined area of approximately 31.8 acres, with approximately 4.8 acres of actual potential disturbance for construction of the two trails. As indicated in Chapter 2, Project Description, future uses may also include seasonal access to the Estero, via the East Trail for pedestrians and hand-carried, non-motorized boats such as kayaks and canoes if and to the extent the District determines that

such access is compatible with sensitive resources associated with the Estero and the property. Future uses may also include development, as provided by the Conservation Easement, within the two-acre Agricultural Building Envelope (ABE) and one-acre Residential Building Envelope (RBE). Future development within either the ABE or RBE would be a separate project initiated by the landowners and is not a part of this project evaluated in the EIR.

Regional Description

The project site is located within the North Coast Ranges sub region of the California Floristic Province (Baldwin ed. 2012). This region is characterized by sloping hills near the central California coast from which cold air drains within the fog belt (Baldwin ed. 2012). Average annual temperatures in the Valley Ford area range from approximately 47 degrees to 66.7 degrees, and the average precipitation is 54.29 inches (WRCC 2017). On average, the months with the highest rainfall are December and January, and July has the least precipitation.

The project site is part of the Estero Americano subwatershed (Hydrologic Unit Code 180500050302), within the Bodega Bay hydrologic unit (Hydrologic Unit Code 18010111). An unnamed intermittent drainage in the central portion of the project site (referred to as the central creek drainage) drains rainwater runoff south into the Estero, an estuary of Bodega Bay and the Pacific Ocean west of the project site. The Estero is an important, biologically rich coastal estuary along the boundary of Sonoma and Marin counties that provides foraging, breeding and cover resources for a variety of wildlife species, namely avian and marine species. It is designated as Critical Habitat for steelhead (*Oncorhynchus mykiss irideus*) by the National Oceanic and Atmospheric Administration (NOAA), and contains several sensitive natural communities as designated by CDFW. The Estero drains into Bodega Bay at the Sonoma-Marin County line. Many different habitat types are found in the Estero including mudflats, marshes, rocky shore, coastal scrub, and grasslands. Within these habitats, the Estero supports many species of plants, invertebrates, fish, birds, and mammals. They also provide essential feeding and resting areas for migrating shorebirds and seabirds. The Estero is typically isolated from the Pacific Ocean during summer and fall by seasonally formed sand bars.

Project Site

The Bordessa Ranch[1], which includes the approximately 31.8 acres designated for the Trail Easement, is mostly undeveloped and is dominated by non-native annual grassland habitat within approximately 500 acres of rolling hills and open pastureland that is currently and has historically been used for cattle grazing. Coyote brush scrub occurs intermittently in the western portion of the site, primarily on north- and east-facing hill slopes, and two mature eucalyptus (*Eucalyptus globulus*) groves occur adjacent to the larger drainages on the site. Riparian and

[1] For the purposes of this analysis, resources within the entire Bordessa Ranch property have been described.

marsh vegetation dominate these larger drainages, and several smaller drainages, seasonal wetlands, wet meadows and small ponds are present within the property. A gravel/dirt access road runs north to south through the center of the property approximately 2,300 feet to a workshop, and to an existing barn and associated paddocks (these buildings are located outside of the proposed trail corridors and staging areas). Several ephemeral drainages channel water from the hills in the western portion of the project site into a central intermittent drainage.

Elevation within the project site varies from approximately 10 feet above mean sea level (AMSL) along the center of the site up to approximately 400 feet AMSL in the northwestern hills. The site is situated in Sections 27, 28, 33 and 34 of Township 6 North, and Range 10 West on the Valley Ford 7.5 minute quadrangle. The approximate center of the site corresponds to 38°19'24" north latitude and 122°57'42" west longitude.

Adjacent land uses to the west, north, and east of the project site include cattle grazing and dairy farms that operate on large expanses of land composed of similar vegetative structure to the project site. The Sonoma Coast Villa Resort & Spa is located across SR 1 generally north of the project site.

In 2012, a Conservation Easement was placed over the entire property as agreed to between the landowners and the District to preserve and protect in perpetuity identified conservation values of the property. A 138-acre area portion of the property is designated under the easement as a “Forever Wild Area” because it includes habitat for several special-status species including American badger, short-eared owl, and burrowing owl (as shown on Figure 2-2, in Chapter 2, Project Description). The Conservation Easement also establishes “Natural Areas” along all streams on the property in which it is intended that native riparian vegetation be restored to stabilize stream banks and to prevent soil erosion and sedimentation. The Forever Wild Area and Natural Areas will be protected in perpetuity from potential disturbances caused by grazing, recreation, or allowable building on the property, except for limited areas specifically identified in the Conservation Easement for potential trail development. The Conservation Easement also requires the landowners to complete a RMP that sets forth rangeland best management practices to ensure that all grazing practices are conducted in a manner that is beneficial to the conservation values of the property and that includes standards for appropriate levels of grazing within the Forever Wild Area and Natural Areas. The RMP is subject to review and approval by the District and the Conservancy, or their designees, and will govern the landowners’ management of the property.

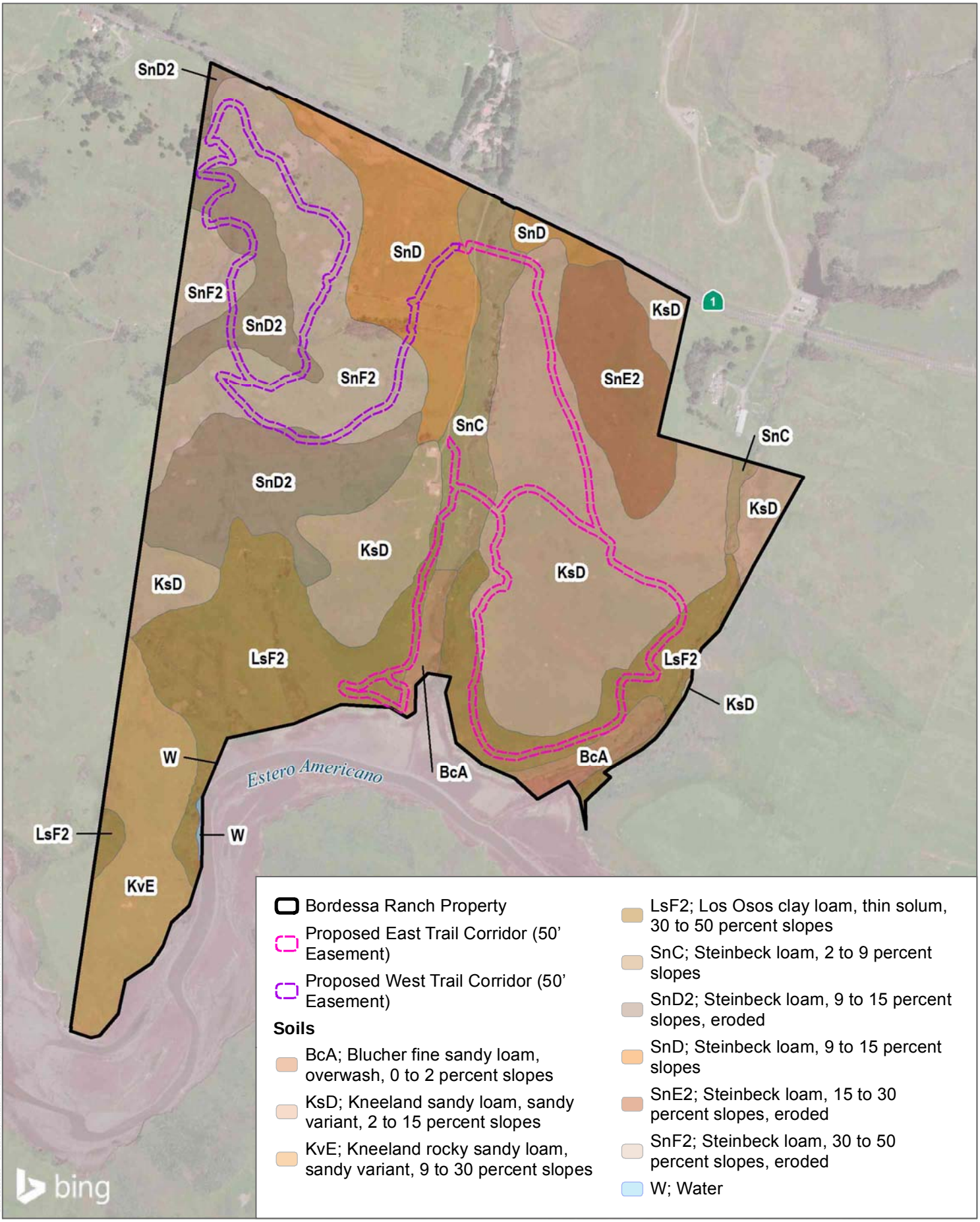
Soils

According to the Natural Resources Conservation Service (USDA 2017), ten soil types are mapped within the project site (Figure 3.4-1). Blucher fine sandy loam (overwash), 0-2% slopes, is a somewhat poorly drained, non-saline to very slightly saline soil derived from sedimentary rock. Kneeland sandy loam (sandy variant), 2-15% and 15-30% slopes, are well-drained

residuum weathered from sedimentary rock. Kneeland rocky sandy loam (sandy variant), 9-30% slopes, is a well-drained residuum weathered from sedimentary rock found on back and side slopes on marine terraces. Los Osos clay loam (thin solum), 30-50% slopes, is a well-drained residuum weathered from sedimentary rock found on hillsides. The remaining soil types are Steinbeck loam occurring on 2-9% slopes, 9-15% slopes, 9-15% slopes (eroded), 15-30% slopes (eroded), and 30-50% slopes (eroded). These are moderately well-drained residuum weathered from sandstone found on back and side slopes of terraces.

Vegetation Communities and Land Cover Types

The land cover within the project site consists of a combination of non-vegetative land cover types as well as terrestrial and aquatic natural vegetation communities. The nomenclature used herein for vegetation communities and non-vegetative land covers have been adapted from *A Manual of California Vegetation*, Second Edition (Sawyer et al. 2009), and the California Wildlife Habitat Relationship System (originally published by Mayer and Laudenslayer in 1988). The following vegetation communities and land cover types have been documented on site and are described in further detail below and depicted on Figure 3.4-2. Those vegetation communities considered to be “sensitive” by CDFW are indicated as such. A total of 157 species of native or naturalized plants, 104 native (66%) and 53 non-native (34%), was recorded on the project site (see Appendix C).



SOURCE: Bing Maps 2018, USDA

DUDEK

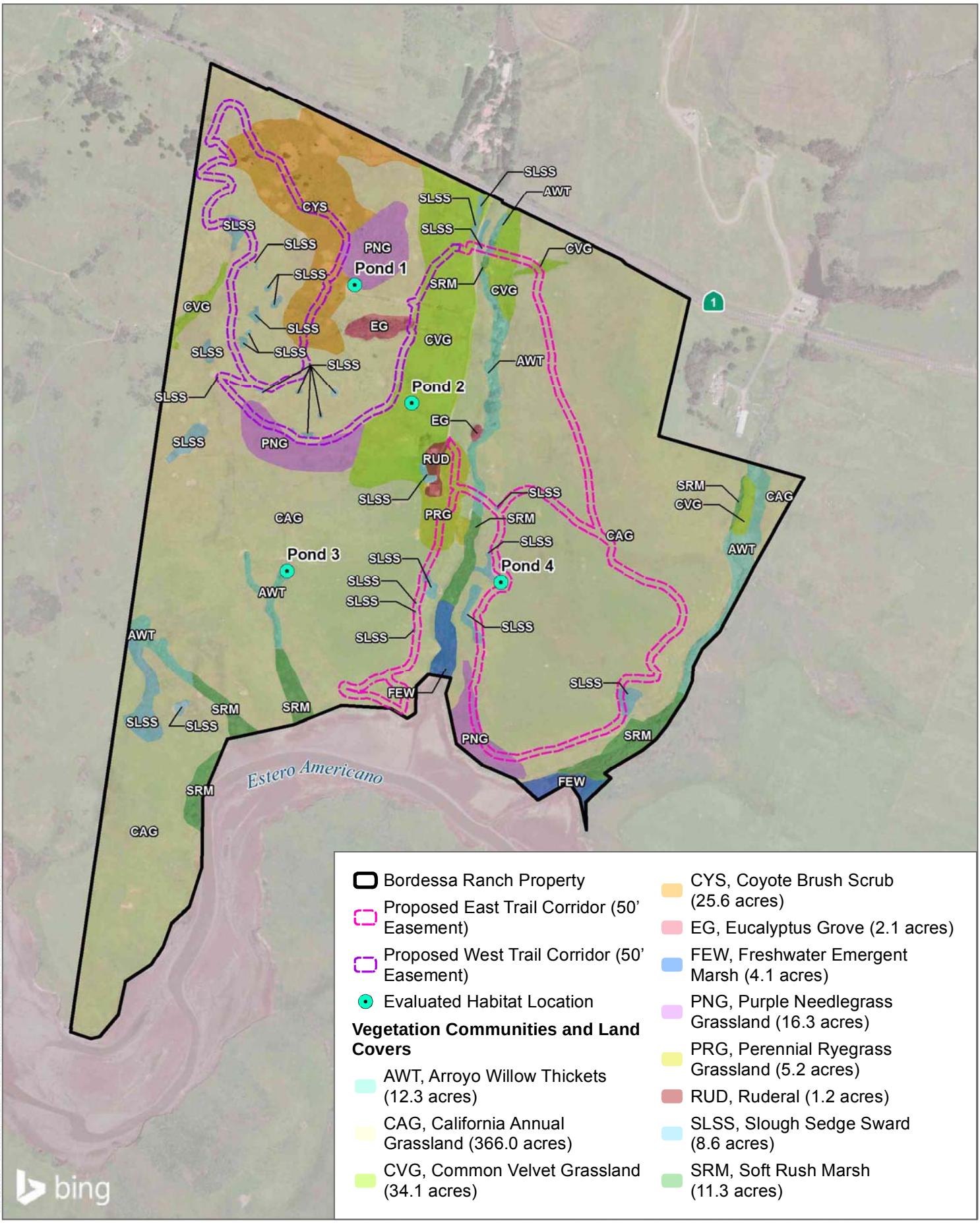
0 500 1,000 Feet

FIGURE 3.4-1

Soils Map

Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas Project

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SOURCE: Bing Maps 2018

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0 500 1,000 Feet

FIGURE 3.4-2

Vegetation Communities

Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas Project

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California Annual Grassland. The dominant vegetation community within the project site, California annual grassland, encompasses approximately 366 acres and is largely comprised of non-native grasses such as slender wild oats (*Avena barbata*), velvet grass (*Holcus lanatus*), rattlesnake grass (*Briza maxima*), little quaking grass (*Briza minor*), hedgehog dogtail grass (*Cynosurus echinatus*). Also present in this community are non-native forbs such as bull thistle (*Cirsium vulgare*), Italian thistle (*Carduus pycnocephalus*), birdsfoot trefoil (*Lotus corniculatus*), cat's ears (*Hypochaeris glabra*; *H. radicata*), pale flax (*Linum bienne*), and sheep sorrel (*Rumex acetosella*). Native grasses and forbs occurred sporadically within the grassland and include purple needlegrass (*Stipa pulchra*), meadow barley (*Hordeum brachyantherum*), yarrow (Achillea millefolium), dwarf brodiaea (*Brodiaea terrestris*), California poppy (*Eschscholzia californica*), annual lupine (*Lupinus bicolor*), blue-eyed grass (*Sisyrinchium bellum*), and western bracken fern (*Pteridium aquilinum*). Congested-headed hayfield tarplant (*Hemizonia congesta* ssp. *congesta*), a California Rare Plant Rank (CRPR) 1B.2 species, is present in large numbers within the grassland.

Common Velvet Grass – Sweet Vernal Grass Grassland (Holcus lanatus – Anthoxanthum oderatum Herbaceous Semi-Natural Alliance). Common velvet grass – sweet vernal grass grasslands on site is co-dominated by these two non-native grass species. This vegetation community comprises approximately 34.1 acres and generally occurs in patches within the more mesic areas of the California annual grassland in the western more hilly terrain of the project site. Non-native sweet briar rose (*Rosa rubiginosa*) also occurs sporadically in this vegetation community.

Perennial Ryegrass (Lolium perenne [Festuca perennis] Herbaceous Semi-Natural Alliance). One area (approximately 5.2 acres) of perennial ryegrass (*Festuca perennis*) occurs directly adjacent to the barn on site. The field contains nearly 100% cover of perennial ryegrass. This community is typically associated with moist soils.

Slough Sedge Swards (Carex obnupta Herbaceous Alliance). Slough sedge swards occur in patches throughout approximately 8.6 acres of the annual grassland on the project site where moisture appears to be maintained in the soil due to the site's microtopography. This vegetation community is dominated by slough sedge (*Carex obnupta*) with some velvet grass, sweet vernal grass, and California blackberry (*Rubus ursinus*) interspersed throughout. This is considered a Sensitive Natural Community by CDFW.

Purple Needlegrass Grasslands (Nassella [Stipa] pulchra Herbaceous Alliance). Purple needlegrass grassland occurs sporadically throughout the grassland in approximately 16.3 acres of the southern and western portions of the project site. This vegetation community is characterized by at least 10% total cover of purple needlegrass. This is considered a Sensitive Natural Community by CDFW.

Coyote Brush Scrub (Baccharis pilularis Shrubland Alliance). Coyote brush scrub occurs intermittently in approximately 25.6 acres of the western portion of the project site, primarily on north- and east-facing hill slopes. Coyote brush (*Baccharis pilularis*) is the dominant shrub in this vegetation community. Other shrub species observed during on-site surveys include sweet briar rose, coffeeberry (*Frangula californica*), hawthorn (*Crataegus* spp.), and gorse (*Ulex europaeus*). Scattered Monterey pine trees (*Pinus radiata*) are also present in low numbers on the northwestern slopes within the project site. The herbaceous understory of this vegetation community contains grass and herb species consistent with those found in the California Annual Grassland described above. This is considered a Sensitive Natural Community by Sonoma County.

Arroyo Willow Thickets (Salix lasiolepis Shrubland Alliance). Arroyo willow (*Salix lasiolepis*) is the dominant tree cover along the intermittent drainage (ID-01) on site. Approximately 12.3 acres of this vegetation community is present within the project site. Other tree species observed with the arroyo willow along the central drainage include Lombardy poplar (*Populus nigra*) and blue gum (*Eucalyptus globulus*). The understory of this riparian vegetation community primarily consists of rushes (*Juncus* patens and *J. effusus*), and bracken fern (*Pteridium aquilinum*). This is considered a Sensitive Natural Community (riparian) by CDFW and Sonoma County.

Eucalyptus Groves (Eucalyptus [globulus, camaldulensis] Woodland Semi-Natural Alliance). Two eucalyptus (also known as blue gum; *Eucalyptus globulus*) groves, totaling approximately 2.1 acres, occur on site: one along an ephemeral drainage (ED-02) in the western portion of the project site and the other along the central intermittent drainage (ID-01). This vegetation community is dominated by blue gum in the overstory, with sporadic shrub and small tree species in the understory including arroyo willow, hawthorn (*Crataegus* spp.), poison oak (*Toxicodendron diversilobum*), and California blackberry. Bracken fern and grasses typical of the California annual grassland described above are common in the herbaceous layer.

Baltic and Mexican (soft) rush marshes (Juncus [balticus, mexicanus] Herbaceous Alliance). This vegetation community consists of approximately 11.3 acres of a mix of Juncus species including *Juncus balticus*, *J. mexicanus*, *J. patens*, and *J. effuses*. The rush marshes occur along the intermittent drainage (ID-01) and adjacent to the Estero where they mix with pickleweed (*Salicornia* spp.). This is considered Sensitive Natural Community (wetlands) by CDFW and Sonoma County.

Ruderal Roadways and Structures. This land cover type consists approximately 1.2 acres of the developed dirt and gravel access road leading from SR 1 to the barn on site, as well as the barn and associated anthropogenic[2] influences associated with cattle ranching. Vegetation is generally absent from the access road, and Himalayan blackberry (*Rubus armeniacus*) was common adjacent to the barn.

[2] Changes in nature made by humans.

Common Wildlife Species

Eighteen common wildlife species (including signs such as feathers, burrows, tracks, scat, etc.) were detected during the September 26, 2017 survey. Of these, 12 were birds and 6 were mammals. An additional 13 bird species were observed during the April 14, 2017 wetland delineation and are included in the list of common wildlife species observed on the site found in Table 3.4-1 below.

Table 3.4-1
Common Wildlife Species Observed on the Estero Trail Project Site

Common Name	Scientific Name
Mammals	
coyote (scat)	*Canis latrans*
California ground squirrel (sign)	*Otospermophilus beecheyi*
California vole (sign)	*Microtus californicus*
western brush rabbit	*Sylvilagus bachmani*
Botta's pocket gopher (sign)	*Thomomys bottae*
mule deer	*Odocoileus hemionus*
Birds (9/26/2017)	
turkey vulture	*Cathartes aura*
red-tailed hawk	*Buteo jamaicensis*
American kestrel	*Falco sparverius*
northern harrier	*Circus cyaneus*
Say's phoebe	*Sayornis saya*
California quail	*Callipepla californica*
bushtit	*Psaltriparus minimus*
great egret	*Ardea alba*
western bluebird	*Sialia mexicana*
savannah sparrow	*Passerculus sandwichensis*
American crow	*Corvus brachyrhynchos*
song sparrow	*Melospiza melodia*
Birds (4/14/2017)	
European starling	*Sturnus vulgaris*
black phoebe	*Sayornis nigricans*
yellow warbler	*Melozone crissalis*
red-winged blackbird	*Agelaius phoeniceus*
tree swallow	*Tachycineta bicolor*
chipping sparrow	*Spizella passerina*
mallard	*Anas platyrhynchos*
cliff swallow	*Petrochelidon pyrrhonota*
western meadowlark	*Sturnella neglecta*
yellow-rumped warbler	*Setophaga coronata*
Canada goose	*Branta canadensis*

Table 3.4-1
Common Wildlife Species Observed on the Estero Trail Project Site

Common Name	Scientific Name
western kingbird	*Tyrannus verticalis*
orange-crowned warbler	*Vermivora celata*

Source: Dudek 2018.

Special-Status Resources

For the purposes of this evaluation, special-status plant species are those plants listed, proposed for listing, or candidates for listing as threatened or endangered by the CDFW under the California Endangered Species Act (CESA) or by the USFWS under the federal Endangered Species Act (ESA), and plants that have a California Rare Plant Rank (CRPR) of 1 or 2 in the CNPS's online Inventory of Rare and Endangered Plants (CNPS 2018b). Special-status wildlife species are those that are listed as threatened or endangered (or candidate for listing) on the state CESA (Fish & Game Code, § 2050 et seq.) or federal ESA (16 U.S.C. § 1531 et seq.); meet the CEQA definition for endangered, rare, or threatened (Cal. Code Regs., tit. 14, § 15380(b),(d)); are considered fully protected (FP) under the state Fish & Game Code, § 3511, 4700, 5050, and 5515; or that are on the CDFW *Special Animals List* (CDFW 2018b) and determined by CDFW to be a Species of Special Concern (SSC).

As noted in the Methods of Analysis section below, various agency databases were queried and reviewed to identify special-status species known to occur on the site or in the project site region. For those species identified as such, the potential for each species to occur on the project site was based on a review of vegetation communities and available land cover types, habitat types, soils, and elevation preferences, as well as the known geographic range of each species. In addition, the potential for occurrence also incorporated the results of previous biological studies (identified in the Summary of Previous Studies discussion above) conducted on the project site. Species were not expected to occur when the site was clearly outside the known geographic range of the species, or if there was no suitable habitat for the species on and immediately adjacent to the site.

Special-Status Plants

To address concerns raised in comment letters on the NOP that previously conducted surveys for special-status plants were not conducted during the appropriate blooming periods, focused protocol-level surveys were conducted in 2017 to coincide with the blooming periods of those special-status plant species with potential of occurring on the site. Results of the California Natural Diversity Database (CNDDB) and California Native Plant Society (CNPS) searches revealed 90 special-status plant species as occurring in the project site region or that have potential to occur in the

vicinity of the project site. Of these, 80 were removed from consideration due to the lack of suitable habitat within or immediately adjacent to the project site, or because the project site is outside of the species' known range, and are therefore not addressed further in this EIR. Information on the literature/database review and the field survey methods can be found in Appendix C.

Of the remaining ten special-status plant species with potential to occur on the site, eight have a moderate potential to occur, one has a high potential to occur, and one was observed on the site during the rare plant surveys. These are discussed in more detail further below and presented in Table 3.4-2.

Table 3.4-2
Special-Status Plant Species Occurrence Potential on the Project Site

Common Name	Scientific Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur Within the Project Site
golden larkspur	*Delphinium luteum*	FE/CR/1B.1	Chaparral, coastal prairie, coastal scrub; rocky/perennial herb/Mar–May/0–328	**Moderate potential to occur.** The grassland on site may provide potentially suitable habitat for this species. The nearest documented occurrence for this species is located approximately 1.3 miles west of the project site (CDFW 2017).
western leatherwood	*Dirca occidentalis*	None/None/1B.2	Broadleaved upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, north coast coniferous forest, riparian forest, riparian woodland; mesic/perennial deciduous shrub/Jan–Mar (Apr)/82–1,394	**Moderate potential to occur.** The drainages on site provide potentially suitable habitat for this species. It was not observed during the 2017 botanical surveys.
fragrant fritillary	*Fritillaria liliacea*	None/None/1B.2	Cismontane woodland, coastal prairie, coastal scrub, valley and foothill grassland; often serpentinite/perennial bulbiferous herb/Feb–Apr/10–1,345	**Moderate potential to occur.** Mesic areas in the grassland on site may provide potentially suitable habitat for this species. The nearest documented occurrence for this species is located directly north and adjacent to the project site; however, this occurrence was last documented in 1924 (CDFW 2017).

Table 3.4-2
Special-Status Plant Species Occurrence Potential on the Project Site

Common Name	Scientific Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur Within the Project Site
woolly-headed gilia	*Gilia capitata* ssp. *tomentosa*	None/None/1B.1	Coastal bluff scrub, valley and foothill grassland; serpentinite, rocky, outcrops/annual herb/May–July/33–722	**Moderate potential to occur.** Rocky outcrops in the grassland on site may provide potentially suitable habitat for this species. The nearest documented occurrence for this species is located approximately 2 miles west of the project site (CDFW 2017).
congested-headed hayfield tarplant	*Hemizonia congesta* ssp. *congesta*	None/None/1B.2	Valley and foothill grassland; sometimes roadsides/annual herb/Apr–Nov/66–1,837	**Present.** This species was documented at the site during the 2017 botanical surveys.
Baker's goldfields	*Lasthenia californica* ssp. *bakeri*	None/None/1B.2	Closed-cone coniferous forest (openings), coastal scrub, meadows and seeps, marshes and swamps/perennial herb/Apr–Oct/197–1,706	**Moderate potential to occur.** Mesic areas in the grassland on site may provide potentially suitable habitat for this species. The nearest documented occurrence for this species is located directly north and adjacent to the project site; however, this occurrence was last documented in 1934. There are multiple other occurrences documented within 5 miles of the project site (CDFW 2017).
Point Reyes checkerbloom	*Sidalcea calycosa* ssp. *rhizomata*	None/None/1B.2	Marshes and swamps (freshwater, near coast)/perennial rhizomatous herb/Apr–Sep/10–246	**Moderate potential to occur.** The mesic habitat within the stream and at seeps within the project site may provide potentially suitable habitat for this species. The nearest documented occurrence for this species is located approximately 0.7 mile east of the project site (CDFW 2017).
purple-stemmed checkerbloom	*Sidalcea malviflora* ssp. *purpurea*	None/None/1B.2	Broadleaved upland forest, coastal prairie/perennial rhizomatous herb/May–June/49–279	**Moderate potential to occur.** The grassland on site provides potentially suitable habitat for this species. There are two documented occurrences for this species within 5 miles of the project site (CDFW 2017)

Table 3.4-2
Special-Status Plant Species Occurrence Potential on the Project Site

Common Name	Scientific Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur Within the Project Site
two-fork clover	*Trifolium amoenum*	FE/None/1B.1	Coastal bluff scrub, valley and foothill grassland (sometimes serpentinite)/annual herb/Apr–June/16–1,362	**High potential to occur.** The grassland on site provides potentially suitable habitat for this species. This species has been previously documented in 1945 in a non-specific area that includes the project site, as well as more recent occurrence approximately 1 mile south of the project site (CDFW 2017).
San Francisco owl's-clover	*Triphysaria floribunda*	None/None/1B.2	Coastal prairie, coastal scrub, valley and foothill grassland; usually serpentinite/annual herb/Apr–June/33–525	**Moderate potential to occur.** Potentially suitable habitat for this species occurs in the grassland on site. The nearest documented occurrence for this species is located approximately 2.5 miles southwest of the project site along the coast (CDFW 2017).

Status Legend:
FE: Federally listed as endangered
FT: Federally listed as threatened
SE: State listed as endangered
ST: State listed as threatened
CRPR 1A: Plants Presumed Extirpated in California and either Rare or Extinct Elsewhere
CRPR 1B: Plants Rare, Threatened, or Endangered in California and Elsewhere
CRPR 2A: Plants Presumed Extirpated in California, But More Common Elsewhere
CRPR 2B: Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
.1 Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
.2 Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)
.3 Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

Plant Species Potentially Occurring or Known to Occur on the Project Site

Congested-headed hayfield tarplant (*Hemizonia congesta* ssp. *congesta*, CRPR 1B.2) is an annual herb found in valley and foothill grassland habitats and occasionally along roadsides. It was observed in several areas of the site during the 2017 botanical surveys. These populations were mapped and are depicted in Figure 5 of the 2017 Botanical Report (Appendix C).

Two-fork clover (*Trifolium amoenum,* federally Endangered, CRPR 1B.1) is an annual herb found in coastal bluff scrub and valley and foothill grassland habitat. It has a high potential to

occur on the project site due to the availability of suitable grassland habitat and a recent occurrence record from approximately one mile south of the site.

Golden larkspur (*Delphinium luteum*, federally Endangered, California Rare, CRPR 1B.1) is a perennial herb found in chaparral, coastal prairie, and coastal scrub habitats. It has a moderate potential to occur on the project site due to the availability of suitable habitat and a documented occurrence record located approximately 1.3 miles west of the project site.

Western leatherwood (*Dirca occidentalis,* CRPR 1B.2) is a perennial deciduous shrub found broadleaved upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, north coast coniferous forest, riparian forest, and riparian woodland habitats. It has a moderate potential to occur on the project site due to the availability of suitable habitat within the drainages on site.

Fragrant fritillary (*Fritillaria liliacea,* CNPS 1B.2) is perennial bulbiferous herb found in cismontane woodland, coastal prairie, coastal scrub, and valley and foothill grassland habitats. It has a moderate potential to occur on the project site due to the availability of suitable habitat and documented occurrence located directly north and adjacent to the project site; however, this occurrence was last documented in 1924.

Woolly-headed gilia (*Gilia capitata* ssp. *tomentosa,* CRPR 1B.1) is an annual herb found in coastal bluff scrub and valley and foothill grassland habitats. It has a moderate potential to occur on the project site due to the availability of suitable habitat, and there is a documented occurrence approximately 2 miles west of the project site.

Baker's goldfields (*Lasthenia californica* ssp. *bakeri,* CRPR 1B.2) is a perennial herb found in closed-cone coniferous forest (openings), coastal scrub, meadows and seeps, and marshes and swamps. It has a moderate potential to occur on the project site due to the availability of suitable habitat, and there is a documented occurrence located directly north and adjacent to the project site; however, this occurrence was last documented in 1934. There are multiple other occurrences documented within 5 miles of the project site.

Point Reyes checkerbloom (*Sidalcea calycosa* ssp. *rhizomata,* CRPR 1B.2) is a perennial rhizomatous herb that is found in marshes and swamps (freshwater and near the coast). It has a moderate potential to occur on the project site due to the availability of suitable habitat, and there is a documented occurrence for this species approximately 0.7 mile east of the project site.

Purple-stemmed checkerbloom (*Sidalcea malviflora* ssp. *purpurea,* CRPR 1B.2) is a perennial rhizomatous herb found in broadleaved upland forest and coastal prairie habitats. It has a moderate potential to occur on the project site due to the availability of suitable habitat, and there are two documented occurrences for this species within 5 miles of the project site.

San Francisco owl's clover (*Triphysaria floribunda,* CRPR 1B.2) is an annual herb found in coastal prairie, coastal scrub and valley and foothill grassland habitats. It has a moderate potential to occur on the project site due to the availability of suitable habitat, and there is a documented occurrence located approximately 2.5 miles southwest of the project site along the coast.

Special-Status Wildlife

Results of the CNDDB and IPaC searches indicated 30 special-status wildlife species known to occur within a five-mile radius of the site (Table 3.4-3). Of these, 16 species are not expected to occur on the project site due to the presence of marginally suitable nesting or breeding habitat or the lack of such habitat, or the site is outside of the species' known range. Of the remaining fourteen species, ten were observed on the site, either from previous studies or the most recent surveys conducted in 2017/2018, and four have some potential or moderate potential to occur on the site. These fourteen species are listed in Table 3.4-3 and discussed in more detail further below.

A separate habitat assessment was performed for the federal- and state-listed endangered salt marsh harvest mouse (*Reithrodontomys raviventris*) and Ridgway's rail (*Rallus obsoletus*) by Californian Environmental Services in June 2018 (Appendix C). No suitable habitat for either of these species was detected within or immediately adjacent to the project site, and there have been no documented occurrences of either of these species within 5 miles of the project site in the last 35 years. The saltgrass and pickleweed vegetation within the coastal brackish marsh habitat bordering the Estero is not of adequate height or density to provide cover for either of these species. Therefore, these species are not discussed further in this EIR. In addition, biologists with the County conducted dip-net surveys within various pools on the site for the California freshwater shrimp (*Syncaris pacifica*), a state- and federally-listed endangered species endemic to Marin, Napa, and Sonoma counties. No observations of this species were noted and this species is not discussed further in this EIR.

As previously noted, Dudek conducted a habitat assessment and daytime surveys to determine suitability for and presence/absence of California red-legged frog and western pond turtle in suitable habitat areas on the project site. Both of these species were observed on the project site and were previously observed during the County's 2014 biological assessment. Detailed information on the methods and results of these surveys can be found in Appendix C.

Table 3.4-3
Special-Status Wildlife Species Occurrence Potential on the Project Site

Common Name	Scientific Name	Federal/State Status	Habitat Associations	Potential to Occur within the Project Site
Invertebrates				
Myrtle's silverspot butterfly	*Speyeria zerene myrtleae*	FE/None	Myrtle's silverspot is a medium sized butterfly in the brush foot family. Adult butterflies are typically found in areas that are sheltered from the wind, below 250 m (820 feet) elevation, and within 3 miles of the coast. They are found in coastal dune or prairie/grassland habitat. Four populations are known to inhabit western Marin and southwestern Sonoma counties, including the Point Reyes National Seashore.	**Moderate potential to occur.** Suitable habitat (including the larval food plant for this species) exists on the project site and there are documented occurrences of this species just south of the Estero.
Amphibians and Reptiles				
California red-legged frog	*Rana draytonii*	FT/SSC	California red-legged frogs occur in different habitats depending on their life stage, the season, and weather conditions. Breeding habitat includes coastal lagoons, marshes, springs, permanent and semi-permanent natural ponds, and ponded and backwater portions of streams. These frogs also breed in artificial impoundments including stock ponds, irrigation ponds, and siltation ponds. Creeks and ponds with dense growths of woody riparian vegetation, especially willows (*Salix* spp.) are preferred, although the absence of vegetation at an aquatic site does not rule out the possibility of occupancy. Adult frogs prefer dense, shrubby or emergent riparian vegetation near deep (≥2 to 3 feet), still or slow moving water, especially where dense stands of overhanging willow and an intermixed fringe of cattail occur adjacent to open water.	**Observed.** An adult and three juveniles were observed in pools associated with the two unnamed drainages on the site during surveys on September 26, 2017. Adult and juvenile frogs observed in Pond 1, and tadpoles observed in the central drainage, by County biologists in 2014.

Table 3.4-3
Special-Status Wildlife Species Occurrence Potential on the Project Site

Common Name	Scientific Name	Federal/State Status	Habitat Associations	Potential to Occur within the Project Site
western pond turtle	*Emys marmorata*	None/SSC	Western pond turtles use both aquatic and terrestrial habitats. They are found in rivers, lakes, streams, ponds, wetlands, ephemeral creeks, reservoirs, agricultural ditches, estuaries, and brackish waters. Western pond turtles prefer areas that provide cover from predators, such as vegetation and algae, as well as basking sites for thermoregulation. Adults tend to favor deeper, slow moving water, whereas hatchlings search for slow and shallow water that is slightly warmer. Terrestrial habitats are used for wintering and usually consist of burrows in leaves and soil. Western pond turtles also lay their eggs in terrestrial habitats. They are rarely found at altitudes above 1,500 meters.	**Observed.** One adult western pond turtle was observed in a residual pool within drainage ID-02 during surveys on September 26, 2017. One adult also observed in the central drainage near the confluence with the Estero by County biologists in 2014.
			Birds	
northern harrier	*Circus cyaneus*	None/SSC	Northern harrier utilizes marshes, fields, and prairies. Found in open terrain, both wet and dry habitats, where there is sufficient ground cover. Often found in marshes, especially during nesting season, but sometimes will nest in dry open fields. Usually hunts by flying low over fields, scanning the ground.	**Observed.** This species was observed foraging over the site during surveys on September 26, 2017. Also observed during surveys conducted in 2012 by Heaton. Suitable marsh and grassland nest habitat occurs onsite.
white-tailed kite	*Elanus leucurus*	None/FP, SSC	Nests and forages in open, low elevation foothills and valleys within grasslands, meadows, and rangeland with scattered trees and woodland areas for nesting.	**Observed**. While suitable foraging habitat is present, limited nesting potential. Species observed foraging on the site by Heaton in winter of 2011/2012.
Bryant's savannah sparrow	*Passerculus sandwichensis alaudinus*	None/SSC	Inhabits coastal salt marshes and moist grasslands, primarily within and just beyond the fog belt.	**Observed**. Grasslands on the site represent suitable nesting and foraging habitat. Observed in winter and during breeding season by Heaton (2012) and County (2014).

Table 3.4-3
Special-Status Wildlife Species Occurrence Potential on the Project Site

Common Name	Scientific Name	Federal/State Status	Habitat Associations	Potential to Occur within the Project Site
grasshopper sparrow	*Ammodramus savannarum*	None/SSC	Dense grasslands on rolling hills, lowland plains, and in valleys. Favors native grasslands with a mix of grasses, forbs and scattered shrubs.	**Observed**. Species observed by Heaton in 2012 during nesting season.
saltmarsh common yellowthroat	*Geothlypis trichas sinuosa*	None/SSC	Fresh and salt water marshes in the San Francisco Bay region, in fresh and salt water marshes. Requires dense vegetation with tall grasses, tule patches, willows for nesting.	**Some potential to occur**. Marsh habitat within the central drainage provides suitable habitat. No CNDDB occurrences within 5 miles (CDFW 2018) and not observed during previous surveys.
burrowing owl	*Athene cunicularia*	None/SSC	Nests and forages in grassland, open scrub, and agriculture, particularly with ground squirrel burrows. No breeding records in Sonoma County for the past 20 years.	**Observed**. Species observed during the winter in 2012 by Heaton. Not observed during the County's 2014 surveys or during surveys conducted on the site in 2017 by Dudek. The site provides suitable foraging and nest burrow habitat.
short-eared owl	*Asio flammeus*	None/SSC	Grassland, prairies, dunes, meadows, irrigated lands, and saline and freshwater emergent wetlands	**Observed**. While there are no breeding occurrences within the Project site region, and no confirmed breeding observed onsite during various spring/summer surveys, the site has suitable foraging and cover habitat and species observed onsite during winter surveys in 2012 by (Heaton 2012).
yellow warbler	*Setophaga petechia*	None/SSC	Associated with riparian habitat, particularly willow and alder thickets in montane areas, and willow cottonwood riparian at lower elevations.	**Observed.** This species was observed during Dudek surveys on April 14, 2017.

Table 3.4-3
Special-Status Wildlife Species Occurrence Potential on the Project Site

Common Name	Scientific Name	Federal/State Status	Habitat Associations	Potential to Occur within the Project Site
Mammals				
American badger	*Taxidea taxus*	None/SSC	Most abundant in drier open stages of most shrub, forest and herbaceous habitats with friable soils. Will dig burrows for cover and breeding in friable soils.	**Observed.** Suitable habitat exists within the project site, and while no direct observations of this species have been made during various surveys on the site, recent and abandoned badger burrows were observed by the County in 2014. Historical occurrence records for this species on the site and just north of the site near Bodega, CA.
pallid bat	*Antrozous pallidus*	None/SSC	Pallid bat occupies a variety of habitats including grassland, shrubland, woodland and forests from sea level up through mixed conifer forest. Roosts in caves, mines, crevices and occasionally hollow trees or buildings. Prefers open habitats for foraging.	**Moderate potential to occur.** Suitable foraging habitat exists within the project site, and the barn and trees on the project site could provide suitable roosting habitat.
Townsend's big-eared bat	*Corynorhinus townsendii*	None/SSC	Townsend's big-eared bat is found throughout most of western North America. Hibernates and roosts in caves and mines near entrances, or cave like structures such as buildings or under decks. Forages in forested habitats, along open edges.	**Low potential to occur.** Suitable foraging habitat exists within the project site, not expected to utilize the onsite barn or outbuilding as roosting habitat due to ongoing use of these structures for ranching purposes. There are several occurrence records for this species approximately 5 miles west of the site in Bodega Bay, CA.

Status Legend:
FE: Federally listed as endangered
FT: Federally listed as threatened
SE: State listed as endangered
ST: State listed as threatened
FP: state Fully Protected
SSC: State Species of Special Concern

Wildlife Species Potentially Occurring or Known to Occur on the Project Site

Myrtle's silverspot butterfly (*Speyeria zerene myrtleae;* federally-listed Endangered) is typically found in coastal dune or prairie/grassland habitat that is sheltered from wind at elevations below

820 feet AMSL. Suitable habitat and larval host plants (western dog violet) are present throughout the site and there are occurrence records just south of the Estero on the southern boundary of the site.

California red-legged frog (*Rana draytonii*; federally-listed Threatened; CDFW Species of Special Concern) occurs in permanent and semi-permanent natural ponds and ponded backwater portions of streams. These frogs also breed in artificial impoundments including stock ponds, irrigation ponds, and siltation ponds.

Based on the results of the California red-legged frog (CRF) habitat assessment (Appendix C), suitable breeding habitat is present in Pond 3 and likely Pond 1 (in some years), as well as both intermittent drainages (ID-01 and ID-02). Pond 1 is considered seasonal, but has sufficient depth to support breeding in some years (likely only in average or above average rainfall years) and Pond 3 (which is generally perennial) appears to provide suitable breeding habitat in most years. Ponds 2 and 4 are relatively shallow and are unlikely to support breeding in most if not all years; however, CRF may utilize these ponds in the winter and spring/early summer for cover and foraging. Both of the intermittent drainages appear to provide suitable breeding habitat in most years, since high velocity flows are not likely to occur due to the short length of both drainages (approximately 1.3 miles each).

Additionally, some of the seeps and springs on the project site provide refugia and foraging habitat for CRF during the spring and summer months. CRF have historically been observed using the spring box located approximately 1,050 feet (320 meters) south of the barn. Suitable upland habitat is present adjacent to or in close proximity to all of the ponds and both intermittent drainages.

This species has been documented on the site previously (CDFW 2018) in one of the four small ponds that occur on the project site. In addition, adult and juvenile red-legged frogs were observed on the project site during the County's 2014 survey, in particular in Pond 1 (adults and juveniles) and in the central creek drainage (tadpoles). During the September 2017 surveys, one adult and one juvenile were observed in a pool associated with one of the unnamed intermittent drainages (ID-01) on the project site, and two juveniles were observed in a pool associated with another unnamed drainage (ID-02). A historical CNDDB record documented an observation in one of the on-site ponds (Pond 2). While none of the red-legged frog observations occur within any of the proposed trail alignments, two observations occur in close proximity to portions of the East Trail alignment and the historical sighting occurs in close proximity to a portion of the West Trail alignment. A more detailed discussion on the results of the survey is included in Appendix C.

Western pond turtle (*Actinemys marmorata*; CDFW Species of Special Concern) utilizes rivers, lakes, streams, ponds, wetlands, ephemeral creeks, reservoirs, agricultural ditches, estuaries, and brackish waters, and upland habitats adjacent to these areas for nesting.

Based on the results of the western pond turtle (WPT) habitat assessment performed for the project (see Appendix C), suitable aquatic habitat is present in Pond 1 (at least during part of the year when the pond is inundated), Pond 3, and both intermittent drainages (ID-01 and ID-02). Due to the shallow water depth and lack of cover in Pond 2, and the shallow water depth and presence of dense bulrush in Pond 4, it is unlikely that either of these features provide suitable aquatic habitat for WPT although WPT may utilize Pond 2 during the winter/spring while moving through the site.

Pond 1 is a seasonal feature and may provide suitable aquatic habitat during the winter/spring and early summer. Suitable nesting and aestivation habitat is present in the grasslands around this pond. Pond 3 appears to be perennial in most years and provides suitable aquatic habitat year-round. Vegetative cover occurs around much of the pond and upland nesting and aestivation habitat is common to abundant in the grasslands surrounding the pond. Both drainages ID-01 and ID-02 provide suitable aquatic habitat for WPT and the adjacent grasslands provide nesting and aestivation habitat for this species.

One western pond turtle was observed during the County's 2014 surveys on the site at the mouth of the central drainage near the confluence with the Estero. During the daytime surveys conducted in September 2017, one WPT adult was observed in an isolated pool in drainage ID-02. A more detailed discussion on the results of the survey is included in Appendix C.

Northern harrier (*Circus cyaneus;* CDFW Species of Special Concern) utilizes marshes, fields, and prairies and is found in open terrain (both wet and dry habitats) where there is sufficient ground cover. They are often found in marshes, especially during nesting season, but sometimes will nest in dry open fields. The Heaton 2012 report states "at least one Northern Harrier [was] detected during the breeding season" and several were observed during the non-breeding season including a possible roost-site was found in dense grasses on the hillside to the northwest of the barn complex. No northern harriers were observed on the site during the County's 2014 surveys in April and June, including use of the reported roost site. However, the taller more dense grasslands on the site provide suitable nesting habitat for this species. This species was observed flying over the site during the September 26, 2017 survey.

Yellow warbler (Setophaga petechia, CDFW Species of Special Concern) is associated with riparian habitat, particularly willow and alder thickets in montane areas and willow-cottonwood riparian habitats at lower elevations. While this species was not reported in the Heaton 2012 surveys or the County's 2014 surveys, it was documented on site along ID-01 during the Dudek surveys on April 14, 2017.

Saltmarsh common yellowthroat (*Geothlypis trichas sinuosa*; CDFW Species of Special Concern) occurs primarily in brackish marsh, freshwater marsh, salt marsh, and riparian woodland/swamp habitats. The species typically nests in dense emergent aquatic vegetation including areas dominated by cattails, tules, and willow scrub.

There are no occurrences of this species within 5 miles of the project property in the CNDDB (CDFW 2018). This species was not observed during the 2011/2012 Heaton surveys, 2014 County surveys, or the 2017 Dudek surveys. However, the wetland and willow scrub vegetation along the central creek drainage and emergent wetland in the marsh habitat area near the confluence of the creek and the Estero provides suitable nest habitat for this species.

Grasshopper sparrow (*Ammodramus savannarum*; CDFW Species of Special Concern) is found in grasslands, hayfields and prairies. It breeds in dry fields and prairies, especially those with fairly tall grass and weeds and a few scattered shrubs. It also nests in overgrown pastures and hayfields, and sometimes in fields of other crops, where it forages mostly on insects and seeds. The Heaton 2012 survey observed at least six individual grasshopper sparrows on the project property concentrated on the flat ridge southwest of the barn and on the slopes of the surrounding drainages. Since these individuals were observed in June during the nesting season, it is presumed that the species nests onsite. Grasshopper sparrow was not observed during the County's 2014 surveys or during surveys conducted in 2017; however, suitable nesting habitat occurs within the annual grassland on site.

Bryant's savannah sparrow (*Passerculus sandwichensis alaudinus*; CDFW Species of Special Concern) is found in salt marsh and moist grasslands typically within and just above the fog belt. It is the only subspecies of savannah sparrow that breeds in Sonoma County. Suitable breeding and foraging habitat occurs throughout the project site. During the Heaton 2011/2012 surveys, Bryant's savannah sparrows were dispersed across the property and occurred at various locations, both in grazed and ungrazed grassland, during the nesting season. The species was also observed during the County's 2014 surveys on the site, but was not observed during the surveys conducted by Dudek in 2017.

White-tailed kite (*Elanus leucurus*; California Fully Protected) is a year-round resident of coastal and valley lowlands that forages in undisturbed, open grasslands, meadows, farmlands and emergent wetlands. It typically nests near the tops of trees within relatively dense stands in close proximity to open foraging habitat.

No nesting occurrences are included in the CNDDB within 5 miles of the project site (CDFW 2018). White-tailed kites were observed on the property during the Heaton surveys although no evidence of nesting was detected. While no white-tailed kites were observed during the County's 2014 surveys nor the Dudek 2017 surveys, the grassland and marsh areas on the site represent suitable foraging and wintering habitat for the species. In general, tree nesting habitat is somewhat limited on the property; however, nesting within the few trees that do occur along the drainages cannot be entirely ruled out.

Burrowing owl (*Athene cunicularia*; CDFW Species of Special Concern) is typically found in dry grassland and open scrub habitats and may be found in prairie, rolling hills, and ranchlands. This ground-dwelling species utilizes abandoned small mammal burrows, often those of California ground squirrel and American badger, where there are unobstructed views of possible predators. Their diet consists of insects, small mammals, reptiles and amphibians.

Nesting by burrowing owls has not been documented in Sonoma County in over 20 years and is only infrequently observed in the County during the nonbreeding (winter) season (Sonoma County 2014). The Heaton 2012 survey observed an individual burrowing owl on March 4, 2011 (assumed to be a wintering owl or non-breeding owl as there is no indication in the Heaton report that this individual was breeding) and found evidence of burrowing owls, including pellets and whitewash, around numerous suspected badger burrow entrances during the 2010-2011 and 2011-2012 winter seasons. Three such burrows were located west of the central creek drainage and south of the barn on the project site (Heaton 2012, Figure 1) and all active burrows were located within ungrazed portions (generally western half) of the property. No evidence of nesting burrowing owls were observed during the spring and summer season surveys. The report noted that "Although surveys found a good number of suitable burrows on the property, nesting is not expected, as Burrowing Owls have not been known to nest in Sonoma County for over 20 years". Although old burrowing owl pellets and whitewash was observed near an old collapsed badger burrow on the site during the County's 2014 surveys conducted during this species nesting season, no individual burrowing owls or apparent active burrows, including nest burrows, were observed. Similarly, no burrowing owls or active burrows were observed during the 2017 spring/summer surveys conducted by Dudek.

The nearest documented occurrence record for this species is approximately 5 miles west of the site in Bodega Bay (CDFW 2018); and as noted above, no records of burrowing owls breeding in Sonoma County have been documented in over 20 years. In addition, neither the 2011/2012 or 2014 surveys documented the presence of breeding burrowing owls on the site even though avian surveys were conducted during the nesting season for this species. For these reasons, focused protocol-level surveys (pursuant to CDFW published protocols for this species) for breeding owls were not conducted in 2017. However, the focused protocol-level surveys for special-status plant species in 2017 were conducted by biologists also skilled in burrowing owl detection and during a time of year when breeding owls would be active; no burrowing owls were observed. Nevertheless, even if protocol-level nest surveys for burrowing owls were conducted in 2017 and found to be negative, it is assumed that because small mammal burrows (including those of American badger known to occur onsite) used by burrowing owls in a given nesting season can subsequently collapse due to cattle, erosion and inclement weather, or become inhabited by other species, burrowing owls could potentially be absent from a suitable nesting area the following nesting season, but again occupy that same area in a future season if suitable burrow habitat is available. Furthermore, because the project is proposed to be phased

in over a 3-4 year time period, and because habitat conditions can change from year to year, it is generally acceptable to conduct focused surveys for special-status species as close as possible (usually the blooming or breeding season just prior) to planned ground disturbance activities to ensure direct and indirect impacts to any such species, if present, can be avoided.

Therefore, because there is suitable nesting and foraging habitat for burrowing owl within the annual grassland on the site, in particular, onsite badger and other small mammal burrows could be used by burrowing owls as nest burrows, and because this species has been observed onsite during the winter months, the potential for this species to nest on the site at some point in the future cannot be entirely ruled out. Consequently, this analysis recommends that CDFW protocol-level surveys be conducted during the nesting season prior to ground-disturbance activities to ensure avoidance of any active burrows (see Impacts discussion further below).

Short-eared owl (*Asio flammeus;* CDFW Species of Special Concern) utilizes open terrain throughout California, including grasslands, prairies, and marshes. It nests and roosts on the ground and requires dense vegetation for cover.

The Heaton 2012 report documents several observations of wintering short-eared owls on the site, primarily in the western ungrazed portions of the property. Specifically, the report states “A good number of Short-eared Owls inhabited the Bordessa Ranch during the 2010-2011 and 2011-2012 winter seasons: at least 20 owls were observed during a survey conducted in winter 2010-2011, and at least 18 owls were observed the following winter. No Short-eared Owls were detected during the 2011 breeding season surveys. However, a fresh feather that was likely from a Short-eared Owl and a few appropriately-sized pellets were found in the vicinity of the pond on June 2, 2011. This is the same area where one of the landowners, Al Bordessa, reported seeing owls several times during April and May 2011”. No evidence of short-eared owl was detected during the County’s 2014 surveys, which corresponded to the species breeding season, and no evidence of this species was detected during the 2017 surveys. There is only one confirmed breeding record for Sonoma County and one for Marin County (CDFW 2018).

While no short-eared owls have been confirmed nesting on the property, suitable nesting habitat occurs in the annual grassland portion of the site and the potential for nesting on the site cannot be entirely ruled out.

American badger (*Taxidea taxus;* CDFW Species of Special Concern) is most abundant in drier open stages of most shrub, forest and herbaceous habitats with friable soils for digging. Suitable habitat exists for this species throughout the grassland on the project site, and there are historical CNDDB occurrence records for this species on the site and approximately 1.5 miles north of the site near the unincorporated community of Bodega. While no individual American badgers were observed during the County’s surveys in 2014 or Dudek’s surveys in 2017, a number of burrows indicating sign of activity (recent diggings, well-defined den openings with

freshly disturbed soil), as well as older inactive burrows, were observed in several locations within the grassland areas in 2014, including along and adjacent to the proposed East and West Trail Corridors. No American badgers or obvious sign of recent activity were detected during the reconnaissance-level surveys or focused rare plant surveys conducted in 2017. Because the rare plant surveys (conducted in April, May, and August) essentially covered the entire project site and were conducted at a time of year in which badgers would have been active, the surveys were determined to have been thorough enough to detect this species, or its burrows, if American badgers occurred on site at the time of these surveys. Therefore, additional focused surveys for this species (a NOP commenter recommended additional focused surveys for this species) were not considered warranted. However, suitable habitat for this species is present within the project site and because the species has previously occurred on the site the species could potentially occur there again in the future. The need for future surveys prior to ground disturbance is addressed in the Impacts section further below.

Pallid bat (*Antrozous pallidus;* CDFW Species of Special Concern) occupies a variety of habitats including grassland, shrubland, woodland and forests from sea level up through mixed conifer forest. This species roosts in caves, mines, crevices and occasionally hollow trees or buildings and prefers open habitats for foraging. While not a preferred roosting location (the species typically prefers natural crevices in trees, rocks, etc., pallid bats could potentially roost within the barn structure on site. The onsite scrub and grassland communities, riparian areas, and ponds provide suitable foraging habitat for this species. No formal roosting bat surveys have been performed on the property to date primarily due to access issues.

Townsend's big-eared bat (*Corynorhinus townsendii;* CDFW Species of Special Concern) hibernates and roosts in caves and mines near entrances, or cave-like structures such as buildings or under decks. It forages in a variety of habitats along open edges. This species is extremely sensitive to human disturbance. Therefore, while the barn structure on the site would normally provide potential roosting habitat for this species, because the barn is actively used in conjunction with the ongoing ranching activities on the site, it is highly unlikely that this species utilizes the structure as roosting habitat. The onsite scrub and grassland communities, riparian areas, and ponds provide suitable foraging habitat for this species. There are several historical occurrence records for this species approximately 5 miles west of the site near the town of Bodega Bay.

Sensitive Natural Communities

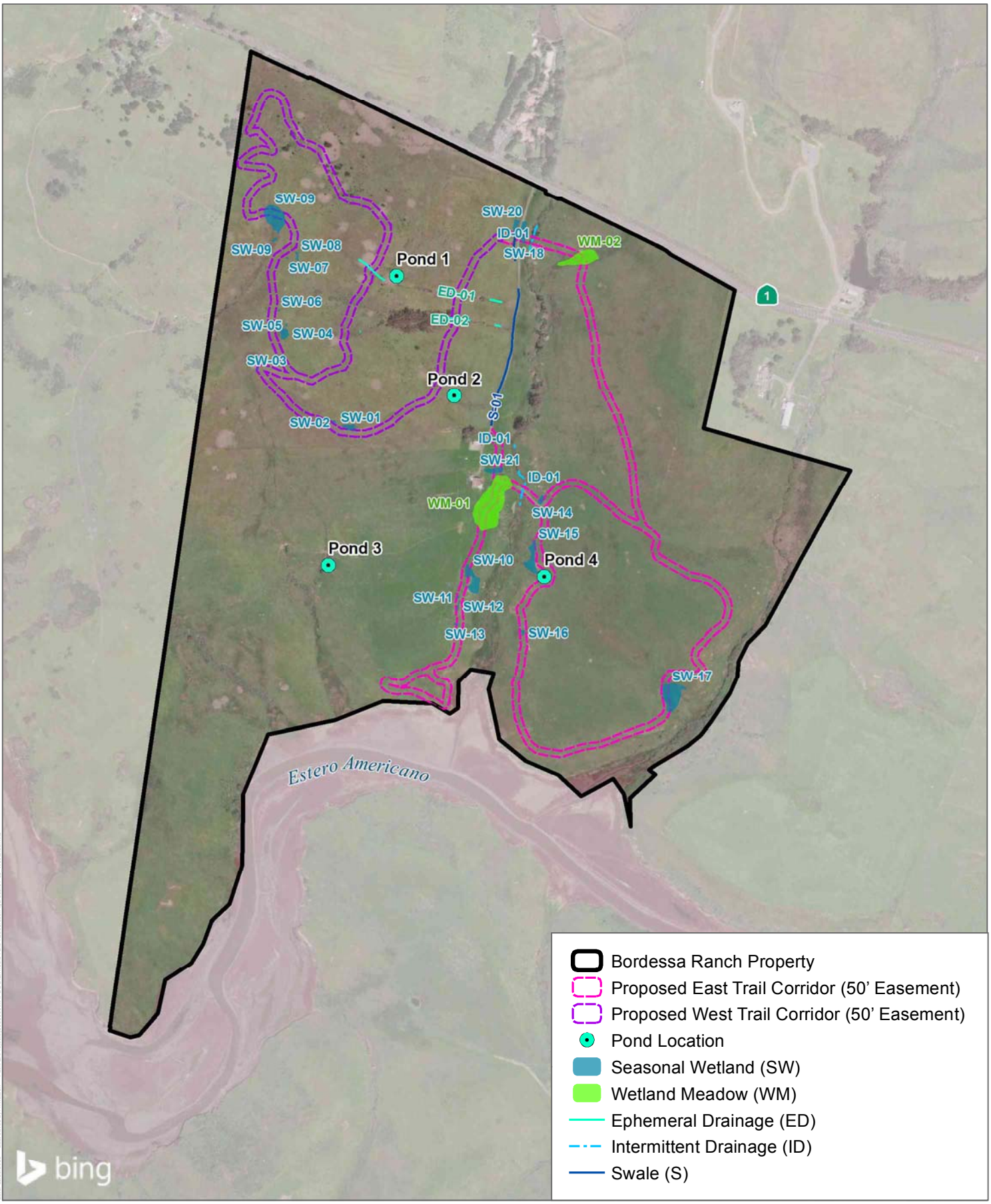
Sensitive natural communities (alliances and their associations) are defined by CDFW using Holland types (Sawyer, et. al. 2009). Ranking of alliances according to their degree of imperilment (as measured by rarity, trends, and threats) follows NatureServe's Heritage Methodology, in which all alliances are listed with a G (global) and S (state) rank. For alliances with State ranks of S1-S3 (S1: critically imperiled; S2: imperiled; S3: vulnerable) as identified in

the List of Vegetation Alliances and Associations (CDFG 2010) and subsequent updates, all associations within them are also considered to be highly imperiled. Impacts to sensitive habitats could be considered significant under CEQA.

Of the 10 vegetation communities/land cover types that occur within the project site, several are considered sensitive natural communities by CDFW, including riparian (arroyo willow thickets), wetlands, slough sedge swards, and purple needlegrass grassland. Although non-native California annual grassland on the site is not considered a sensitive habitat type by CDFW, slough sedge swards and purple needlegrass grasslands are located within the non-native annual grassland on site. Riparian habitat within the site is considered sensitive by CDFW, and any impacts to this habitat, including removal or trimming of vegetation, would potentially require a Streambed Alteration Agreement (SAA) with CDFW under Section 1602 of the California Fish and Game Code. Likewise, any work within the stream channel would potentially require permits from the ACOE and RWQCB under Sections 401 and 404 of the Clean Water Act, as discussed further below.

Potentially Jurisdictional Wetlands

A wetland delineation was performed on April 13 and 14, 2017, May 25 and 26, 2017, and August 2 and 3, 2017 by Dudek. Seven features were mapped, and included: seasonal wetland (2.72 acres), wet meadow (2.24 acres), vegetated roadside swale (1,320.76 linear feet), intermittent drainage (653.30 linear feet), ephemeral drainage (997.75 linear feet), and several ponds, as shown on Figure 3.4-3. These are described in more detail below and in the jurisdictional delineation report in Appendix C.



SOURCE: Bing Maps 2018; Sonoma County 2015

DUDEK

0 500 1,000 Feet

FIGURE 3.4-3

Wetlands and Waters of the U.S.

Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas Project

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Intermittent Drainages. There are two intermittent drainages (ID) within or directly adjacent to the project site. The central drainage (ID-01) has an average width of 3.5 feet, has an ordinary high water mark, flows from north to south through the center portion of the project site, and the proposed trail alignment crosses it twice. A second drainage (ID-02) runs along the eastern edge of the project site but is outside of the trail alignment. Both channels are characterized by defined bed and bank created by the flow of water through the systems. Common plant species associated with the intermittent drainage include rushes (*Juncus effuses*, *J. patens*, *J. mexicanus*), arroyo willow (*Salix lasiolepis*), velvet grass, and sweet vernal grass. Water was present in these drainages during the August surveys and is assumed to be present in deeper pools year-round; however, these features appear to flow only during the rainy season. Where water was ponded, species such as duckweed (*Lemna* spp.) and lanceleaf water plantain (*Alisma lanceolatum*) were present.

Ephemeral Drainages. Two ephemeral drainages (ED) occur within the western portion of the project site, draining water runoff from the western hills east to ID-01. Both ED-01 and ED-02 contain defined bed and banks but appear to maintain water flow only during the rainy season. ID-01 is approximately 1.5 feet wide on average and ED-02 is approximately 2 feet wide on average. Neither of these drainages held water during any of the surveys conducted. The southernmost drainage contains a mature overstory of blue gum while the other does not have a tree canopy. Common species observed in these drainages include Himalayan blackberry, bracken fern, sword fern, and hawthorn.

Vegetated Roadside Swale. One roadside swale (S-01) occurs parallel to the access road. It appears to drain water from the two ephemeral drainages south along the road to where it crosses under the roadway via culvert and into the central intermittent drainage. This swale is vegetated with grasses such as velvet grass and sweet vernal grass. Congested-headed hayfield tarplant was also present sporadically along this feature.

Freshwater Emergent Wetland. Freshwater emergent wetland is primarily associated with the central drainage (ID-01) within the project site. This wetland type is characterized by a high cover of rushes (*Juncus mexicanus*, *J. patens*, *J. effusus*), which prefer higher amounts of water throughout the year than surrounding vegetation.

Seasonal Wetlands. Seasonal wetlands within the project site appear to have some groundwater influence; however, they do not appear to maintain saturation to the extent of the seeps, as described below. These wetlands are located primarily in the western portion of the project site on hills and many were associated with microtopography and small depressions in the hillslopes.

Seasonal wetlands (SW) 01 through SW-21 are primarily located in the western hills of the project site, on west- and south-facing slopes. These features were delineated based on the three parameters for wetlands (soils, vegetation, hydrology). The dominance of slough sedge and poison hemlock shows the presence of hydrophytic vegetation. Hydric soils are present as indicated by redox features in a dark surface layer (Redox Dark Surface – Hydric Soil Indicator F6). The presence of oxidized rhizospheres along living roots (Wetland Hydrology Indicator C3) provides evidence of hydrology.

Seeps. Several of the seasonal wetlands appear to hold water on an annual basis due to increased groundwater influences. These seeps are areas where groundwater seeps through the top layers of soil, creating hydric conditions in an otherwise xeric area of grassland. Several seeps occur along the intermittent drainages and appear to contribute to the water flow of these systems. Vegetation observed within the seeps includes slough sedge, rushes, and poison hemlock.

Wet Meadow. Wet meadows are areas on site similar to seasonal wetlands and seeps; however, they are generally dominated by wetland grasses and span larger areas than seasonal wetlands and seeps. Similar to seasonal wetlands, wet meadows tend to remain wet during the rainy season and dry out during the dry months of the year. There are two wet meadows (WM) on site: WM-01 and WM-02. WM-01 is a large area dominated by Italian ryegrass just south and east of the barn. WM-02 is an area where water appears to settle between two hill slopes and is dominated by velvet grass and rushes.

Wildlife Corridors and Habitat Linkages

Wildlife corridors are landscape features, usually linear in shape, that facilitate the movement of animals (or plants) over time between two or more patches of otherwise disjunct habitat. Corridors can be small and even man made (e.g., highway underpasses, culverts, bridges), narrow linear habitat areas (e.g., riparian strips, hedgerows), or wider landscape-level extensions of habitat that ultimately connect even larger core habitat areas. Depending on the size and extent, wildlife corridors can be used during animal migration, foraging events, and juvenile dispersal, and ultimately serve to facilitate genetic exchange between core populations, provide avenues for plant seed dispersal, enable increased biodiversity and maintenance of ecosystem integrity within habitat patches, and help offset the negative impacts of habitat fragmentation. Habitat linkages are small patches that join larger blocks of habitat and help reduce the adverse effects of habitat fragmentation; they may be continuous habitat or discrete habitat islands that function as stepping stones for wildlife dispersal (Hilty et al. 2006).

The California Essential Habitat Connectivity (EHC) Project, developed by CDFW and Caltrans, intends to describe and depict a functional network of connected wildlands that is essential to the continued support of California's diverse natural communities in the face of human

development and climate change (Spencer et al. 2010). The EHC Project identifies large, relatively natural habitat blocks (Natural Landscape Blocks) within the Bay Area Ecoregion that support native biodiversity and depicts the relative permeability of areas to provide some level of ecological connectivity (Essential Connectivity Areas, or ECAs) between these habitat blocks. The EHC Map indicates that the project site is comprised of Natural Landscape Blocks (NLB) that provide connectivity between similar habitats to the north and south (Figure 3.4-4). In particular, the intermittent and seasonal drainages that flow from the uplands in the northern portion of the site to the Estero on the southern boundary of the site are likely used by both special-status and common wildlife species to move between adjacent similar habitat areas. These areas also provide cover, breeding, and foraging habitat for resident species as well as those utilizing the drainages as movement corridors.

Estero Access

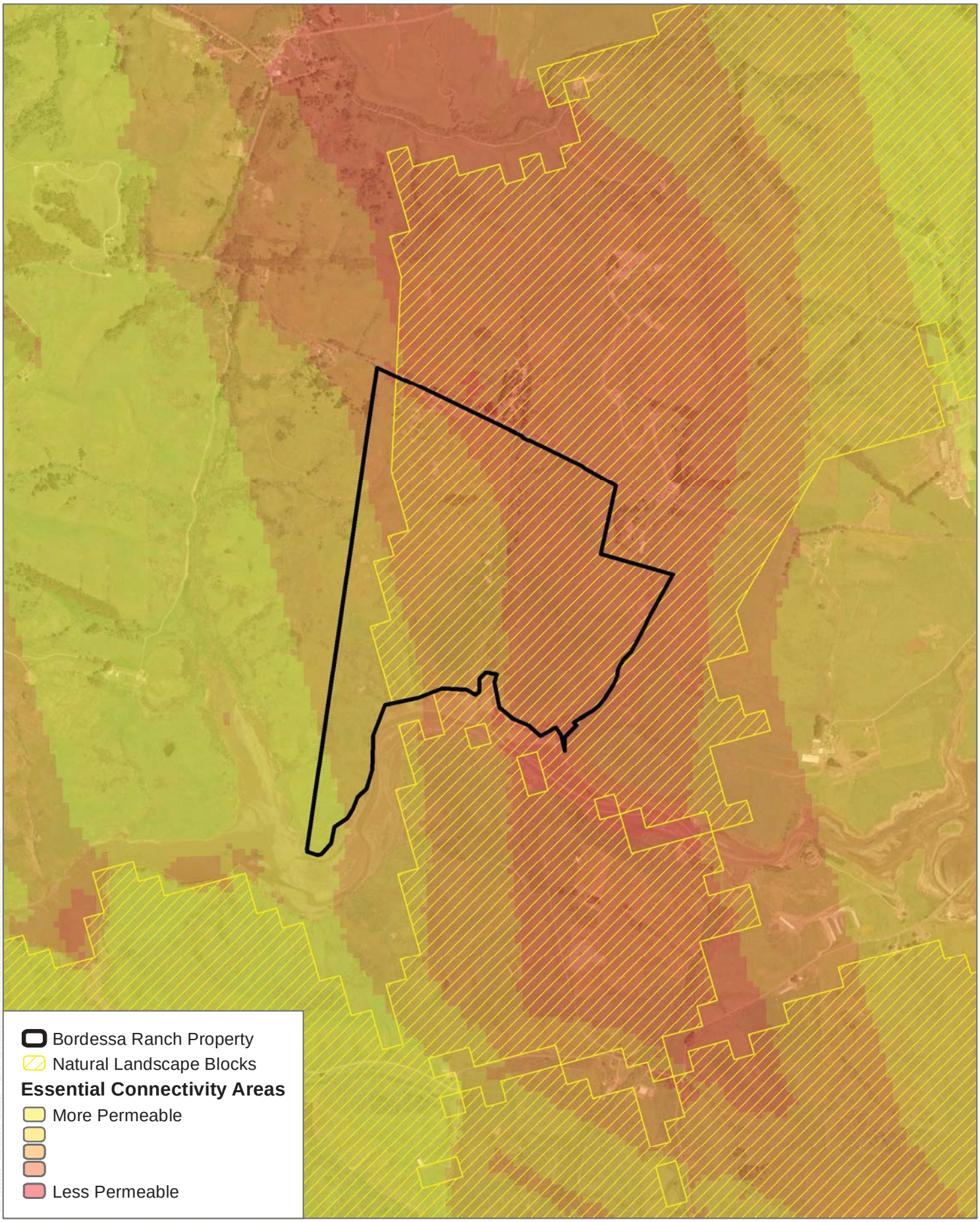
As previously discussed, future uses may also include limited, seasonal access to the Estero for hikers and hand-carried, non-motorized boats. Access to the Estero would be via the East Trail that would begin at the southern staging area the trail would head south to the Estero down the sloped bank to just west of the central property drainage and would cross the existing terrain (primarily mud flats) to the main Estero channel (Figure 3.4-5). Kayakers and boaters using the Estero may also stop and access the East Trail and trail amenities. The County is proposing an open mesh matting (to protect resources and reduce erosion) that would be approximately 5 feet in width and 400 feet in length. The two matting systems under consideration include a series of open mesh or grate-like hard plastic panels (GeoSystems GeoRunner or Geoterra) that snap together and secure with clips as well as anchors, if needed, that secure the mat to the soil surface. This design would allow sunlight to penetrate the ground allowing any vegetation to continue to grow, and would enable the system to be removed and/or relocated before large storm events.

The final location of the matting trail would be determined by the County Regional Parks Department in coordination with a qualified biologist to avoid/minimize impacts on sensitive natural resources. In addition, signage that includes information on the sensitive resources associated with the Estero and requirements to stay within the confines of the access matting would be installed at the beginning of and along the access trail. During the winter months, when storm events can induce flooding along the Estero and precarious conditions for recreational users, access to the Estero would be closed and the matting trail would be removed. The exact timing of winter closures and spring opening would likely vary depending on seasonal conditions, but would be determined by the County Regional Parks Department in consideration of expected weather patterns and forecasts.

While an exact location of this access trail is still to be determined, the general area in which the matting trail would occur is dominated by open, barren mudflats with occasional patches of low lying pickleweed (*Sarcocornia*] *virginica*) vegetation for approximately 150 feet along the bank of the Estero (CES 2018). Pickleweed wetland is considered a special-status vegetation community by the CDFW (Sawyer, et. al. 2009).

The only special-status species that are often associated with pickleweed wetland in the region includes salt marsh harvest mouse (*Reithrodontomys raviventris*) and Ridgway's rail (*Rallus obsoletus*), both of which are state- and federally-listed as Endangered. Optimal habitat for salt marsh harvest mouse (SMHM) is a dense contiguous cover of pickleweed complexly interwoven with other halophytic plants such as fat hen (*Atriplex patula*) and alkali heath (*Frankenia grandifolia*) that retains a mid-range level of salinity (CES 2018). Recurrent, but shallow flooding by saline water is also needed to maintain habitat conditions that favor SMHM. Ridgeway's rail occurs almost exclusively in tidal salt and brackish marshes with unrestricted daily tidal flows, all of which tend to provide adequate invertebrate prey food supply, well-developed tidal channel networks, and suitable nesting habitat. High marsh habitat is also important to this species as shelter during high or storm tides.

Based on field visits conducted at the project site in June 2018, that focused specifically on an assessment of the suitability of habitat to support these two species, neither the planned trail corridors on the project site or the potential seasonal access trail from the site to the main Estero channel (East Trail) provides suitable habitat for these species. The planned trail corridors within the project site are all within upland habitat and the area in which the East Trail would occur is dominated by mudflats and lacks the dense contiguous vegetation required by the SMHM or the marsh habitat characteristics required by the Ridgeway's rail. In addition, no CNDDB occurrence records for either species exists within 5 miles of the project site in the past 35 years. Because these species are not expected to occur on the project site or within the general area of the proposed Estero access trail, these two species are not addressed further in this document.



SOURCE: Bing Maps 2018; CDFW 2018

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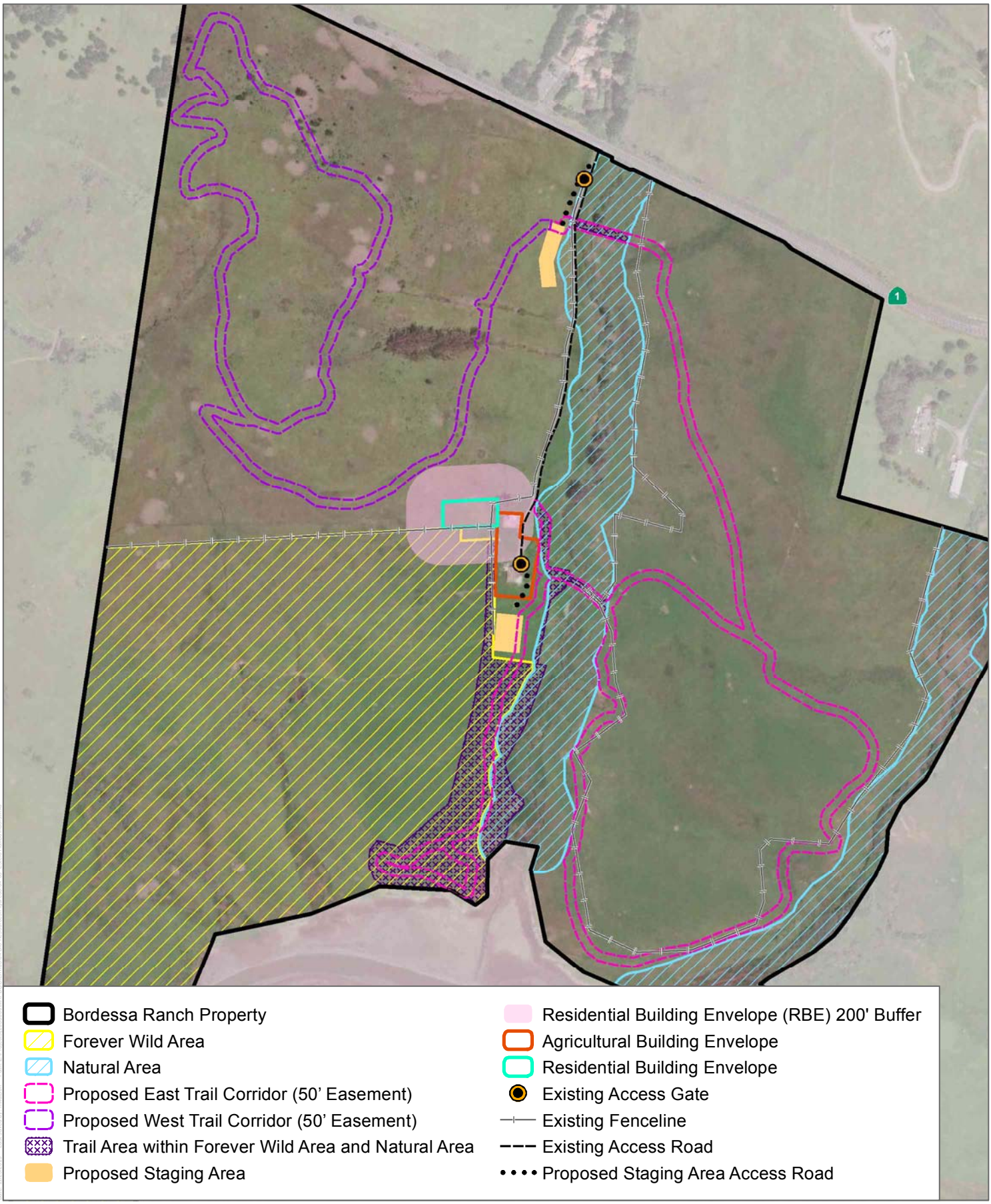
0 1,000 2,000 Feet

FIGURE 3.4-4

Essential Connectivity Areas

Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas Project

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SOURCE: USDA 2016; Sonoma County 2015

DUDEK

0 355 710 Feet

FIGURE 3.4-5

Estero Trail West and East Corridors

Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas Project

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Regulatory Setting

Federal Regulations

Federal Endangered Species Act

Section 9 of the federal Endangered Species Act (ESA) protects federally-listed endangered and threatened wildlife species from unlawful take (16 U.S.C. § 1538 (a)(1)). "Take" is defined to mean "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct" (16 U.S.C. § 1532 (19)) .In addition, federal agencies are required to determine whether the project is likely to jeopardize the continued existence of any species proposed to be listed under ESA or result in the destruction or adverse modification of critical habitat designated for such species (16 USC 1536[3], [4]). Projects that would result in "take" of any federally-listed threatened or endangered species are required to obtain authorization from NMFS and/or USFWS through either Section 7 (interagency consultation) or section 10(a) (incidental take permit) of ESA, depending on whether the federal government is involved in permitting or funding the project.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) regulates or prohibits taking, killing, possession of, or harm to migratory bird species listed in Title 50 Code of Federal Regulations (CFR) Section 10.13. The MBTA is an international treaty for the conservation and management of bird species that migrate through more than one country, and is enforced in the United States by the USFWS. The MBTA was amended in 1972 to include protection for migratory birds of prey (raptors).

Federal Clean Water Act (Section 404)

The objective of the Clean Water Act (CWA) is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. Under Section 404 of the CWA, the U.S. Army Corps of Engineers (USACE) has the authority to regulate activities that could discharge fill or dredge material or otherwise adversely modify wetlands or other waters of the United States. The USACE implements the federal policy embodied in Executive Order 11990, which, when implemented, is intended to result in no net loss of wetland values or function.

Federal Clean Water Act (Section 401)

The State Water Resources Control Board (SWRCB) has authority over wetlands through Section 401 of the CWA, as well as the Porter-Cologne Act, California Code of Regulations Section 3831(k), and California Wetlands Conservation Policy. The CWA requires that an applicant for a Section 404 permit (to discharge dredged or fill material into waters of the United States) first obtain certification from the appropriate state agency stating that the fill is consistent with the State's water quality standards and criteria. In California, the authority to either grant

certification or waive the requirement for permits is delegated by the SWRCB to the nine regional boards. The North Coast Regional Water Quality Control Board (NCRWQCB) has authority for Section 401 compliance in the project site. A request for certification is submitted to the regional board at the same time that an application is filed with the USACE.

State Regulations

California Endangered Species Act

The California Endangered Species Act (CESA) prohibits the take of state-listed threatened or endangered species unless an incidental take permit is issued by CDFW pursuant to Section 2081 of the Act. The state definition of take is similar to the federal definition, except that the CESA does not prohibit indirect harm to listed species by way of habitat modification. Pursuant to the requirements of CESA, a State agency reviewing a project within its jurisdiction must determine whether any state-listed endangered or threatened species could be present and the extent to which the project could potentially result in take of such species. CDFW also maintains a Special Animals List which includes species considered of “Special Concern” in California. A Species of Special Concern is a species, subspecies, or distinct population of an animal native to California that typically meets the State definition of threatened or endangered but has not formally been listed; is experiencing serious (noncyclical) population declines or range retractions that, if continued or resumed, could qualify it for State threatened or endangered ; or has naturally small populations exhibiting high susceptibility to risk from any factor(s) that, if realized, could lead to declines that would qualify it for State threatened or endangered status.

Fish and Game Code Sections 1940, 3503, 3511, 3513 and 4150

Fish and Game Code Section 1940 requires CDFW to develop and maintain a vegetation mapping standard for the state. Over half the vegetation communities in the state have been mapped through the Vegetation Classification and Mapping Program.

Fish and Game Code Section 3503 states that it is unlawful to take, possess, or needlessly destroy the nests or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto. Section 3503.5 protects all birds-of-prey (raptors) and their eggs and nests. Section 3511 protects species considered “fully protected”. Section 3513 states that it is unlawful to take or possess any migratory non-game bird as designated in the Migratory Bird Treaty Act.

Fish and Game Code Section 4150 states a mammal occurring naturally in California that is not a game mammal, fully protected mammal, or fur-bearing mammal is a nongame mammal. A nongame mammal may not be taken or possessed under this code. All bat species occurring naturally in California are considered nongame mammals and are therefore prohibited from take as stated in Fish and Game Code Section 4150.

CDFW Lake and Streambed Alteration Agreement

Under Sections 1600-1616 of the California Fish and Game Code, the CDFW regulates activities that would alter the flow, bed, channel, or bank of streams and lakes. The limits of CDFW's jurisdiction are defined in the code as the "… bed, channel or bank of any river, stream, or lake designated by the department in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit ..." (Section 1601). In practice, the CDFW usually marks its jurisdictional limit at the top of the stream or bank, or at the outer edge of the riparian vegetation, whichever is wider.

CDFW Wetlands Protection Regulations

CDFW derives its authority to oversee activities that affect wetlands from state legislation. This authority includes Sections 1600-1616 of the Fish and Game Code (lake and streambed alteration agreements), CESA (protection of state listed species and their habitats - which could include wetlands), and the Keene-Nejedly California Wetlands Preservation Act of 1976 (states a need for an affirmative and sustained public policy program directed at wetlands preservation, restoration, and enhancement). In general, the CDFW asserts authority over wetlands within the state either through review and comment on USACE Section 404 permits, review and comment on CEQA documents, preservation of state listed species, or through stream and lakebed alteration agreements.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act established the SWRCB and each Regional Water Quality Control Board (RWQCB) as the principal state agencies responsible for the protection of water quality in California. As noted above, the NCRWQCB has regulatory authority over the project site.

The Porter-Cologne Water Quality Control Act provides that "All discharges of waste into the waters of the State are privileges, not rights." Waters of the State are defined in Section 13050(e) of the Porter-Cologne Water Quality Control Act as "…any surface water or groundwater, including saline waters, within the boundaries of the state." All dischargers are subject to regulation under the Porter Cologne Water Quality Control Act, including both point and nonpoint source dischargers. The NCRWQCB has the authority to implement water quality protection standards through the issuance of permits for discharges to waters at locations within its jurisdiction. As noted above, the NCRWQCB is the appointed authority for Section 401 compliance in the project site.

California Environmental Quality Act

Although threatened and endangered species are protected by specific federal and state statutes, California Environmental Quality Act (CEQA) Guidelines Section 15380(b) provides that a species not listed on the federal or state list of protected species may be considered rare or endangered if the species can be shown to meet certain criteria. These criteria have been modeled after the definition in FESA and the section of the California Fish and Game Code dealing with rare or endangered plants and animals, and allows a public agency to undertake a review to determine if a significant effect on a species that has not yet been listed by either the USFWS or CDFW (i.e., species of concern) would occur. Whether a species is rare, threatened, or endangered can be legally significant because, under CEQA Guidelines Section 15065, an agency must find an impact to be significant if a project would "substantially reduce the number or restrict the range of an endangered, rare, or threatened species." Thus, CEQA provides an agency with the ability to protect a species from a project's potential impacts until the respective government agencies have an opportunity to designate the species as protected, if warranted.

California Coastal Act and Local Coastal Program

Through the California Coastal Act of 1976, the California Coastal Commission (Commission) became tasked with the protection of coastal resources including shoreline public access and recreation, lower cost visitor accommodations, terrestrial and marine habitat protection, visual resources, hazards, agricultural lands, commercial fisheries, industrial uses, water quality, offshore oil and gas development, power plants, ports, and public works facilities. For further explanation of the Commission's responsibilities, please see the California Coastal Act, Chapter 3 policies (Sections 30200 - 30265.5). Coastal Act policies encourage the productive maintenance and protection of marine resources and designated Environmentally Sensitive Habitat Areas (ESHAs). They also require that new development be located and designed to minimize risks to life and property from geologic hazards and flooding; and to avoid substantial alteration of natural land forms.

Local Coastal Programs (LCPs) are basic planning tools used by local governments to guide development in the coastal zone, in partnership with the Coastal Commission. LCPs contain the ground rules for future development and protection of coastal resources in coastal cities and counties. The LCPs specify appropriate location, type, and scale of new or changed uses of land and water. Each LCP includes a land use plan and measures to implement the plan (such as zoning ordinances). Prepared by local government, these programs govern decisions that determine the short- and long-term conservation and use of coastal resources. While each LCP reflects unique characteristics of individual local coastal communities, regional and statewide interests and concerns must also be addressed in conformity with Coastal Act goals and policies. Following adoption by a local government, an LCP is submitted to the Coastal Commission for review for consistency with California Coastal Act requirements.

After an LCP has been approved, the Commission's coastal permitting authority over most new development proposals is transferred to the local government, which applies the requirements of the LCP in reviewing proposed new developments. The Commission retains permanent coastal permit jurisdiction over development proposed on tidelands, submerged lands, and public trust lands, and the Commission also acts on appeals from certain local government coastal permit decisions. The Commission reviews and approves any amendments to previously certified Local Coastal Programs.

State Coastal Conservancy

The State Coastal Conservancy provided funds to the Sonoma County Agricultural Preservation and Open Space District (District) to purchase the conservation easement; the acquisition of the Trail Easement was a requirement of this funding. As part of the agreement with the District, the conservation easement includes provisions to permanently protect the conservation values of the Bordessa Ranch property including sensitive natural resources, habitat connectivity between the Estero and adjacent open grasslands, open space and scenic views, agricultural resources, and recreation and education. The conservation easement designates as "Forever Wild" a 138-acre area that includes sensitive habitat for American badger and burrowing owls, to protect it in perpetuity from potential disturbances caused by grazing, recreation or allowable building on the property. The conservation easement also designates the two north-south drainages on the project site as "Natural Areas" and includes a no disturbance setback extending 150 feet from the top of bank on either side of each drainage. The conservation easement also requires the landowners to complete a rangeland management plan (RMP) that integrates natural resources protection goals with cattle grazing for the remainder of the property. The RMP would be prepared in consultation with a certified rangeland manager, is subject to approval by the District and Conservancy, and will govern the landowners' management of the property.

Greater Farallones National Marine Sanctuary

Designated in 1981, the Gulf of the Farallones National Marine Sanctuary (GFNMS) overseas 1,279-square-miles (966 square nautical miles) just north and west of San Francisco Bay, and protected open ocean, nearshore tidal flats, rocky intertidal areas, estuarine wetlands, subtidal reefs, and coastal beaches within its boundaries. The NMSA requires that the Office of National Marine Sanctuaries (ONMS) prepare regulations to implement the NMSA and national marine sanctuary management plans (15 CFR Part 922).

The ONMS regulations prohibit specific kinds of activities within the national marine sanctuaries, as set forth in Subpart H of section 922.82 of the Code of Federal Regulations. Prohibited activities within the GFNMS, include "[c]onstructing any structure other than a navigation aid on or in the submerged lands of the Sanctuary; placing or abandoning any structure on or in the submerged lands of the Sanctuary …"

The GFNMS Management Plan (NOAA 2008) provides comprehensive and coordinated conservation and management of the marine resources. The sanctuary includes Bolinas Bay, Bolinas Lagoon, most of Tomales Bay, Estero Americano, Estero de San Antonio, and Bodega Bay.

In order to be consistent with the guiding legislation established in the NMSA, the GFNMS has identified the following priority goals:

- Improve the conservation, understanding, and wise and sustainable use of marine resources;
- Enhance public awareness, understanding, and stewardship of the marine environment;
- Maintain for future generations the habitat and ecological services of the natural assemblage of living resources that inhabit these areas;
- Maintain the natural biological communities to protect, and where appropriate, restore and enhance natural habitats, populations, and ecological processes;
- Provide authority for comprehensive and coordinated conservation and management of these marine areas, and activities affecting them, in a manner which complements existing regulatory authorities;
- Create models of and incentives for ways to conserve and manage these areas, including the application of innovative management techniques; and
- Cooperate with global programs encouraging conservation of marine resources.

Local Regulations

Local Sonoma County Coastal Plan

In 1981, Sonoma County adopted the Coastal Plan, Coastal Zoning Ordinance, and Coastal Administrative Manual planning documents prepared under specific requirements of State law, and intended to provide an intermediate level of detail between the 1978 General Plan and site development plans submitted to the County for approval. The 1978 General Plan focused on policies of County wide significance and utilized generalized graphics to illustrate land use, open space and other elements.

In 1989, the County adopted an update of the 1978 General Plan. The General Plan update provided parcel-specific information concerning land use and open space. The General Plan update also included "area policies" in an attempt to focus particular attention on a specific area or parcel. Because of this level of specificity in the General Plan update, the Board of Supervisors determined that several of the specific plans, including the Coastal Plan, Coastal Zoning Ordinance, and Coastal Administrative Manual, were either duplicative or conflicted with the updated General Plan. The Board of Supervisors further determined that to the extent the

specific plans and coastal documents provided policy guidance beyond that provided by the General Plan update, that such plans should be reviewed and revised to ensure complete consistency with the General Plan. The General Plan includes a discussion of these specific plans and the Coastal Plan documents in Land Use Element Section 2.1.1 under Policy LU-la.

The Coastal Plan covers an area which is 55 miles in length and extends inland generally 1,000 yards from the mean tide line. In significant coastal estuarine habitat and recreational areas it extends inland to the first major ridgeline paralleling the sea or five miles from the mean high boundary is generally 3000 to 12,000 feet inland from shoreline, except around Duncan Mills, Willow Creek and Valley Ford, where it extends up to five miles inland.

The Environment Chapter of the Coastal Plan identifies rare and endangered plant locations, bird and animal habitats, wetlands, riparian corridors and other areas which are very sensitive to disturbance are mapped as Sanctuary Preservation or Conservation areas. In Sanctuary Preservation areas, essentially no development other than nature trails is allowed. In Conservation Areas no development is allowed unless an environmental study determines that the project can be accomplished with no adverse effects. Other management recommendations are proposed for each specific resource or habitat area.

Sonoma County General Plan 2020

The Sonoma County General Plan Open Space and Resource Conservation (OSRC) Element provides guidance for the protection of biological resources in Sonoma County as set by its citizens and elected officials (Sonoma County 2016). The plan includes the following goals and policies related to biological resources applicable to the project:

Goal OSRC-7: Protect and enhance the County's natural habitats and diverse plant and animal communities.

Objective OSRC-7.1: Identify and protect native vegetation and wildlife, particularly occurrences of special status species, wetlands, sensitive natural communities, woodlands, and areas of essential habitat connectivity.

Objective OSRC-7.5: Maintain connectivity between natural habitat areas.

Objective OSRC-7.6: Establish standards and programs to protect native trees and plant communities.

Objective OSRC-7.7: Support use of native plant species and removal of invasive exotic species.

Goal OSRC-8: Protect and enhance Riparian Corridors and functions along streams, balancing the need for agricultural production, urban development, timber and mining operations, and other land uses with the preservation of riparian vegetation, protection of water resources, flood control, bank stabilization, and other riparian functions and values.

Objective OSRC-8.3: Recognize and protect riparian functions and values of undesignated streams during review of discretionary projects.

Policy OSRC-8d: Allow or consider allowing the following uses within any streamside conservation area:

(2) Streamside maintenance and restoration

(4) Road crossings, street crossings, utility line crossings

(11) Creekside bikeways, trails, and parks within Urban Residential, Commercial, Industrial, or Public-Quasi Public land use categories.

Sonoma County Municipal Code – Riparian Corridor Combining Zone

Article 65, Sec. 26-65-005 (Ordinance No. 6089) of the County's Municipal Code includes the RC combining zone, which was established by the County to protect biotic resource communities, including critical habitat areas within and along riparian corridors to protect and enhance riparian corridors, balancing the need for agricultural production, urban development, timber and mining operations, and other land uses with the preservation of riparian vegetation, protection of water resources, wildlife habitat and movement, fisheries, water quality, opportunities for recreation, education and aesthetic appreciation and other riparian functions and values. Uses permitted within the RC combining zone include, but is not limited to: stream maintenance and restoration, invasive plant removal, road and utility line crossings in compliance with county road construction standards, grazing and similar agricultural production, fire fuel management in compliance with county fire safe standards, bikeways, trails, and parks on publicly owned land or public use easements, and a temporary seasonal gangway and floating dock of up to one hundred twenty square feet (120' sq.) with encapsulated floatation and grated deck.

Impacts

Methods of Analysis

The analysis of impacts of the proposed project on biological resources is based on a review of special-status species and sensitive habitat occurrence records and literature review, multiple field assessments, and a review of comments provided in response to the NOP and the prior

MND prepared for the project. In addition to the physical environmental impacts resulting from disturbance of the project site, the analysis of impacts on biological resources also evaluates the proposed project's consistency with applicable prohibitions, policies, and goals of the above federal, state, and local regulations. An overview of the site assessments conducted and literature reviewed for the project is provided earlier in this section.

Thresholds of Significance

Consistent with Appendix G of the CEQA Guidelines and with policies included in the County's General Plan, a significant impact would potentially occur if development associated with the proposed project would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.
- Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

The significance of impacts to biological resources was assessed by comparing the potential changes resulting from the proposed project to these significance thresholds. An evaluation of whether or not an effect on biological resources would be "substantial" with respect to the significance thresholds generally considers the following:

- amount and/or extent of the resource (numbers, acres, etc.) to be affected versus preserved;
- the relative biological value (rarity, functions and values) and/or sensitivity status of the resource and its relevance within a specified geographical area;

- the type and severity of impact, (i.e., would the project adversely affect wildlife through mortality, injury, displacement, or habitat loss or adversely impact vegetation through destruction of a sensitive plant population?);
- timing of the impact, (i.e., would the impact occur at a critical time in the life cycle of a special-status plant or animal, such as breeding, nesting, or flowering periods?);
- duration of the impact, (i.e., whether the impact is temporary or permanent).

The analysis of direct and indirect impacts covers construction, operation, and maintenance of the proposed trail system and associated infrastructure. Direct impacts include those that occur immediately as a result of the proposed project on a particular biological resource. Indirect impacts include those that are caused by the proposed project later in time, but that are still reasonably certain to occur.

Significance Criteria not Applicable to the Proposed Project

Due to the location and characteristics of the proposed project, certain significance thresholds are not applicable and therefore, not considered potential impacts. These thresholds are addressed briefly below and are not discussed further in this document.

In 2005, the Santa Rosa Plain Conservation Strategy was developed to address recovery of special-status species in Sonoma County, including California tiger salamander (Sonoma population), Burke's goldfields, Sonoma sunshine, Sebastopol meadowfoam, and many-flowered navarretia. To date, local governmental agencies have not yet been able to complete the implementing ordinances and, therefore, the Conservation Strategy has not been approved. No other Habitat Conservation Plan (HCP) or Natural Community Conservation Plan (NCCP) exists in the County. The project would not conflict with any approved HCP, NCCP, or similar regional conservation plan; therefore, the significance threshold associated with potential conflicts with these plans is not further evaluated in this document. Also, while most impacts discussed below associated with operation of both trail corridors assume the trail users would be those who arrived by vehicle, bicycle, or on foot via the East Trail, it is possible that kayakers or other boaters using the Estero could access the site from the Estero via the proposed East Trail. It is assumed that such individuals would utilize the trails in the same manner as expected use from users accessing the site from SR 1 and that no additional impacts would occur.

Project Impacts and Mitigation Measures

3.4-1: The proposed project could have a substantial adverse effect on species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service. This is considered a potentially significant impact.

Several special-status wildlife and plant species have the potential to occur within the project site including the proposed trail corridors. Direct impacts could occur as a result of removal or disturbance of suitable habitat during construction which, in turn, could result in disturbance, injury, or mortality of individual animals or plants, Indirect impacts, which generally include those that occur later in time as a result of maintenance and operation activities but that are reasonably foreseeable, can include disturbance to on-site habitats and wildlife within and in the vicinity of the trail alignments as a result of recreational use of the trail, including from domestic animals. Of note, and as described in Chapter 2, Project Description, domestic dogs, horses and other pets would be prohibited from using the trails or being present anywhere on the Bordessa Ranch property, including in the staging/parking lots and areas in the vicinity of the trails. Signs would be posted at the entrance to each parking lot, at the trailheads and at several locations along each trail to educate trail users about the policy. If users are found to be in non-compliance with this measure, a fine may be imposed by the ranger at any time.

The following describes more specifically the direct and indirect impacts that could potentially occur as a result of construction and/or operation and maintenance of the proposed trails to those special-status plant and wildlife species identified as occurring or potentially occurring within the project site. The discussion below also addresses many comments received in response to the NOP including concerns associated with trail impacts to special-status birds as well as common bird species nesting along the trail route; impacts to roosting bats; impacts to California red-legged frog and western pond turtle; impacts to burrowing owl and American badger and the need for additional surveys for these species; impacts to western dog violet and the need for silverspot butterfly surveys; interpretive signage not being placed within riparian or wetland habitat; and disturbance related to human encroachment on the site.

Special-Status Plant Species

As discussed above, several special-status plant species including golden larkspur, western leatherwood, fragrant fritillary, woolly-headed gilia, Baker's goldfields, Point Reyes checkerbloom, purple-stemmed checkerbloom, two-fork clover, and San Francisco owl's-clover have a moderate or high potential to occur. One species, congested-headed hayfield tarplant was detected during the 2017 protocol-level plant surveys within both of the proposed trail corridors.

Construction-related activities could result in destruction of individual plants or populations of plants that may be located near or within the proposed trails at the time of ground disturbance. There are approximately 4.52 acres of congested-headed hayfield tarplant within the both of the proposed trail corridors (which includes a 50-foot buffer on either side), and staging areas. Furthermore, increased human presence from off-trail use can result in trampling and/or destruction of special-status plant populations. These potential direct and indirect impacts associated with construction and operation of the project are considered substantial effects on a special-status species and, therefore, would be considered significant impacts.

Special-Status Wildlife Species

American Badger

As previously noted, American badger is known to historically occur on the project site as well as in the vicinity of the project site (approximately 1.5 miles north of the site near the unincorporated community of Bodega), and suitable habitat exists for this species within the site. In addition, a number of badger burrows, some that appeared to be active, were detected in various locations within grassland areas of the site during the County's 2014 surveys. While no badgers or recent evidence of badgers were observed during the site-wide plant and other surveys conducted on the site in 2017, the site could be used in the future for breeding, cover and foraging by this species, and could also be used as a movement corridor between adjacent patches of suitable habitat. If occurring on the project site within proposed ground disturbance areas just prior to or during construction, potential direct impacts include direct harm or mortality to individual animals, loss of active dens, and loss of suitable denning and foraging habitat. Potential indirect impacts include disturbance to active dens as a result of off-trail use by visitors. These potential direct and indirect impacts associated with construction and operation of the project are considered substantial effects on a special-status species and, therefore, would be considered significant impacts.

Pallid bat and Townsend's big-eared bat

Both pallid bat and Townsend's big-eared bat are known to occur in the vicinity of the project site. As previously discussed, Townsend's big-eared bat is particularly sensitive to human disturbances and activities and therefore is not expected to roost in the on-site barn or adjacent outbuilding because of the ongoing use of the barn in association with ranching activities on the property. The East Trail is proposed to be constructed approximately 50 feet east of the existing barn. A staging area is also proposed to occur approximately 120 feet south of the barn, and the proposed access road to the staging area would be situated approximately 25 feet from the east side of the barn. While surveys for bats were not able to be conducted in the barn due to access issues, for the purposes of this EIR, pallid bat, which has a higher tolerance for human disturbances, is assumed to be potentially using the barn and/or adjacent outbuilding (though such use may be limited due to ongoing human activity associated with these structures) as roosting habitat.

While the barn and outbuilding would not be directly affected by trail construction, pallid bats utilizing these structures could be adversely affected by construction noise. Potential direct effects with respect to general construction-related noise on bats include acute acoustic trauma, degradation of physiological condition and social order, avoidance of foraging areas, and disturbance from and/or abandonment of roost sites (Caltrans 2016). In particular, loud ultrasonic noise (i.e., those having frequencies above the range of human hearing >20 kilohertz [kHz]) can deter bats from accessing and using known roosts (Caltrans 2016). Depending on noise attenuation rates and other factors, construction equipment such as graders, dozers and diesel engines can produce sound at a dBA that is high enough to disturb roosting bats. Similarly, studies have shown that high frequency laser survey tools inaudible to the human ear, but within range of bat auditory capabilities (19-28 kHz), can also disturb active roosts (Johnston et. al. 2004).

As noted in Chapter 2, Project Description, construction of the trails would be done by hand tools and in some areas with the use of small equipment. Use of such tools in constructing the portion of the East Trail closest to the barn is not expected to generate noise levels that would adversely affect any roosting bats within the barn. However, some heavy equipment is expected to be used in the construction of the staging area proposed to occur approximately 120 feet south of the barn and in association with the road and drainage improvements to the access road to the staging area which would be situated approximately 25 feet from the east side of the barn. As noted in Chapter 2, development of the staging area, East Trail, and improvements to the access road near the barn structure would primarily occur during the drier spring and summer months when pallid bats, if utilizing the barn, would likely be present.

As previously noted, the barn and outbuilding are currently used in the ongoing ranching operations of the property and, as such, human and cattle activity within and around these structures regularly occur. If pallid bats are utilizing the barn or outbuilding as a daytime roost site, it is assumed that these bats are fairly adapted to human activities and disturbances given the ongoing use of the facilities for cattle ranching activities. Consequently, noise levels and human activity associated with construction of the staging area and access road improvements, particularly because they are temporary in nature and only expected to last approximately four weeks, are not expected to adversely affect individual bats that are using the barn as a roost site. However, if a maternity roost was within the barn or outbuilding at the time of construction activities, particularly if such activities generated noise and disturbance levels above that normally incurred by ongoing ranching activities, the potential for adverse noise and disturbance impacts to the roost cannot be entirely ruled out and would be considered a significant impact pursuant to the CEQA significance threshold identified above. Furthermore, if the barn and/or outbuilding were to be removed or upgraded/remodeled as part of future development within the ABE or RBE which is not included as part of the project and outside of the scope of this EIR, any active daytime roosts or maternity roosts would be adversely affect and could result in injury and/or mortality of bats.

With respect to future recreational use of the trail corridor near the barn, very little research, if any, has been conducted regarding the type, extent, and frequency of recreational trail use that could adversely affect roosting bats. It would likely depend on the number of visitors to the site, the level, frequency, timing, and extent of trail use activities, as well as any such activities off-trail and in close proximity to the barn. It is also presumed that most recreational use of the trails would occur in the spring and summer months when these two bat species, if present, would be using the barn. However, and as noted above, it is assumed that any bats roosting or otherwise using the barn or outbuilding, if at all, are fairly adapted to human activities and disturbances and any off-trail activity near these structures by hikers or other recreationists are not expected to result in adverse impacts to roosting bats. In addition, because the property is in a somewhat remote area, overall use of the trails would not be expected to be as high and as frequent as other trail systems in the region. Furthermore, and as noted above, domestic dogs, horses and other pets would be prohibited from using the trails or being present anywhere on the Bordessa Ranch property.

As noted in Chapter 2, interpretive and wayfinding signage in the staging areas, at the trailheads, at vista points along the trails, and at the Estero would be erected. In addition to providing information on where to park, ranch management and seasonal activities, allowable uses, hours of operation, and trail access and maps, specific signage with information on the flora and fauna (including bats) along and adjacent to the trails, the sensitivity and ecological value of specific areas and habitat types, and the need to restrict all recreational activity to the trails, would be provided at key locations along the trails, particularly in close proximity to sensitive resource areas. Therefore, potential direct and indirect impacts associated with trail operations are not expected to significantly impact pallid bats that may be using the barn or outbuilding as roost habitat.

Burrowing owl

As previously noted, there has only been one documented occurrence of burrowing owls breeding within Sonoma County in over 20 years. However, the project site provides suitable nesting and foraging habitat for burrowing owl and this species could utilize any ground squirrel burrow along the proposed trail corridors. The avian report compiled by Heaton in 2012 did not document burrowing owl nesting on the site, although one individual was observed during the nesting season on March 4, 2011. Several burrows that appeared to be used by burrowing owls for shelter were observed in the winter months during the 2011 and 2012 surveys. No individual burrowing owls or apparent active burrows were observed by the County in surveys conducted in 2014, although what appeared to be old/abandoned burrows were detected. No burrowing owls or owl burrows (either active or abandoned) were identified during the site visits conducted in 2017. However, as previously discussed, because this species has been observed on the site in the past and because suitable nesting and foraging habitat occurs on the project site, the potential for nesting by this species on the site in the future cannot be entirely ruled out.

Therefore, in the remote chance that burrowing owls are breeding on the site prior to project initiation, construction-related activities could potentially result in injury or mortality to individual burrowing owls and/or active nest burrows (including eggs and/or chicks) as a result of equipment or vehicles collapsing an active burrow. Construction activities could also cause an adult owl to abandon an active nest that is in close proximity to the ground disturbance area and therefore leave eggs or chicks vulnerable to predation or without provisions. Increased human activity immediately adjacent to an active nest burrow due to trail use after construction, or due to off-trail use by visitors in an area containing active owl burrows, could also cause adult owls to abandon an active burrow resulting in likely mortality of any eggs or young. These potential direct and indirect impacts associated with construction and operation of the project are considered substantial effects on a special-status species and, therefore, would be considered significant impacts.

Short-eared owl

A Short-eared owl was observed on the property during surveys in the winter of 2011-2012, as noted in the Heaton (2012) report. However, there were no observations of short-eared owls on the property during the spring and summer surveys conducted in 2014 or 2017, and there are no documented CNDDB occurrences of short-eared owl in the vicinity of the project site. However, because of the suitability of onsite grasslands as potential nesting habitat for this species, the potential for this species to nest on the site in the future cannot be entirely ruled out. Short-eared owl nests on the ground and could use any grassy area along both of the proposed trail corridors for nesting. Should this species nest on the project site prior to project implementation, potential impacts would essentially be identical to those described above for burrowing owl. These potential direct and indirect impacts associated with construction and operation of the project are considered substantial effects on a special-status species and, therefore, would be considered significant impacts.

Northern harrier

Individual northern harriers were observed on the property in 2011 and 2012 by Heaton (2012) and in 2017 by Dudek; however, no active nests have been observed on the property. The avian report compiled by Heaton in 2012 states “at least one Northern Harrier [was] detected during the breeding season” and “In January 2012, a possible Northern Harrier roost-site was found in tall, dense grasses on the hillside to the northwest of the barn complex”. Should this ground-nesting species nest on the site prior to project implementation, potential impacts would essentially be identical to those described above for burrowing owl. These potential direct and indirect impacts associated with construction and operation of the project are considered substantial effects on a special-status species and, therefore, would be considered significant impacts.

White-tailed kite

White-tailed kites were observed on the property during the Heaton surveys, although no evidence of nesting was detected. No white-tailed kites were observed during the County's 2014 surveys nor the Dudek 2017 surveys. The grassland and marsh areas on the site represent suitable foraging and wintering habitat for the species. In general, tree nesting habitat is somewhat limited on the property; however, nesting within the few trees that do occur along the drainages cannot be entirely ruled out. Should this species nest on the site prior to construction activities associated with project implementation, construction activities could cause an adult kite to abandon an active nest that is in close proximity to the ground disturbance area and therefore leave eggs or chicks vulnerable to predation and inclement weather conditions, and without provisions. Increased human activity immediately adjacent to an active nest due to trail use after construction, or due to off-trail use by visitors in an area containing an active nest, could also cause adult kites to abandon an active nest resulting in likely mortality of any eggs or young. These potential direct and indirect impacts associated with construction and operation of the project are considered substantial effects on a special-status species and, therefore, would be considered significant impacts.

Yellow warbler, Bryant's savannah sparrow, grasshopper sparrow, salt-marsh common yellowthroat

A Yellow warbler was observed in drainage ID-01 on the property during surveys conducted in 2017 by Dudek, but not observed during the Heaton 2011/2012 surveys or the County's 2014 surveys. Bryant's savannah sparrow was observed during the Heaton 2011/2012 surveys and during the County's 2014 surveys within both in grazed and ungrazed grassland in various locations on the site. Grasshopper sparrow was observed during the Heaton surveys on the flat ridge southwest of the barn and on the slopes of the surrounding drainages; this species was not observed during the 2014 or 2017 surveys. Saltmarsh common yellowthroat was not observed during any of the avian surveys conducted on the site. Suitable nesting and foraging habitat for all four of these species occurs on the project site.

Should any of these species be nesting on the site prior to project implementation, impacts in the form of direct harm or mortality to individual animals during vegetation removal and construction of the creek crossing, loss of active nest sites due to vegetation removal, or abandonment of active nest sites during construction and possibly due to increased human presence associated with off-trail use could occur. These potential direct and indirect impacts associated with construction and operation of the project are considered substantial effects on a special-status species and, therefore, would be considered significant impacts.

California red-legged frog

As previously noted, a juvenile and adult CRF were observed in drainage ID-01 and two juvenile CRF were observed in drainage ID-02 during the surveys conducted in September 2017. The proposed trails would avoid those ponds on site that provide aquatic habitat for CRF. However, portions of the proposed East Trail corridor occur along drainages ID-01 and ID-02, and at one point the trail crosses over drainage ID-01, in which CRF were observed in 2017. Construction-related impacts to CRF can include direct harm or mortality to individual animals as a result of construction of creek crossings; bridge construction can also result in temporary erosion and siltation that can adversely affect egg masses. Destruction of suitable upland refugia habitat that is adjacent to these drainages can occur in the form of grading or laying gravel for parking or equipment staging areas. Indirect impacts from trail users can include disturbance of CRF by trail users at creek crossings, disturbance of eggs, tadpoles or adult frogs by users that go off trail and into the drainages or along edges of drainages, and siltation of drainages by users that go off-trail and wander along edges of drainages. These potential direct and indirect impacts associated with construction and operation of the project are considered substantial effects on a special-status species and, therefore, would be considered significant impacts.

Western pond turtle

As previously noted, one WPT adult was observed in an isolated pool in drainage ID-02 in the 2017 Dudek surveys and one WPT was observed during the County's 2014 surveys at the mouth of the central drainage near the confluence with the Estero. This species could also potentially occur within other pools along ID-02 or in ID-01. Portions of each of these drainages are adjacent to proposed trail alignments. The trail design would avoid ponds on site that provide aquatic habitat for WPT. Construction-related impacts to WPT can include direct harm or mortality of individual turtles during construction of creek crossings and of turtles that may be seeking shelter within suitable upland refugia habitat adjacent to the drainages in the form of grading or laying gravel for staging areas. Intermittent drainages ID-01 and ID-02 have been classified as Natural Areas in the Conservation Easement and include setbacks on either side of each drainage of 150 feet from the top of the bank of the drainage. The proposed trail corridors would be constructed outside of these setbacks. Indirect impacts can include disturbance of WPT by trail users at creek crossings, disturbance of juvenile and adult WPT by users that go off trail and into the drainages or along edges of drainages, and siltation of drainages by users that go off-trail and wander along edges of drainages. Additionally, users that go off-trail could disturb or damage nests of WPT within 325-feet of suitable aquatic habitat. These potential direct and indirect impacts associated with construction and operation of the project are considered substantial effects on a special-status species and, therefore, would be considered significant impacts.

Myrtle's silverspot butterfly

Suitable habitat and larval host plants (western dog violet) for Myrtle's silverspot butterfly are present on the project site and this species has been historically documented south of the site near the Estero (CDFW 2018). While no Myrtle's silverspot butterfly were documented on the site during rare plant surveys conducted in 2017, several populations of the host plant were observed. Should this species occur on the site during project implementation, impacts to this species could include destruction of suitable host plants or injury or mortality to individual butterflies (or larva) during grading activities. Impacts associated with trail use can include injury/mortality of butterflies or larva and trampling of host plants by recreational users who deviate off-trail. These potential direct and indirect impacts associated with construction and operation of the project are considered substantial effects on a special-status species and, therefore, would be considered significant impacts.

Common native nesting birds

In addition to the special-status species bird species discussed above, all common native birds and their active nests (nests that are in the process of being constructed, or that contain eggs, hatchlings, or young) in California are protected by regulations in the California Fish and Game Code as well as the federal MBTA. Should common native birds be nesting on the site prior to project implementation, potential adverse impacts can include direct harm or mortality to individuals due to construction equipment, abandonment of an active nest by adults due to construction noise and activity in close proximity to the nest leaving eggs and young vulnerable to predation and/or inclement weather, and destruction of an active nest due to vegetation removal or grading activities. These potential direct and indirect impacts associated with construction of the project could potentially be in violation of the California Fish and Game Code as well as the federal MBTA and are considered substantial effects on a special-status species and, therefore, would be considered a significant impact.

Conclusion

Construction and implementation of the proposed project could result in impacts to special-status plant species including congested-headed hayfield tarplant and special-status wildlife including American badger, burrowing owl, short-eared owl, Northern harrier, White-tailed kite, Yellow warbler, Bryant's Savannah sparrow, salt-marsh common yellow throat, California red-legged frog, Western pond turtle, Myrtle's silverspot butterfly and nesting birds resulting in a **significant impact.**

Mitigation Measures

Measures to mitigate potentially significant impacts on special-status plant and wildlife species, known to occur or potentially occurring on the project site, are described below. The level of significance after mitigation is included immediately following each mitigation measure.

BIO-1 Worker Environmental Awareness Training

All construction workers shall receive a worker environmental awareness training (WEAT) to be conducted by a qualified biologist. The WEAT may also be conducted through a video or Powerpoint presentation created by a qualified biologist specifically for this project. The WEAT shall instruct workers on how to recognize all special-status plant/wildlife species and their preferred habitat potentially present in the project site, applicable laws and regulations regarding each species, actions to take if a special-status species is observed during construction activities including the name/contact information of the monitoring biologist, and the nature and purpose of protective measures including best management practices (BMPs) and other required mitigation measures. They shall also be instructed as to sensitive resource areas, including wetlands and waters of the U.S., to avoid within the project site other than where impacts have been authorized, and relevant laws and regulations for each resource.

Conducting WEAT training has proven very effective in ensuring construction workers understand how to recognize and avoid special-status species. Compliance with this measure would help to ensure impacts to special-status species would be reduced to less than significant.

BIO-2 Trail Alignment Fencing and Interpretive Signage

To minimize the potential for direct and indirect impacts to sensitive biological resources occurring on the project site by recreational users venturing off-trail, and to help keep visitors contained within the trail alignments, exclusionary fencing may be used in strategic areas to protect sensitive resources. Specifically, the purpose of the fencing shall be to avoid/minimize the following associated with off-trail use by visitors: (1) trampling and disturbance to on-site special-status plant populations; (2) harassment, disturbance, injury and/or mortality to on-site special-status wildlife species; (3) sedimentation, erosion, or other degradation to the on-site ponds, drainages, and other aquatic/riparian features; and (4) disturbances to nesting native bird species.

As stated in Chapter 2, Project Description, new or re-located fencing and gates would also be designed to accommodate cattle grazing as well as to minimize conflicts between trail users, cattle grazing, and ranch activities. To accommodate the ability of cattle to access various areas within the Bordessa property, fencing shall not extend the

entire length of the trail alignments, but would focus on areas of the trails adjacent to sensitive biological habitats or areas where special-status plant and/or wildlife species are known to occur.

The fencing design (including openings to accommodate cattle), extent, location, and overall construction of the fence shall be at the discretion of County Regional Parks Department in coordination with the Bordessa Ranch landowners, the Sonoma County Agricultural and Preservation Open Space District (District), and a qualified biologist. The fence shall be visually appealing and harmonize with the general landscape (e.g., wooden buck or post/rail type fences) and not detract from the overall visitor experience while discouraging off-trail use. The fence design shall also provide for the ability of wildlife species to move through or over the fencing such that movement perpendicular to the fencing would not be adversely inhibited. A fencing design plan that addresses the design and location factors discussed above shall be prepared prior to project construction and shall be approved by the County Regional Parks Department with review by the Bordessa Ranch landowners, the District, and a qualified biologist with expertise on the species and ecosystems on the property.

As discussed in Chapter 2, Project Description, interpretive signage would be provided in the staging areas, at the trailheads, at vista points along the trails, and at the Estero; additional interpretive signage providing information about sensitive plant and wildlife species would also be provided at key locations along the trails. Signage content addressing sensitive plant and wildlife species shall be prepared by the County Regional Parks Department in coordination with a qualified biologist.

Installation of fencing to protect special-status species as well as interpretative signage would help ensure inform trail users of the various protected species on the site and would protect sensitive areas if trail users venture off site. Compliance with this measure would ensure impacts to protected species are reduced to less than significant.

BIO-3 American Badger

To avoid/minimize direct and indirect impacts on American badger as a result of project implementation, the following measures shall be implemented:

1. Protocol-level surveys for American badger shall be completed within 30 days prior to construction to determine the locations of any active dens within 200 feet of proposed ground disturbance areas. Surveys shall consist of presence/absence surveys to determine if any winter or natal American badger dens occur within the project site. Potential badger burrows/dens located during the survey shall be evaluated (typically with remote cameras) to determine activity status. Surveys shall

be performed by a qualified biologist familiar with badger life history and that possesses experience with identification of active badger burrows and badger activity patterns.

2. Any natal dens determined to be used by American badger, as identified from the surveys, shall be avoided and a 100-foot buffer shall be established around the dens during ground disturbance activities until it is determined by the qualified biologist that the den is no longer active and the young are no longer dependent upon the den for survival.
3. If construction occurs during the non-breeding period (typically from June through February) and an active non-natal den is found to be within or immediately adjacent to the construction footprint, an attempt can be made by a qualified biologist to trap or flush the individual and relocate it to designated open space on the site. Trapping can only be conducted by a qualified biologist with the appropriate permits and credentials. After a trapping or flushing effort is completed, and/or after it is confirmed that a natal den is no longer active, the vacated den can be excavated and upon confirmation that the den is not occupied, the den can be collapsed and construction can proceed.

Implementation of the actions and measures described in Mitigation Measures BIO-1, BIO-2, and BIO-3 would avoid/minimize direct and indirect impacts to American badger by ensuring any active natal badger dens are avoided, that badgers are out of dens that need to be excavated, and by restricting visitors to the established trails, such that the potentially significant impacts to this species would be reduced to a less-than-significant level.

BIO-4 Special-Status Bats

As described in Chapter 2, Project Description, all trail construction would be done by hand or with the use of small equipment. Construction of the access road and staging areas adjacent to the barn facility and outbuilding would require the use of heavy equipment such as graders. To ensure that the noise of such equipment would not adversely affect any maternity roosts that could occur within the barn or outbuilding, a pre-construction survey shall be conducted by a qualified bat biologist to determine if active maternity roosts exist within the barn or outbuilding. If maternity roosts are observed, and construction of the access road and/or staging areas adjacent to the barn or outbuilding would occur at the time the roosts are active, equipment emitting ultrasonic noise (i.e., those having frequencies above the range of human hearing >20 kilohertz [kHz]) shall be prohibited from the construction area until the maternity roost is no longer active, as determined by the qualified bat biologist. Alternatively, equipment that emits noise with frequencies <20 kHz can be used to grade and prepare the access

road and staging areas adjacent to the barn and outbuilding. As previously noted, signage describing the sensitivity of biological resources shall be located at various key points along the trails. One located at the southern staging area might include interpretation of importance of bats and protected species and penalties for disturbance of species and habitat, reminding users of the importance of staying on designated trails. Fencing may also be used as necessary to keep users on trail and away from the barn, roosting bats, and ranching activities.

Implementation of the actions and measures described in Mitigation Measures BIO-1, BIO-2 and BIO-4 would avoid/minimize direct and indirect impacts to potential roosts of pallid bats in the adjacent barn structure by ensuring potential noise levels associated with construction in proximity to the barn and outbuildings are below levels that would potentially disturb any maternity roosts and by ensuring that visitors are restricted to the established trails, such that the potentially significant impacts to these species would be reduced to a less-than-significant level.

BIO-5 Burrowing Owl

To avoid/minimize direct and indirect impacts on burrowing owls as a result of project implementation, the following measures shall be implemented:

1. Protocol-level surveys for burrowing owls shall be conducted 30 days prior to scheduled construction activity that is conducted during the breeding season (March through August) to determine whether burrowing owls are present on site and, if so, their breeding status. Surveys shall be conducted by a qualified biologist with experience conducting such surveys.
2. If during the surveys burrows are observed being used by non-nesting burrowing owls within the construction footprint, construction work shall cease until owls are evacuated from any such burrow using a California Department of Fish and Wildlife-approved burrow closure procedure in accordance with the California Department of Fish and Game “Staff Report on Burrowing Owl Mitigation” (CDFW 2012) and by a qualified biologist. Once owls from any such burrow have been successfully evacuated, the burrow can be collapsed and construction work can proceed.
3. If nesting burrowing owls are observed during these surveys, construction work within 300 feet of active nest burrows shall be delayed until young have fledged and are independent of the nest burrow, as determined by a qualified biologist. The qualified biologist may reduce the 300-foot setback based on the type, timing, extent, and intensity of the construction activity and other factors such as site topography and vegetation cover between the construction activity and the burrow. Once any young have fledged and are no longer dependent upon the nest burrow, the same

burrow closure procedure described above shall be used to confirm the burrow is inactive before ground disturbance activities can continue near the burrow.

Implementation of the actions and measures described in Mitigation Measures BIO-1, BIO-2 and BIO-5 would avoid/minimize direct and indirect impacts to burrowing owls potentially breeding on the site by ensuring that any active owl nest burrows are avoided until any young have fledged, ensuring no owls within non-breeding burrows are harmed, and by ensuring that visitors to the site are restricted to the established trails such that the potentially significant impacts to this species would be reduced to a less-than-significant level.

BIO-6 Native Nesting Birds

To avoid/minimize direct and indirect impacts on nesting birds within or adjacent to the proposed trail corridors as a result of project implementation, the following measures shall be implemented:

1. A nesting bird survey shall be completed by a qualified biologist no earlier than two weeks prior to construction of the trails and associated infrastructure during the nesting season for most bird species in this region (March 1-August 30) to determine if any native birds are nesting within 300 feet of the proposed disturbance area (500 feet for raptors).
2. If any active nests are observed during surveys, a suitable avoidance buffer from the nests shall be determined by the qualified biologist. The avoidance buffer distance shall consider such factors as the species of bird, topographic features, intensity and extent of the disturbance, timing relative to the nesting cycle, and anticipated ground disturbance schedule. Limits of construction to avoid active nests shall be established in the field with flagging, fencing, or other appropriate barriers and shall be maintained until the chicks have fledged and the nests are no longer active, as determined by the qualified biologist.
3. If ground-disturbing activities are delayed, then additional pre-disturbance surveys shall be conducted such that no more than 7 days elapse between the survey and ground-disturbing activities. Any woody vegetation (shrubs and trees) needing removal for trail construction shall be removed, as feasible, outside of the bird nesting season (Sept. 1 - Feb. 31) to avoid impacts to nesting birds.

Implementation of the actions and measures described in Mitigation Measures BIO-1, BIO-2, and BIO-6 would avoid/minimize direct and indirect impacts to native bird species potentially nesting on the project site by ensuring that any active bird nests are avoided until young have fledged and by ensuring that visitors to the site are restricted to the established trails such that the potentially significant impacts to native bird nests would be reduced to a less-than-significant level.

BIO-7 Short-eared owl, Northern Harrier, White-tailed kite, Yellow Warbler, Bryant's savannah sparrow, Grasshopper sparrow, Saltmarsh common yellow-throat

To avoid/minimize direct and indirect impacts on these special-status bird species within or adjacent to the proposed trail corridors as a result of project implementation, the following measure shall be implemented:

1. The nesting bird survey described in Mitigation Measure BIO-6 shall include searches for short-eared owl, northern harrier, white-tailed kite, yellow warbler, Bryant's savannah sparrow, grasshopper sparrow, and saltmarsh common yellow-throat if construction and ground disturbance activities shall occur during the nesting season of these species. If active nests are located during the surveys, the same avoidance/minimization measures described in this measure shall also be implemented.

Implementation of the actions and measures described in Mitigation Measures BIO-1, BIO-2 and BIO-6 would avoid/minimize direct and indirect impacts to these special-status bird species potentially nesting on the site by ensuring that any active nests are avoided until young have fledged and by ensuring that visitors to the site are restricted to the established trails such that the potentially significant impacts to active nests of these bird species would be reduced to a less-than-significant level.

BIO-8 California Red-legged Frog

To avoid/minimize direct and indirect impacts to California red-legged frog (CRLF) within or adjacent to the proposed trail corridors as a result of project implementation, the following measures shall be implemented:

1. Exclusion fencing shall be installed around any trail construction and associated work areas that occur within 100 feet of suitable CRLF aquatic habitat (including Ponds 1-4 and ID-01 and ID-02) to prevent CRLF from entering the work area. In addition, siltation fences shall be installed along the aquatic features to minimize siltation and/or erosion into the features during construction.
2. During any construction work conducted within 100 feet of suitable CRLF habitat, a qualified biologist shall be on site to monitor the work effort and conduct regular surveys within the 100-foot setback area, including potential upland refugia habitat, in search of individual CRLF. If CRLF are observed within the buffer areas, work shall be postponed until either (1) the frogs move away from that location on their own, or (2) the frogs are removed and relocated to a safe location by a qualified biologist that possesses a 10(a)1(a) Recovery permit and has approval from USFWS.

Implementation of the actions and measures described in Mitigation Measures BIO-1, BIO-2 and BIO-8 would avoid/minimize direct and indirect impacts to CRLF potentially occurring within the pond and drainage aquatic features during construction activities by ensuring that frogs cannot enter into active work areas, by ensuring that aquatic habitat areas are protected from siltation and erosion, and by ensuring that visitors to the site are restricted to the established trails such that the potentially significant impacts to CRLF and associated aquatic habitat would be reduced to a less-than-significant level.

BIO-9 Western Pond Turtle

To avoid/minimize direct and indirect impacts to western pond turtle within or adjacent to the proposed trail corridors as a result of project implementation, the following measures shall be implemented:

1. Exclusion fencing shall be installed around any trail construction and associated work areas that occur within 100 feet of suitable western pond turtle (WPT) aquatic habitat (including Ponds 1-4 and ID-01 and ID-02) to prevent WPT from entering the work area. In addition, siltation fences shall be installed along the aquatic features to minimize siltation and/or erosion into the features during construction.
2. During any construction work occurring within 100 feet of suitable WPT habitat, a qualified biologist shall be on site to monitor the work effort and conduct regular surveys within the 100-foot setback area in search of individual CRLF. If WPT are present within the buffer areas, work shall be postponed until either (1) the turtles move away from that location on their own, or (2) the turtles are removed and relocated to a safe location within the project site by a qualified biologist.
3. Because WPT use upland grassland habitat near aquatic habitat (typically within 325 feet of aquatic sites) for nesting and aestivation, a pre-construction survey for WPT shall be conducted by a qualified biologist prior to any ground disturbance activities occurring within suitable nesting/aestivation habitat (as determined by the biologist) within 325 feet of these aquatic sites. If active nesting and/or aestivation sites are identified, these areas shall be avoided during construction activities. If avoidance is not possible, the nest and/or turtle shall be removed by a qualified biologist and relocated to an appropriate location within the project site.

Implementation of the actions and measures described in Mitigation Measures BIO-1, BIO-2 and BIO-9 would avoid/minimize direct and indirect impacts to WPT potentially utilizing on-site aquatic features or adjacent grassland habitat by ensuring that turtles cannot enter work areas, by ensuring that aquatic habitat areas are protected from siltation and erosion, that turtles nesting or aestivating

in upland areas adjacent to aquatic sites are not harmed, and by ensuring that visitors to the site are restricted to the established trails such that the potentially significant impacts to WPT and associated aquatic habitats would be reduced to a less-than-significant level.

BIO-10 Myrtle's Silverspot Butterfly

To avoid/minimize direct and indirect impacts to Myrtles's silverspot butterfly, in particular its host plant western dog violet, within or adjacent to the proposed trail corridors as a result of project implementation, the following measures shall be implemented:

1. To avoid/minimize impacts to Myrtle's silverspot butterfly, a pre-construction survey shall be performed no sooner than 30 days prior to the onset of construction to identify the presence of western dog violet along both trail corridors, and staging areas.
2. If any western dog violet plants are observed within areas proposed for ground disturbance, they shall be marked with pin flags and surveyed to determine if any silverspot butterfly eggs, larva or pupa are attached to the plants. If any of these life stages of the butterfly are observed attached to the plants, the plants shall be avoided until the pupa has metamorphosized into adult butterflies and are no longer attached to the host plants.

If avoidance of host plants is not considered possible, a qualified botanist shall be consulted to prepare a translocation plan to transplant the plants, once any pre-adult life stages of the butterfly are determined not to be present, to a suitable location on the project site. The plan shall contain, at a minimum, the following: (a) goals and objectives of the transplantation; (b) methods of collection and transplantation; (c) location of the area(s) on site in which the plants will be transplanted; (d) monitoring methods and timing; (e) success criteria; and (f) measures to be taken in the event that the transplantation is not successful. In addition, the plan shall be approved by the County and by the USFWS since this butterfly species is federally-listed as endangered.

Implementation of the actions and measures described in Mitigation Measures BIO-1, BIO-2 and BIO-10 would avoid/minimize direct and indirect impacts to Myrtle's silverspot butterfly and its host plant by ensuring that any host plants within proposed ground disturbance areas are avoided to the extent possible, that any pre-adult life stages of this species are protected while it is attached to a host plant, by preserving through transplantation populations of the host plant that otherwise would be removed, and by ensuring that visitors to the site are restricted to the established trails such that the potentially significant impacts to the Myrtle's silverspot butterfly would be reduced to a less-than-significant level.

BIO-11 Special-Status Plants

To avoid/minimize direct and indirect impacts to special-status plant populations within or adjacent to the proposed trail corridors as a result of project implementation, the following measures shall be implemented:

1. Prior to construction of the trails, a qualified botanist shall conduct surveys during the appropriate blooming period for potentially occurring special-status plant species. The purpose of the survey shall be to delineate and flag populations of special-status plant species for avoidance. Special-status plant populations identified during the pre-construction survey shall be mapped using a hand-held GPS unit and the final trail design shall be modified, where possible, to avoid these plant populations. Plant populations including a 10-foot buffer shall be temporarily fenced during construction activities with high-visibility fencing or prominently flagged. If complete avoidance of populations is infeasible, further measures, as described below, shall be necessary.
2. If avoidance of special-status plant species is not feasible, and to mitigate for 0.27 acres of occupied congested-headed hayfield tarplant habitat within areas of proposed disturbance, prior to ground disturbance, a Rare Plant Salvage and Translocation Plan shall be prepared by a qualified botanist and approved by the County prior to implementation. Because congested-headed hayfield tarplants are an annual species that reproduce from seed on an annual basis, recommended salvage methods include seed collection and/or top soil salvage. The Rare Plant Salvage and Translocation Plan shall include, at a minimum, the following:
    a) Identification of occupied habitat to be preserved and removed;
    b) Identification of on-site or off-site preservation, restoration, or enhancement locations;
    c) Methods for preservation, restoration, enhancement, and/or translocation;
    d) Goals and objectives;
    e) Replacement ratio and success standard of 1:1 for impacted to established acreage;
    f) A monitoring program to ensure mitigation success;
    g) Adaptive management and remedial measures in the event that the performance standards are not achieved; and
    h) Financial assurances and a mechanism for conservation of any mitigation lands required in perpetuity.

If any other special-status plant species are located on the project site (as a result of additional plant surveys that may be conducted) in areas to be disturbed by the

proposed project, a similar salvage and translocation plan shall be developed and implemented by a qualified botanist. However, if golden larkspur and/or two-fork clover, both federally-listed endangered species, are observed on the site during any future pre-construction surveys and are within areas to be disturbed, consultation with the USFWS may be required before any transplantation could occur.

Implementation of the actions and measures described in Mitigation Measures BIO-1, BIO-2 and BIO-11 would avoid/minimize direct and indirect impacts to special-status plant species by ensuring that any plants within proposed ground disturbance areas are avoided to the extent possible, by preserving through transplantation populations of plants that otherwise would be removed, and by ensuring that visitors to the site are restricted to the established trails such that the potentially significant impacts to special-status plant species would be reduced to a less-than-significant level.

3.4-2: The proposed project could have a substantial adverse effect on riparian habitat and other sensitive natural communities identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service. This is considered a potentially significant impact.

The following describes the direct and indirect impacts that could potentially occur as a result of construction and/or operation and maintenance of the proposed trail system to sensitive natural communities identified as occurring within the project site. The discussion below also addresses comments received in response to the NOP and prior Mitigated Negative Declaration including concerns associated with trail impacts to streams and riparian habitat and to salt marsh habitat adjacent to the site (Estero area).

Three CDFW sensitive natural communities, riparian, slough sedge swards and purple needlegrass grasslands (within the California annual grasslands), were documented within the project site. In addition, pickleweed vegetation, also considered sensitive by the CDFW, occurs in areas between the southern property boundary and the main Estero channel.

Direct adverse impacts to the three sensitive communities within the project site include removal or disturbance of these habitats during construction, including impacts associated with a proposed bridge crossing over the northern portion of the central on-site drainage which supports riparian vegetation. Removal of vegetation within riparian areas, or any disturbance to the bed, bank, and/or channel of the drainages would require authorization from the CDFW in the form of a Streambed Alteration Agreement pursuant to Section 1602 of the California Fish and Game Code. The proposed trail alignments would be constructed beyond the 150-foot Conservation Easement setback on either side of both on-site drainages, except in the location of the proposed crossing on the central drainage and a small location south of the barn. No

construction, staging areas, or other ground disturbance activities would be allowed within this setback area. Therefore, no direct removal or disturbance of riparian vegetation, or to the bed, bank, or channel of the drainages, is expected to occur as a result of the project except potentially associated with the proposed bridge crossing on the central drainage.

Indirect impacts to these sensitive natural communities include runoff and siltation during and immediately after construction, as well as the potential for increased off-trail human disturbance within these areas after the trail is completed.

As previously noted, the general location of the proposed seasonal access trail from the southern end of the project site to the Estero channel (East Trail) is dominated by mudflats with occasional small patches of pickleweed. Direct impacts to pickleweed include laydown of the trail matting over patches of pickleweed vegetation that do occur within the selected access alignment. However, due to the open mesh nature of the matting that would continue to allow plants access to moisture and sunlight, and because the trail matting would be removed during storm events and generally during the winter season, this impact is not expected to result in destruction or other substantial adverse impacts to this vegetation. However, indirect impacts to more dense and contiguous patches of pickleweed adjacent to the access trail could occur as a result of off trail use by recreational visitors. These impacts primarily include trampling, cutting, and/or removal of individual plants or plant populations.

Ground disturbance and construction activities within the project could result in the disturbance and/or destruction of vegetation and wildlife habitat within sensitive natural communities, causing a reduction in the ecological functions and values of these communities. Off-trail use by visitors could result in trampling and degradation of these communities within the project site and associated with the Estero access trail (East Trail), reducing their overall ecological functions and values. Should such direct and indirect impacts occur, they would be considered a substantial effect on sensitive natural communities and, therefore, a **significant impact**.

Mitigation Measures

To avoid/minimize direct and indirect impacts to sensitive natural communities within or adjacent to the proposed trail alignments and associated infrastructure as a result of project implementation, the following measures shall be implemented. Implementation of the actions and measures described in Mitigation Measures BIO-1, BIO-2 and BIO-12 would avoid/minimize direct and indirect impacts to sensitive natural communities by ensuring that any communities within proposed ground disturbance areas are avoided to the extent possible. By mitigating communities that would be removed/disturbed through the implementation of a compensatory mitigation plan would result in no net loss of community functions and values, and by ensuring that visitors to the site are restricted to the established

trails such that the potentially significant impacts to sensitive natural communities would be reduced to a less-than-significant level.

BIO-12 Arroyo Willow Riparian Habitat, Slough Sedge Sward, Purple Needlegrass, and Pickleweed Communities

1. The proposed trails and bridge crossings shall avoid all mapped riparian vegetation along the two on-site drainages. No ground disturbance activities shall occur within 100 feet of riparian habitat. Drainage crossings shall be elevated such that no riparian vegetation shall be removed or disturbed. Prior to the initiation of ground disturbance activities upslope and within 100 feet of riparian habitat areas, sediment and erosion control measures shall be utilized that can include, but are not limited to, biodegradable straw wattles free from weed seed, silt fencing, hydroseeding, or biodegradable erosion control mats/blankets.
2. If riparian vegetation removal and/or disturbance to the bed, bank, or channel of the central drainage is necessary in order to install the drainage crossing, a Streambed Alteration Agreement (SAA), pursuant to Section 1602 of the California Fish and Game Code, shall be procured from the California Department of Fish and Wildlife (CDFW) prior to any disturbances to these areas. As part of the SAA, compensatory mitigation may be required to offset the loss of riparian habitat. If so, a mitigation plan shall be drafted by a qualified biologist to address implementation and monitoring requirements under the SAA to ensure that the project would result in no net loss of habitat functions and values. The plan shall contain, at a minimum, mitigation goals and objectives, mitigation location, a discussion of actions to be implemented to mitigate the impact, performance criteria, monitoring methods, and actions to be taken in the event that the mitigation is not successful. The plan shall be approved by the County, the District, and CDFW and compensatory mitigation shall take place either on site or at an appropriate off-site location as approved by the CDFW and the County at a ratio directed by the SAA.
3. A pre-construction survey shall be completed prior to the onset of construction to identify and quantify the number of slough sedge swards or purple needlegrass plants along or immediately adjacent to the proposed trail corridors that could be potentially removed or disturbed. If removal or disturbance of any of these plant communities would occur, a qualified botanist shall prepare a propagation and planting plan to offset the loss of any vegetation/plants to be removed or disturbed. The plan shall contain, at a minimum the following components: (a) goals and objectives; (b) a description of the extent of plants/vegetation to be removed or disturbed; (c) plant collection, propagation, and planting methods; (d) locations on the project site in which the plants will be transplanted; (e) monitoring methods, timing, and performance criteria; (f)

measures to be taken in the event that the propagation and planting is not successful; and (g) reporting requirements. The plan shall be approved by the County. Propagation and planting outside of the trail corridor(s) shall occur on a 1:1 basis to ensure no net loss of these sensitive natural communities.

4. The final installation/placement of the Estero access trail (East Trail) shall be determined by the County Regional Parks Department in coordination with a qualified biologist to avoid/minimize the placement of the matting over patches of pickleweed vegetation. Prior to installation, appropriate signage shall be placed at the beginning of the access trail and at appropriate locations along the trail prohibiting off trail use beyond the mudflat areas adjacent to the trail. The signage shall also include information on the sensitivity of pickleweed and marsh habitat areas and their ecological and biological value.
5. Implement Mitigation Measures BIO-1 and BIO-2.

3.4-3: The proposed project could have a substantial adverse effect on state or federally protected wetlands through direct removal, filling, hydrological interruption, or other means. This is a potentially significant impact.

The following describes the direct and indirect impacts that could potentially occur as a result of construction and/or operation and maintenance of the proposed trail system on federally protected wetlands occurring within the project site. The discussion below also addresses comments received in response to the NOP and prior MND including concerns associated with trail impacts to wetlands.

The project site supports 3.705 acres of wetlands (including swales, seasonal wetlands, and wetland meadows) and 2,971.814 linear feet of other waters, primarily in the form of ephemeral and intermittent drainages, as shown on Figure 3.4-3. These features are anticipated to meet the criteria for jurisdictional waters of the United States based on the jurisdictional delineation conducted on the project site in May and September 2017, on an analysis of the three parameters for wetlands (soils, hydrology, and vegetation), and connectivity/proximity to known waters of the United States in the site vicinity. An additional 1.078 acres of seasonally mesic areas do not meet the three-parameter test for wetlands under the ACOE definition, but do meet one-parameter requirements to be considered a sensitive wetland habitat pursuant to the California Coastal Commission.

The project site does not support Traditional Navigable Waters, interstate waters, or waters that support interstate commerce (33 CFR 328.3(a)(1–4)); therefore, potential ACOE jurisdiction on this classification of waters was determined based on connectivity or adjacency to off-site waters of the United States (CFR 328.3(a)(5)). The Estero is a permanent water tributary to the Pacific Ocean and is thus considered a water of the United States under the jurisdiction of ACOE. Therefore, tributaries to the Estero, including the two on-site intermittent drainages, can

be considered potentially jurisdictional (the ACOE has not yet formally reviewed and certified the 2017 on-site jurisdictional delineation) due to this hydrological connection, and all adjacent wetlands to these drainages within the project site are also potentially jurisdictional.

At least one crossing over the northern portion of the central drainage on the project site is proposed. Any fill or dredging of the drainage, which is assumed to be a jurisdictional waters of the U.S., associated with the installation of the crossing would require prior authorization from the ACOE in the form of permits pursuant to Section 404 of the Clean Water Act. Several foot bridge crossings are also proposed over various swales and ephemeral drainages on the project site. Any fill or removal of these features, if confirmed to be jurisdictional by the ACOE, would also be subject to regulatory permitting by the ACOE. The proposed trail corridors would be constructed outside the Conservation Easement's established 150-foot setbacks on either side of the two on-site intermittent drainages, except in the location of the proposed crossing on the central drainage and a small area south of the barn. No construction, staging areas, or other ground disturbance activities would be allowed within this buffer area. Therefore, no fill, removal, or other adverse impacts, other than the potential for impacts associated with the crossing, are expected to occur to either of the on-site jurisdictional drainages.

The Regional Water Quality Control Board's (RWQCB) jurisdiction corresponds with the wetland and non-wetland waters of the United States as described in the discussion of ACOE jurisdiction above, with the addition of jurisdiction between the OHWM and the top of bank of any watercourses. The intermittent and ephemeral drainages within the site would all fall within the jurisdiction of the RWQCB under Section 401 of the Clean Water Act; therefore, any work below the top of bank of any linear feature within the project site would require authorization from the RWQCB in the form of a Water Quality Certification.

Indirect impacts to the jurisdictional features on the project site include runoff and siltation as a result of construction vehicles and heavy equipment during and immediately after trail construction activities and construction upslope of these features, as well as the potential for disturbance, erosion, and other adverse effects due to the potential for increased off-trail human activities within and adjacent to these areas after the trails are completed.

While the 150-foot protected setback would be incorporated along each side of the two intermittent drainages on the site, construction of the bridge crossing over the northern portion of the central drainage as well as proposed crossings over several of the on-site swales and ephemeral drainages on site could result in fill of ACOE jurisdictional wetlands and waters causing a reduction in the ecological functions and values of these features. Off-trail use by visitors could result in trampling erosion, siltation, and degradation of these resources, reducing their overall ecological functions and values. Should such direct and indirect impacts occur, they would be considered a substantial effect on federally-protected wetlands and waters and, therefore, a **significant impact**.

Mitigation Measures

To avoid/minimize direct and indirect impacts to state or federally protected wetlands within or adjacent to the proposed trail corridors and associated infrastructure as a result of project implementation, the following measures shall be implemented. Implementation of the actions and measures described in Mitigation Measures BIO-1, BIO-2 and BIO-13 would avoid/minimize direct and indirect impacts to wetlands and non-wetland waters of the U.S. by ensuring that any such areas within proposed ground disturbance areas are avoided to the extent possible. By mitigating areas that would be adversely affected through the implementation of a compensatory mitigation plan resulting in no net loss of wetland and waters functions and values, and by ensuring that visitors to the site are restricted to the established trails potentially significant impacts to wetland and non-wetland waters of the U.S. would be reduced to a less-than-significant level.

BIO-13 Wetlands

1. The proposed trails and bridge crossings shall avoid all mapped jurisdictional wetland areas and waters of the U.S. Drainage crossings shall be elevated such that no wetland vegetation shall be removed or disturbed and no removal or fill of jurisdictional areas shall occur. Prior to the initiation of ground disturbance activities upslope and within 100 feet of wetland habitat areas, sediment and erosion control measures shall be utilized that can include, but are not limited to, biodegradable straw wattles free from weed seed, silt fencing, hydroseeding, or biodegradable erosion control mats/blankets.
2. If wetland areas or other waters of the U.S. under the jurisdiction of the ACOE shall be removed or filled in order to install drainage crossings, an individual or Nationwide permit from the ACOE shall be obtained prior to any ground disturbance that could result in fill or removal of wetlands or waters of the U.S. As part of the ACOE permit, compensatory mitigation may be required, at a ratio to be determined by the ACOE, to offset the loss of wetland/waters habitat. If so, and as part of the permit application process, a mitigation and monitoring plan (MMP) shall be drafted by a qualified biologist to address implementation and monitoring requirements under the permit to ensure that the project would result in no net loss of habitat functions and values. The plan shall contain, at a minimum, mitigation goals and objectives, mitigation location, a discussion of actions to be implemented to mitigate the impact, monitoring methods and performance criteria, extent of monitoring to be conducted, actions to be taken in the event that the mitigation is not successful, and reporting requirements. The plan shall be approved by the County, District, and ACOE and compensatory mitigation shall take place either on site or at an appropriate off-site location as approved by the ACOE and the County. Concurrent with the 404 permit,

that County shall also obtain a Water Quality Certification from the RWQCB, subject to the same mitigation plan requirements stated above.

3. Implement Mitigation Measures BIO-1 and BIO-2.

3.4-4: The proposed project could interfere with the movement of native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. This is considered a less-than-significant impact.

As discussed in the Environmental Setting section above, the open and unobstructed habitat on the project site provides some level of connectivity between similar habitats to the north and south (Figure 3.4-4). In particular, the intermittent and seasonal drainages that flow from the uplands in the northern portion of the site to the Estero south of the site are likely used by wildlife species as corridors for both local and regional movement events. However, and as previously discussed, the Conservation Easement's established 150-foot wide setback zone along both sides of the two major north-south drainages on the site and the one proposed bridge crossing across the northern portion of the central creek drainage would span the drainage such that wildlife movement up and down the drainage would not be inhibited. In addition, pursuant to Mitigation Measure BIO-2 above, the design of any fencing along the trails would be such that wildlife movement perpendicular to the fencing would not be adversely inhibited. Therefore, no substantial direct impacts to local or regional wildlife movement is expected to occur as a result of the trails.

While visitor use of the trails may periodically inhibit daytime movement of some wildlife species on the site, most wildlife species in the region tend to be more active at night and would, therefore, not be harassed or inhibited by visitors as the trail system would be closed to visitors at night. Trail construction would occur during daylight hours such that, for the same reason, wildlife movement is not expected to be substantially affected. For those species that are also active, or more active, during daylight hours, the fencing that would be installed along the trails that is intended to keep visitors on trails would also minimize the potential for harassment and disturbance associated with off-trail use that could more directly inhibit wildlife movement and activity during the daytime. Because trail construction would be temporary in nature and generally limited to the proposed corridor and the area immediately adjacent to the trail, disturbance associated with trail construction would not substantially affect daytime wildlife movement.

Construction and ground disturbance associated with the trails would occur at a minimum of 100 feet on either side of the on-site intermittent drainages. Most wildlife movement and activity occurs during the nighttime hours when visitors would not be using the trails; therefore, because trail construction would be temporary in nature; visitors would be restricted to the trails; and fencing along the trails or around sensitive resources would be of a design that does not inhibit

wildlife species movement, impacts to wildlife movement would not be considered a substantial effect. Therefore impacts would be **less than significant**. Potential effects on pallid bat maternity roosts are addressed under Impact 3.4-1, above.

Mitigation Measures

No mitigation measures are required.

3.4-5: The proposed project could conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. This is considered a less-than-significant impact.

The Sonoma County Coastal Plan, Coastal Zoning Ordinance, and Coastal Administrative Manual along with the 2013 General Plan policies encourage the productive maintenance and protection of marine resources and Environmentally Sensitive Habitat Areas (ESHAs). An ESHA is any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments (California Coastal Act 2010, Section 30107.5). Within an ESHA, any significant disruption of (1) CDFG rare plant communities; (2) Federal and State listed species; (3) CNPS 1B listed plant species; (4) habitats that support listed species is prohibited.

Pursuant to Sections 30231 and 30233 of the California Coastal Act, the California Coastal Commission (CCC) requires that most development avoid and buffer wetland resources. Policies require the maintenance and restoration of the biological productivity and quality of wetlands, as well as limit the filling of wetlands. The filling of wetlands is generally limited to high priority uses, and must be avoided unless there “is no feasible less environmentally damaging alternative, and authorized fill must be fully mitigated.”

The Sonoma County General Plan Open Space and Resource Conservation Element provides guidance for the protection of biological resources in Sonoma County as set by its citizens and elected officials. The proposed project is consistent with the protection standards and criteria of this element including overall protection of the following: natural habitats; occurrences of special status species, wetlands, sensitive natural communities, woodlands, and areas of essential habitat connectivity; riparian corridors and their functions and values while allowing the potential for road crossings over, and trails along, such corridors. The Conservation Easement prohibits the harvesting, cutting, removal, or destruction of native trees on the project site accept as necessary to control insects and disease, to prevent personal injury or property damage, or for the purposes of fire management or natural resource management.

Neither the project site nor the portion of the Estero in which the access trail is proposed is within an identified ESHA. In addition, Mitigation Measures BIO-1 through BIO-13 include avoidance or mitigation of direct impacts to special-status plant and wildlife species, sensitive plant communities, federal- and state-protected wetlands, and also avoid and/or minimize the potential for indirect impacts on these resources primarily due of off-trail use by visitors. No known heritage or landmark trees occur on the project site and, in particular, within the areas of proposed ground disturbance associated with parking/staging areas and the trail alignments. No native trees are proposed to be removed in association with the parking or staging areas or in association with the proposed trail alignments.

Because of the relatively low impact associated with construction and operation of the proposed trails and associated staging/parking areas, and with implementation of Mitigation Measures BIO-1 through BIO-13 that avoid and/or minimize the potential for direct and indirect impacts on sensitive biological resources impacts, along with compliance with local policies or ordinances protecting these resources. Potential project conflicts with applicable policies and ordinances would not be considered a substantial effect, and therefore, impacts would be **less than significant**.

Mitigation Measures

No mitigation measures are required.

Cumulative Impacts

The geographical cumulative context for the evaluation of cumulative impacts on biological resources includes Sonoma County, and more specifically the coastal areas within Sonoma County. Regional development includes buildout of the County's General Plan and other approved development throughout the County.

3.4-6: The proposed project could contribute to the cumulative loss of protected species and/or their habitats within Sonoma County. The project's contribution would not be considerable.

Over the past few decades, tens of thousands of acres of grasslands have been developed or designated for agricultural development in the form of vineyards in Sonoma County. Future development within the County would result in the further decline of native plant communities, wetlands and vernal pool habitat. Increased human presence and traffic within these areas would also contribute to the distribution of non-native plant and wildlife species, which would further degrade the habitat and available niches for native species in the surrounding region.

Coastal development within the County has been minimal in recent years. However, increasing populations in Sonoma County and the Bay Area will contribute to an increase in recreational activities

within coastal areas of the County. Increases in authorized trail uses, as well as potential unauthorized recreational uses beyond trails could contribute to a decline in abundance of special-status wildlife species due to avoidance of heavily populated areas. Construction and implementation of the proposed project would potentially contribute to increased use of the coastal areas within Sonoma County, and several special-status plant and wildlife species are present or could potentially be present within the site. However, mitigation requiring pre-construction surveys for special-status plants and animals and avoidance of these resources during construction activities, avoidance of sensitive habitats and required mitigation if such habitats cannot be avoided, buffers between sensitive biological resources and construction areas, fencing to restrict visitors to designated paths, a requirement for creation or preservation of wetland resources that cannot be avoided within the site, and a required environmental awareness program for all workers conducting ground disturbance activities associated with construction of the trail alignments would reduce the project's contribution to loss of biological diversity and special status resources within the project region. Therefore, the project's contribution to this cumulative impact is not considerable resulting in a less-than- significant cumulative impact.

Mitigation Measures

No mitigation measures are required.

References

Caltrans (California Department of Transportation). 2016. Technical Guidance for the Assessment and Mitigation of the Effects of Traffic Noise and Road Construction Noise on Bats. July. (Contract 43A0306.) Sacramento, CA. Prepared by ICF International, Sacramento, California, and West Ecosystems Analysis, Inc., Davis, California.

CDFG (California Department of Fish and Game). 2010. List of Vegetation Alliances and Associations: Natural Communities List Arranged Alphabetically by Life Form. September 2010. http://dfg.ca.gov/biogeodata/vegcamp/natural_comm_list.asp.

CDFW (California Department of Fish and Wildlife). 2018b. "Special Animals List." California Natural Diversity Database. CDFW, Biogeographic Data Branch.

CDFW. 2018x. California Natural Diversity Database (CNDDB). RareFind Version 5.0 (Commercial Subscription). Sacramento, California: CDFW, Biogeographic Data Branch. https://www.wildlife.ca.gov/Data/CNDDB/Mapts-and-Data.

CDFW. 2019. *California Wildlife Habitat Relationships: Life History Accounts and Range Maps*. Accessed April 2019. https://www.wildlife.ca.gov/Data/CWHR/Life-History-and-Range.

CES 2018

Dudek. 2017. "Biological Resources Assessment for the Estero Trail Project, Sonoma County, California." Letter report from Lisa Achter (Dudek) to Rich Stabler (Sonoma County

Agricultural Preservation and Open Space District). Report included as Appendix C to this EIR. November 8, 2017.

Google Earth 2017. Aerial photograph.

Heaton, E. 2012. *Summary of Findings from Bird Surveys on the Bordessa Ranch Final Report: 2011 and 2012 Surveys.* February 6, 2012.

Hilty et al. 2006

Holland 1991. [Western pond turtle surveys protocols]

Johnston, D., G. Tatarian, and E. Pierson. 2004. California bat mitigation techniques, solutions, and effectiveness. (H. T. Harvey & Associates Project No. 2394-01.) Prepared for California Department of Transportation. California State University Foundation Contract No.507451A. [online]: https://nrmsecure.dfg.ca.gov/FileHandler.ashx?DocumentVersionID=19685.

NOAA (National Oceanic and Atmospheric Administration). 2008. *Gulf of the Farallones National Marine Sanctuary Final Management Plan.* Updated December 2014. Accessed November 27, 2019. https://nmsfarallones.blob.core.windows.net/farallones-prod/media/archive/manage/pdf/expansion/GFNMS_FMP_12_04_14.pdf.

Sawyer, J.O., T. Keeler-Wolf, and J. Evens. 2009. A *Manual of California Vegetation.* 2nd ed. Sacramento, California: California Native Plant Society.

Sonoma County. 2014. Estero Trail Wildlife Resources Evaluation. Prepared for Sonoma County Agricultural Preservation and Open Space District. 65 pp.

Spencer, W.D., P. Beier, K. Penrod, K. Winters, C. Paulman, H. Rustigian-Romsos, J. Strittholt, M. Parisi, and A. Pettler. 2010. *California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California*. Prepared for California Department of Transportation, California Department of Fish and Game, and Federal Highways Administration.

USDA (U.S. Department of Agriculture). 2017. Web Soil Survey. USDA Natural Resources Conservation Service, Soil Survey Staff. Accessed [date needed]. http://websoilsurvey.nrcs.usda.gov/.

USFWS (U.S. Fish and Wildlife Service). 2005. “Revised Guidance on Site Assessments and Field Surveys for the California Red-Legged Frog.” August 2005. http://www.fws.gov/ventura/docs/species/protocols/crlf/caredleggedfrog_survey-guidelines.pdf.

Zeiner, D.C., W.F.Laudenslayer, Jr., K.E. Mayer, and M. White, eds. 1988-1990. California's Wildlife. Vol. I-III. California Department of Fish and Game, Sacramento, California.

3.5 Cultural and Tribal Cultural Resources

Introduction

This section of the Draft Environmental Impact Report (EIR) presents potential cultural and tribal cultural resource impacts of the Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas and Construction and Operation of Recreational Trail Amenities project (proposed project). Analysis of the proposed project is based on review of the Cultural Resources Inventory Report prepared by Dudek in August 2018 (see Appendix D). This section presents the environmental setting, regulatory framework, impacts of the proposed project on the environment, and proposed measures to mitigate any identified significant impacts.

No comments were received that raised concerns regarding cultural or tribal cultural resources in response to the Notice of Preparation (NOP). In response to the prior Mitigated Negative Declaration released in October 2016, the California Department of Transportation (Caltrans) recommended conducting Native American consultation with tribes, groups, and individuals interested in the project area. The County has conducted outreach to the local Native American tribes consistent with Assembly Bill (AB) 52. See Appendix A for a copy of the NOP and complete list of public comments received during the public scoping period.

To the extent that issues identified in public comments involve potentially significant effects on the environment according to the California Environmental Quality Act (CEQA), and/or were raised by responsible and trustee agencies or the public, they are identified and addressed in this EIR.

Environmental Setting

Cultural Context

Fredrickson (1974, 1994) developed a prehistoric chronology for human history in this region that used sociopolitical complexity, trade networks, population, and the introduction and variation of artifact types to differentiate between cultural groups. Three periods are presented in Fredrickson's prehistoric sequence: Paleoindian, Archaic, and Emergent. Fredrickson's Paleoindian period marked the initial human migration (10,000–6,000 BC) into California with most known sites found on the edge of former lakeshores and waterways. Groups were small and highly mobile, occupying broad geographic areas.

Fredrickson's Archaic period was characterized by three subdivisions based on developmental trends in subsistence strategies, settlement, technology, and social organization. A more diverse range of resources for groups to exploit proliferated during the Archaic period's substantial climate change to warmer and drier conditions. The diversification of the food base required more complex geographic mobility and expansion into surrounding environments, and

the settlement strategies increased correspondingly. Archaic period social organization consisted of small-scale, semi-nomadic, socially egalitarian societies shifting from a foraging to a collecting way of life. Archaic cultures retained the use of large projectile points, but acorn and seed processing technology, consisting of the milling slab and handstone, was developed; this was eventually replaced by the bowl mortar and pestle. Trade systems and sustained exchanges between groups grew from the new diffuse economies. Shell beads gained significance as trade items.

In the Emergent period (Fredrickson 1974, 1994), which lasted from the end of the Upper Archaic (ca. AD 1000) until European contact, there was an increase in the use of plant food resources in addition to an increase in terrestrial and fish game. There was a concurrent increase in the diversity and complexity of material culture during the Emergent period, as demonstrated by more classes of artifacts, higher frequencies of artifacts, and more formal or ornate artifacts. The recovery of a greater number of small, finely chipped projectile points, often stemless with convex or concave bases, suggests an increased usage of the bow and arrow rather than the atlatl (spear throwing technology) and dart for hunting. During this period, there was an increase in population size accompanied by the advent of larger, more permanent villages.

The project area was occupied during the Ethnohistoric period and prior to European contact by the Coast Miwok (Milliken 2009). The Coast Miwok territory went northward to Duncan's Point on the coast eastward to between the Sonoma and Napa Rivers, and south to approximately Sausalito. Ethnographers infer that accounts from two sixteenth-century voyages, Drake in 1579 and Sebastian Rodriquez Cermeño in 1595, were the first European contacts with what was contemporary Coast Miwok culture (Kroeber 1925). It wasn't until the latter part of the eighteenth century, with the founding of the mission at San Francisco in 1776, and later, the missions at San Rafael (1817) and Solano-Sonoma (1823), that Europeans colonized Coast Miwok territory with forced evangelization (Kelly 1978).

Miwok was one of the California Penutian languages (Kroeber 1925). Coast Miwok had a considerable territory, though it has been suggested that the population may have been relatively small, totaling 2,000 individuals (Kroeber 1925). Coast Miwok terrain was diverse with marshlands, valleys, forests, and coast all contributing to an environmental setting well suited to an economy based on fishing, hunting, and gathering. Villages were predominantly found adjacent to shores; however, summers were spent hunting and gathering in the hills. Food sources were seasonal; during times of shortage in winter and spring, dried acorns, seeds, and kelp were the mainstay; in other months, salmon, mudhens, geese, fish, deer, crab, and other small and large mammals and marine animals were available. Men indulged in tobacco, and datura was also consumed. Basketry techniques included both coiled and twined forms, often with the use of multicolored motifs and patterns. Coast Miwok had grass-covered conical dwellings that contained a central hearth and accommodated 6 to 10 persons. Large villages

had sizable semi-subterranean circular sweathouses and, if the population size warranted, a dance house. There was no overall tribal organization; each Coast Miwok village had a chief and two female leaders. Clamshell disk beads were used as currency to trade with Wappo country, South Pomo territory, Santa Rosa, and Healdsburg.

Missionaries had detrimental effects on well-established cultural network of Coast Miwok communities throughout the region. By the time of California's initial integration into the United States in the 1840s, the Coast Miwok population was reportedly reduced from approximately 2,000 individuals to one-eighth of its size before European contact (Kelly 1978). Coast Miwok individuals entered both urban centers and throughout the region, often employed locally as farmhands. In 1920, the Bureau of Indian Affairs bought a 15-acre tract near Graton, providing the tribal reservation for the Miwok and neighboring groups now listed by the Native American Heritage Commission as the Federated Indians of Graton Rancheria.

Following the initial reported discovery by Sir Francis Drake, Sebastian Rodriguez Cermeno anchored off the Coast of Marin County in 1595. Cermeno, a Portuguese explorer sailing for Spain, wrecked his ship, the *San Augustin,* at Drakes Bay during this same journey. During the period of time in which a new vessel was being prepared, he and a support crew took part in limited exploration of the Marin County area (Heizer 1941). Sebastian Vizcaino later anchored in Drake's Bay in 1603 (Chapman, 1920). Spanish missionization of Alta California was initiated in San Diego (1769). A total of 21 missions were constructed by the Dominican and Franciscan orders between 1769 and 1823. Missions in the region included San Francisco de Asís (1776), Santa Clara de Asís (1776), San José de Guadalupe (1797 in Alameda County), San Rafael Arcángel (1817 in Marin County), and San Francisco Solano (1823 in Sonoma County; Grunsky 1989).

Mexico's separation from the Spanish empire in 1821 and the secularization of the California missions in the 1830s caused further disruptions to native populations. Following the establishment of the Mexican republic, the government seized many of the lands belonging to Native Americans, providing them as parts of larger Land Grants to affluent Mexican citizens and rancheros. The 1833 Secularization Act passed by the Mexican Congress ordered half of all mission lands to be transferred to Native Americans, and the other half to remain in trust and managed by an appointed administrator. These orders were never implemented due to several factors that conspired to prevent Native Americans from regaining their patrimony.

California was officially ceded to the United States in 1848, which led to the continued appropriation of Native American Lands by ranchers, prospectors, and an increasing number of settlers. The United States Government did little to dissuade these trespasses. From 1850, with the passage of California's Indian Act, until legislative reforms in the late 1880s, state laws promoted conditions that amounted to indentured servitude for much of the Native American population throughout California. The Gold Rush resulted in an increase in population and

industry, and saw mills were constructed and operated to process local Redwood. Cattle ranching, fisheries, and dairies sparked the eventual arrival of the North Pacific Railroad. By the late 1850s many of the prominent towns now present were fully established (Koenig 2009).

Existing Site

The project site is located immediately to the south of State Route 1 (SR 1), approximately one-mile south of the community of Bodega, and approximately 2.5-miles west of the community of Valley Ford, at 17000 Valley Ford Cutoff in unincorporated Sonoma County, California (see Figure 2-1, Regional Location in Chapter 2, Project Description). The project site is undeveloped and is dominated by annual grassland habitat within the approximately 500-acre Bordessa Ranch property that currently is and historically has been used for grazing. A large barn and some smaller outbuildings associated with the ranch are located on the project site, but there are no residences present on the site, however under the Conservation Easement, the landowners retain the right to construct one residence. The topography of the Bordessa Ranch property consists of rolling hills with a central valley created by a drainage that drains into the Estero at the southern end of the site. Riparian and marsh vegetation dominate larger drainages with several smaller drainages, seasonal wetlands, wet meadows, and small ponds present within the property. A gravel/dirt road with access from SR 1 runs north to south through the center of the property ending at the barn. On-site elevations range from sea level at the Estero Americano (Estero) to about 400 feet at the highest knoll on the northwestern corner of the property.

Records Search

The Cultural Resources Inventory Report (Appendix D) prepared for the proposed project included a California Historical Resources Information System (CHRIS) records search, which was conducted at the Northwest Information Center (NWIC) on October 25, 2017, for the proposed project site and surrounding 0.5-mile radius. The NWIC records indicate that four cultural resource investigations have been conducted within the 0.5-mile search radius of the proposed project site, of which one study entirely overlaps the project site (see Appendix D). These studies are listed in Table 3.5-1, below.

Table 3.5-1
Previous Technical Studies within a Half-Mile Radius of the Project Site

Report ID	Author	Year	Title	Relative to APE*
S-009573	Marcia K. Kelly and Margaret L. Buss	1987	Negative Archaeological Survey Report, proposed replacement or realignment of 54 culverts, 04-SON-1 P.M. 2.14/54.56, 04-MRN-1 P.M. 13.82/48.32, 4232-120390.	Within a half-mile
S-018458	Jonathan Legare	1996	A Cultural Resources Study of the Griffin Property, Bodega, Sonoma County, California.	Within a half-mile

Table 3.5-1
Previous Technical Studies within a Half-Mile Radius of the Project Site

Report ID	Author	Year	Title	Relative to APE*
S-035051	Nelson B. Thompson	2008	Review of Cultural Resources Surveys Conducted of the 04-SON-01 Right of Way in Sonoma County For Maintenance Planning by Caltrans District 04 and Anthropological Studies Center, SSU Personnel Between 1997 and 2001 (PM 0.0/58.53) (letter report).	Within a half-mile
S-045445	Eileen Barrow and Tom Origer	2014	A Cultural Resources Survey of a Portion of the Bordessa Ranch, 17000 Highway 1, Valley Ford, Sonoma County, California.	Included entire APE

Source: Appendix D
Note:
* Area of Potential Effect.

The most recent investigation, which included the entire APE, was completed by Eileen Barrow of Tom Origer and Associates in 2014. The investigation was requested and authorized by Karen Davis-Brown of Sonoma County Regional Parks. Work included an intensive-level pedestrian survey of the APE, applying 15-meter transects in areas with the highest potential for cultural resources and 30-meter transects in areas where more extreme topography was present. The study resulted in the identification of one prehistoric obsidian flake. No archaeological features, deposits, or sites were observed. Review of photographs of the structures on the property by architectural historian Vikki R. Beard resulted in the observation that the barn/residence, while greater than 45 years in age, did not appear to meet eligibility criteria for inclusion on the CRHR or NRHP. Based on these findings, investigators recommended no additional cultural resources investigation or monitoring to be necessary.

Pedestrian Survey

An intensive pedestrian survey was conducted by a Dudek archaeologist on June 19, 2018. During the survey, all areas of the proposed 50-foot-wide trail corridors were inspected. No archaeological or historic-era built-environment artifacts or features were identified as a result of this investigation. Approximately one-fifth of the ground surface was directly visible due to the presence of grasses that characterizes a majority of the project site. Subsurface exposures were thoroughly inspected along the banks of drainages intersecting the proposed trail corridors at a number of locations. The historic-age barn, located approximately 80-feet outside of the project boundary, was observed to be present as reported by previous cultural resources investigations. With the exception of limited movement of surface soils caused by cattle grazing, the project site remains largely undisturbed. While no archaeological resources were observed, portions of the project site do intersect depositional environments such as low-slope drainages, terraces, and knolls suitable to support the presence of cultural deposits.

Tribal Consultation

On October 13, 2017, a sacred lands file search request and a request for the Native American contact list for the area was sent to the Native American Heritage Commission (NAHC). On October 25, 2017 the NAHC responded with results from the sacred lands file search request. The sacred lands search failed to indicate the presence of Native American cultural resources on the project site or in the vicinity. The NAHC additionally provided a list of Native American tribes and individuals/organizations that might have knowledge of cultural resources in this area.

The County sent letters to all Native American tribes that have requested notification, per Assembly Bill (AB) 52. The County reports that to-date, it has not received any information from consulted tribes identifying any tribal cultural resources or cultural resources that may be affected by the project, or a request for consultation. Consultation is considered closed.

Regulatory Setting

The treatment of cultural resources is governed by federal, state, and local laws and guidelines. There are specific criteria for determining whether prehistoric and historic sites or objects are significant and/or protected by law. Federal and state significance criteria generally focus on the resource's integrity and uniqueness, its relationship to similar resources, and its potential to contribute important information to scholarly research. Some resources that do not meet federal significance criteria may be considered significant by state criteria. The laws and regulations seek to mitigate impacts on significant prehistoric or historic resources. The federal, state, and local laws and guidelines for protecting historic resources are summarized below.

Federal Regulations

Historical Resources

National Historic Preservation Act

The National Historic Preservation Act of 1966 established the National Register of Historic Places (NRHP) as the official federal list of cultural resources that have been nominated by state offices for their historical significance at the local, state, or national level. Properties listed in the NRHP, or determined eligible for listing, must meet certain criteria for historical significance and possess integrity of form, location, and setting. Under Section 106 of the act and its implementing regulations, federal agencies are required to consider the effects of their actions, or those they fund or permit, on properties that may be eligible for listing or that are listed in the NRHP. The regulations in 36 CFR 60.4 describe the criteria to evaluate cultural

resources for inclusion in the NRHP. Properties may be listed in the NRHP if they possess integrity of location, design, setting, materials, workmanship, feeling, and association, and they:

A. Are associated with events that have made a significant contribution to the broad patterns of our history;

B. Are associated with the lives of persons significant in our past;

C. Embody the distinctive characteristics of a type, period, or method of construction, or represent the work of a master, or possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction; or

D. Have yielded, or may be likely to yield, information important in prehistory or history.

These factors are known as “Criteria A, B, C, and D.”

In addition, the resource must be at least 50 years old, except in exceptional circumstances. Eligible properties must meet at least one of the criteria and exhibit integrity, which is measured by the degree to which the resource retains its historical properties and conveys its historical character, the degree to which the original fabric has been retained, and the reversibility of the changes to the property. Archaeological sites are generally evaluated under Criterion D, which concerns the potential to yield information important in prehistory or history.

The Section 106 review process is typically undertaken between the U.S. Army Corps of Engineers as part of issuing a Section 404 permit and the State Historic Preservation Officer, involves a four-step procedure:

- Initiate the Section 106 process by establishing the undertaking, developing a plan for public involvement, and identifying other consulting parties.
- Identify historic properties by determining the scope of efforts, identifying cultural resources, and evaluating their eligibility for inclusion in the NRHP.
- Assess adverse effects by applying the criteria of adverse effect on historic properties (resources that are eligible for inclusion in the NRHP).
- Resolve adverse effects by consulting with the State Historic Preservation Officer and other consulting agencies, including the Advisory Council on Historic Preservation, if necessary, to develop an agreement that addresses the treatment of historic properties.

The Department of the Interior has set forth Standards and Guidelines for Archaeology and Historic Preservation. These standards and guidelines are not regulatory and do not set or interpret agency policy. A project that follows the standards and guidelines generally shall be considered mitigated to a less-than-significant level, according to Section 15064.5(b)(3) of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.).

State Regulations

Historical and Archaeological Resources and Human Remains

California Environmental Quality Act

Under CEQA, public agencies must consider the effects of their actions on both "historical resources" and "unique archaeological resources." Pursuant to California Public Resources Code (PRC) Section 21084.1, a "project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment." PRC 21083.2 requires agencies to determine whether proposed projects would have effects on "unique archaeological resources."

"Historical resource" is a term of art with a defined statutory meaning (see PRC 21084.1 and CEQA Guidelines, Sections 15064.5(a) and 15064.5(b)). The term embraces any resource listed in or determined to be eligible for listing in the California Register of Historical Resources (CRHR). The CRHR includes resources listed in or formally determined eligible for listing in the NRHP, as well as some California State Landmarks and Points of Historical Interest.

Properties of local significance that have been designated under a local preservation ordinance (local landmarks or landmark districts) or that have been identified in a local historical resources inventory may be eligible for listing in the CRHR and are presumed to be "historical resources" for purposes of CEQA unless a preponderance of evidence indicates otherwise (PRC 5024.1 and 14 CCR 4850). Unless a resource listed in a survey has been demolished or has lost substantial integrity, or there is a preponderance of evidence indicating that it is otherwise not eligible for listing, a lead agency should consider the resource potentially eligible for the CRHR. The project would not remove, modify, or otherwise affect any existing buildings, nor would it introduce elements that would change the historic setting of the ranch.

In addition to assessing whether historical resources potentially impacted by a proposed project are listed or have been identified in a survey process, lead agencies have a responsibility to evaluate them against the CRHR criteria prior to making a finding as to a proposed project's impacts to historical resources (PRC 21084.1 and CEQA Guidelines, Section 15064.5(a)(3)). In general, a historical resource, under this approach, is defined as any object, building, structure, site, area, place, record, or manuscript that:

Is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, or cultural annals of California; and

A. Meets any of the following criteria:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. Is associated with the lives of persons important in our past;
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
4. Has yielded, or may be likely to yield, information important in prehistory or history (CEQA Guidelines, Section 15064.5(a)(3)).

These factors are known as "Criteria 1, 2, 3, and 4" and parallel Criteria A, B, C, and D under the National Historic Preservation Act. The fact that a resource is not listed or determined to be eligible for listing does not preclude a lead agency from determining that it may be a historical resource (PRC 21084.1 and CEQA Guidelines, Section 15064.5(a)(4)).

CEQA also distinguishes between two classes of archaeological resources: archaeological sites that meet the definition of a historical resource, as described above, and "unique archaeological resources." Under CEQA, an archaeological resource is considered "unique" if it:

- Contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information;
- Has a special and particular quality such as being the oldest of its type or the best available example of its type; or
- Is directly associated with a scientifically recognized important prehistoric or historic event or person (PRC 21083.2(g)).

CEQA states that if a proposed project would result in an impact that might cause a substantial adverse change in the significance of a historical resource, then an EIR must be prepared and mitigation measures and alternatives must be considered. A "substantial adverse change" in the significance of a historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired (CEQA Guidelines Section 15064.5(b)(1)).

The CEQA Guidelines (Section 15064.5(c)) also provide specific guidance on the treatment of archaeological resources, depending on whether they meet the definition of a historical resource or a unique archaeological resource. If the site meets the definition of a unique archaeological resource, it must be treated in accordance with the provisions of PRC 21083.2.

CEQA Guidelines section 15126.4(b) sets forth principles relevant to means of mitigating impacts on historical resources. It provides as follows:

(1) Where maintenance, repair, stabilization, rehabilitation, restoration, preservation, conservation or reconstruction of the historical resource will be conducted in a manner consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings (1995), Weeks and Grimmer, the project's impact on the historical resource shall generally be considered mitigated below a level of significance and thus is not significant.

(2) In some circumstances, documentation of an historical resource, by way of historic narrative, photographs or architectural drawings, as mitigation for the effects of demolition of the resource will not mitigate the effects to a point where clearly no significant effect on the environment would occur.

(3) Public agencies should, whenever feasible, seek to avoid damaging effects on any historical resource of an archaeological nature. The following factors shall be considered and discussed in an EIR for a project involving such an archaeological site:

(A) Preservation in place is the preferred manner of mitigating impacts to archaeological sites. Preservation in place maintains the relationship between artifacts and the archaeological context. Preservation may also avoid conflict with religious or cultural values of groups associated with the site.

(B) Preservation in place may be accomplished by, but is not limited to, the following:

1. Planning construction to avoid archaeological sites;
2. Incorporation of sites within parks, greenspace, or other open space;
3. Covering the archaeological sites with a layer of chemically stable soil before building tennis courts, parking lots, or similar facilities on the site.
4. Deeding the site into a permanent conservation easement.

(C) When data recovery through excavation is the only feasible mitigation, a data recovery plan, which makes provision for adequately recovering the scientifically consequential information from and about the historical resource, shall be prepared and adopted prior to any excavation being undertaken. Such studies shall be deposited with the California Historical Resources Regional Information Center. Archaeological sites known to contain human remains shall be treated in accordance with the provisions of Section 7050.5 Health and Safety Code. If an artifact must

be removed during project excavation or testing, curation may be an appropriate mitigation.

(D) Data recovery shall not be required for an historical resource if the lead agency determines that testing or studies already completed have adequately recovered the scientifically consequential information from and about the archaeological or historical resource, provided that the determination is documented in the EIR and that the studies are deposited with the California Historical Resources Regional Information Center.

CEQA and the California Public Records Act restrict the amount of information regarding cultural resources that can be disclosed in an EIR in order to avoid the possibility that such resources could be subject to vandalism or other damage (*Clover Valley Foundation v. City of Rocklin* (2011) 197 Cal.App.4th 200, 219). The State CEQA Guidelines prohibit an EIR from including "information about the location of archaeological sites and sacred lands, or any other information that is subject to the disclosure restrictions of Section 6254 of the Government Code [(part of the California Public Records Act)]." (State CEQA Guidelines, § 15120, subd. (d)). In turn, California Government Code section 2654 of the California Public Records Act lists as exempt from public disclosure any records "of Native American graves, cemeteries, and sacred places and records of Native American places, features, and objects described in Sections 5097.9 and 5097.933 of the [California] Public Resources Code maintained by, or in the possession of, the Native American Heritage Commission, another state agency, or a local agency." (Cal. Gov. Code, § 6254, subd. (r)).

Public Resources Code sections 5097.9 and 5097.993 list the Native American places, features, and objects, the records of which are not to be publically disclosed under the California Public Records Act: "any Native American sanctified cemetery, places of worship, religious or ceremonial site, or sacred shrine located on public property (§ 5097.9) and any "Native American historic, cultural, or sacred site, that is listed or may be eligible for listing in the California Register of Historic Resources…, including any historic or prehistoric ruins, any burial ground, any archaeological or historic site, any inscriptions made by Native Americans at such a site, any archaeological or historic Native American rock art, or any archaeological or historic feature of a Native American historic, cultural, or sacred site …" (§5097.993, subd. (a)(1)).

The Public Resources Act also generally prohibits disclosure of archaeological records. Government Code section 6254.10 provides: "Nothing in [the California Public Records Act] requires disclosure of records that relate to archaeological site information and reports maintained by, or in the possession of … a local agency, including the records that the agency obtains through a consultation process between a California Native American tribe and a state or local agency."

CEQA Guidelines, Section 15064.5(e), require that excavation activities be stopped whenever human remains are uncovered and that the county coroner be called in to assess the remains. If the county coroner determines that the remains are those of Native Americans, the Native American Heritage Commission must be contacted within 24 hours. At that time, the lead agency must consult with the appropriate Native Americans, if any, as identified in a timely manner by the Native American Heritage Commission. Section 15064.5 of the CEQA Guidelines directs the lead agency (or applicant), under certain circumstances, to develop an agreement with the Native Americans for the treatment and disposition of the remains.

Senate Bill 297

This law addresses the disposition of Native American burials in archaeological sites and protects such remains from disturbance, vandalism, or inadvertent destruction; establishes procedures to be implemented if Native American skeletal remains are discovered during construction; and establishes the Native American Heritage Commission to resolve disputes regarding the disposition of such remains (SB 297). It has been incorporated into Section 15064.5(e) of the CEQA Guidelines.

Assembly Bill 52

Assembly Bill (AB) 52 requires consultation with Native American tribes traditionally and culturally affiliated with the geographic area in which a project requiring CEQA review is proposed if those tribes have requested to be informed of such proposed projects. The intention of such consultation is to avoid adverse impacts to tribal cultural resources. This law is in addition to existing legislature protecting archaeological resources associated with California Native American tribes. AB 52 applies to all projects initiating environmental review in or after July 2015. As discussed previously, the County conducted tribal outreach consistent with AB 52 and received no responses from the Tribes contacted.

California Health and Safety Code

Section 7050.5(b) of the California Health and Safety Code specifies protocols to address any human remains that may be discovered. The code states:

> In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined, in accordance with Chapter 10 (commencing with section 27460) of Part 3 of Division 2 of Title 3 of the Government Code, that the remains are not subject to the provisions of section 27492 of the Government

> Code or any other related provisions of law concerning investigation of the circumstances, manner and cause of death, and the recommendations concerning treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in section 5097.98 of the Public Resources Code.

Public Resources Code Section 5097.5

Section 5097.5 of the California Public Code Section protects historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological sites, or any other archaeological, paleontological, or historical feature that is situated on land owned by, or in the jurisdiction of, the State of California, or any city, county, district, authority, or public corporation, or any agency thereof.

Local Regulations

The following local/regional regulations pertaining to cultural resources would apply to the proposed project.

Sonoma County General Plan 2020

The Open Space and Resource Conservation Element of the Sonoma County General Plan 2020 (Sonoma County 2016) provide objectives, policies, and programs regarding cultural resources, including the following:

Open Space and Resource Conservation Element

> **Goal OSRC-19:** Protect and preserve significant archaeological and historical sites that represent the ethnic, cultural, and economic groups that have lived and worked in Sonoma County, including Native American populations. Preserve unique or historically significant heritage or landmark trees.
>
> **Objective OSRC-19.5:** Encourage the identification, preservation, and protection of Native American cultural resources, sacred sites, places, features, and objects, including historic or prehistoric ruins, burial grounds, cemeteries, and ceremonial sites. Ensure appropriate treatment of Native American and other human remains discovered during a project.
>
> **Objective OSRC-19.6:** Develop and employ procedures to protect the confidentiality and prevent inappropriate public exposure of sensitive archaeological resources and Native American cultural resources, sacred sites, places, features, or objects.

Policy OSRC-19k: Refer applications for discretionary permits to the Northwest Information Center to determine if the project site might contain archaeological or historical resources. If a site is likely to have these resources, require a field survey and preparation of an archaeological report containing the results of the survey and include mitigation measures if needed.

Policy OSRC-19l: If a project site is determined to contain Native American cultural resources, such as sacred sites, places, features, or objects, including historic or prehistoric ruins, burial grounds, cemeteries, and ceremonial sites, notify and offer to consult with the tribe or tribes that have been identified as having cultural ties and affiliation with that geographic area.

Impacts

Methods of Analysis

As described above, a Cultural Resources Inventory Report was prepared for the Bordessa Ranch property in August 2018 (see Appendix D). The inventory included a review of the CHRIS records search provided by the NWIC, NAHC sacred lands file search, Native American coordination, historic research, and an intensive pedestrian survey of the site. The study also reviewed historical aerials (available since 1952) and topographic maps (available since 1935). The CHRIS records search included a review of their collection of mapped prehistoric, historical and built-environment resources, Department of Parks and Recreation (DPR) Site Records, technical reports, archival resources, and ethnographic references. Additional consulted sources included the National Register of Historic Places (NRHP), California Inventory of Historical Resources/CRHR and listed OHP Archaeological Determinations of Eligibility, California Points of Historical Interest, California Historical Landmarks, and Caltrans Bridge Survey information.

Thresholds of Significance

Consistent with Appendix G of the CEQA Guidelines and the County's General Plan, a significant impact would occur if development of the proposed project would do any of the following:

- Cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines Section 15064.5.
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5.
- Disturb any human remains, including those interred outside of formal cemeteries.
- Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural

landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

- Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or
- A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Significance Criteria not Applicable to the Proposed Project

Due to the location and characteristics of the proposed project, certain significance thresholds are not applicable and therefore, are not considered potential impacts. These thresholds are addressed briefly below and are not discussed further in this document.

The background literature and document search identified no previously recorded historic building resources within or in the immediate vicinity of the project site. Although the existing barn on the Bordessa Ranch property is greater than 45 years in age, it would be located outside of the proposed project APE. No buildings, including this barn, would be affected by the project. Therefore, the project would have no impact related to historical building resources and this issue is not further addressed.

Project Impacts and Mitigation Measures

3.5-1: Implementation of the proposed project could cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5. This impact is potentially significant.

The records search prepared for the project site and the pedestrian survey found no evidence of archaeological resources on the project site or in immediate vicinity. One unmapped prehistoric obsidian flake was identified during a previous archaeological survey (Origer and Barrow 2014); however, this resource was not identified in the survey conducted for the proposed project, and can be assumed to be outside the proposed project footprint or area of disturbance. The proposed trails and staging/parking area construction would be relatively limited in its level of disturbance and would not require any below-ground excavation. Work would include grading the access road and the two parking/staging areas to apply a gravel base. The trails would be constructed either by hand or using small equipment to grade and level a pathway and to install small wooden foot bridges. As described previously, portions of the project site intersect depositional environments such as low-slope drainages, terraces, and knolls suitable to support the presence of cultural deposits.

While no archaeological resources were identified during the records search or pedestrian survey, it is always possible to inadvertently uncover additional cultural resources during ground disturbing activities. An inadvertent archaeological discovery would be considered **potentially significant**.

Mitigation Measures

Implementation of Mitigation Measure CUL-1 would reduce impacts to archaeological resources to a less-than-significant level by requiring project work to stop in the vicinity of the resource and appropriate measures to be implemented to evaluate the significance of the find.

CUL-1 Discovery of Archaeological Resources. All construction crews shall be alerted to the potential to encounter archaeological material. This may be implemented through a pre-construction meeting attended by a qualified archaeologist, as part of a Worker Environmental Awareness Program (WEAP), and/or providing appropriate cultural resources training handouts to personnel prior to initiating work. In the event that cultural resources (sites, features, artifacts, or fossilized material) are exposed during construction activities, all construction work occurring within 100 feet of the find shall immediately stop until a qualified archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards, can evaluate the significance of the find and determine whether additional study is warranted. Depending upon the significance of the find under CEQA (14 CCR 15064.5(f); PRC Section 21082), the archaeologist may simply record the find and allow work to continue. Prior to any potentially destructive evaluation efforts such as excavation, the feasibility of resource avoidance should be first considered and discussed with the County. If the discovery proves significant under CEQA, additional work, such as preparation of an archaeological treatment plan, testing, or data recovery may be warranted.

3.5-2: Implementation of the proposed project could disturb human remains, including those interred outside of formal cemeteries. This impact is considered less than significant.

No previously identified human remains were identified during the records search or Native American consultation. The pedestrian survey also found no indication of human remains. Nevertheless, it is possible to inadvertently uncover human remains during ground disturbing project activity, such as grading. If human remains or human bones are unearthed during construction activities the county and/or their contractor is required to comply with Section 5097.98 of the California Public Resources Code and Section 7050.5 of the California Health and Safety Code, as well as California Environmental Quality Act Guidelines Section 15064.5(e), which all required that in the event of the discovery of human remains, work shall be suspended within 100 feet of the find, and the Sonoma County Coroner shall be immediately notified and no further excavation or disturbance of the site can occur until the county coroner

has determined the appropriate treatment and disposition of the human remains. If the county coroner determines that the remains are, or are believed to be, Native American consistent with Section 5097.98, the NAHC would immediately notify those persons it believes to be the most likely descendant from the deceased Native American. Compliance with existing laws would ensure if there is an inadvertent discovery of human remains or human bone the impact would be reduced to **less than significant**.

Mitigation Measures

No mitigation measures are required.

3.5-3: Implementation of the proposed project could cause a substantial adverse change in the significance of a tribal cultural resource that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources, or a resource determined by the lead agency to be significant. This impact is considered potentially significant.

Dudek contacted the NAHC to request a review of the SLF. The NAHC responded to Dudek's request, stating that the SLF search was conducted with "negative results." The County sent letters to all California Native American tribes traditionally and culturally affiliated with the project area requesting notification pursuant to AB 52. None of the tribes contacted requested consultation pursuant to Public Resources Code Section 21080.3.1.

Based on a review of the Cultural Resources evaluation conducted for the project site there are no known tribal cultural resources present, as defined in Public Resources Code Section 21074, on the project site or in its immediate vicinity. The Bordessa Ranch property has historically been used for cattle grazing operations and is largely undeveloped. The CHRIS records search conducted for the project area did not identify any previously recorded tribal cultural resources on the project site (Appendix D).

As previously stated, no archaeological sites were found on the project site or in the immediate vicinity during the records search or the intensive pedestrian survey conducted for the project site. Furthermore, no resource that is significant according to Public Resources Code Section 5024.1 was identified on the project site through archival research or visual historical inventory.

Despite this, the potential for unknown tribal cultural resources to be encountered during project ground-disturbing activities still exists. This is considered a **potentially significant impact**.

Mitigation Measures

While no tribal cultural resources have been identified that may be affected by the project, the following approach for the inadvertent discovery of TCRs has been prepared to ensure there are

no impacts to unanticipated resources. Implementation of Mitigation Measure CUL-2 would require project work to stop if any TCRs are unearthed and appropriate measures to be implemented to evaluate the significance of the find. This would ensure potential impacts would be less than significant.

CUL-2 Tribal Cultural Resources. Should a potential tribal cultural resource (TCR) be inadvertently encountered, construction activities near the encounter shall be temporarily halted and the County notified. The County shall notify Native American tribes that have been identified by the NAHC to be traditionally and culturally affiliated with the geographic area of the project. If the unanticipated resource is archaeological in nature, appropriate management requirements shall be implemented as outlined in mitigation measure CUL-1. If the County determines that the potential resource appears to be a TCR, any affected tribe shall be provided a reasonable period of time to conduct a site visit and make recommendations regarding future ground disturbance activities as well as the treatment and disposition of any discovered tribal cultural resources. Depending on the nature of the potential resource and Tribal recommendations, review by a qualified archaeologist may be required. Implementation of proposed recommendations shall be made based on the determination of the County that the approach is reasonable and feasible. All activities shall be conducted in accordance with regulatory requirements.

Cumulative Impacts

This cumulative impact analysis relies on buildout of the County's 2020 General Plan and does not use a list of specific pending or reasonably foreseeable development proposals in the general vicinity of the proposed project.

The geographic scope or cumulative context for the evaluation of potential cumulative impacts on cultural resources is Sonoma County. While the project-specific impact analysis for cultural resources necessarily includes separate analyses for prehistoric resources, historic-period resources, tribal cultural resources, and human remains, the cumulative analysis combines these resources into a single, non-renewable resource base and considers the additive effect of project-specific impacts to significant regional impacts on cultural resources.

3.5-5: The proposed project could contribute to cumulative losses of prehistoric and historic-period resources, human remains, and tribal cultural resources within Sonoma County. This is a potentially considerable contribution to an existing cumulative impact.

The Sonoma County General Plan EIR identified that development under the County's General Plan could result in significant impacts to historic, archaeological, and human remains. The

General Plan EIR determined that impacts resulting from disturbance of subsurface archaeological and human remains would be significant and unavoidable. Although policies set forth in the General Plan would reduce impacts to cultural resources, development within the County could still result in cumulative impacts to cultural resources because some land uses and development are not subject to County review and mitigation (Sonoma County 2006).

Numerous laws, regulations, and statutes, on both the federal and state levels, seek to protect cultural resources. These would apply to development within and outside the county. In addition, the County's 2020 General Plan provides local policies that safeguard cultural resources from unnecessary impacts. These policies include Policy OSRC-19k, which requires that applications for discretionary permits are referred to the Northwest Information Center to determine if the project site may contain archaeological or historical resources and an archaeological survey and mitigation measures if the site is determined to have potential for cultural resources, and Policy OSRC-19l, which requires that tribes with cultural affiliation to the geographic area be notified and consulted if Native American cultural resources are found on a project site. Because all significant cultural resources and human remains are unique and non-renewable members of finite classes, all adverse effects or negative impacts erode a dwindling resource base. Although unlikely, there is the potential the proposed project could adversely affect significant cultural resources that are unique and non-renewable members of finite classes if discovered contributing to a potentially considerable contribution. Therefore, the project's incremental contribution to the cumulative loss of cultural resources is considered **potentially significant.**

Mitigation Measures

Implementation of Mitigation Measures CUL-1 and CUL-2 provide specific procedures to follow in the event a resource is identified. The procedures require work to stop in the event a resource is discovered and an archaeologist and/or Native American representative contacted to determine the appropriate course of action depending on the resource. Compliance with this measure, along with Section 5097.98 of the California Public Resources Code, Section 7050.5 of the California Health and Safety Code, and Section 15064.5(e) of the CEQA Guidelines, would ensure that potential impacts to previously unidentified subsurface resources are mitigated to a less-than-significant level and the project's incremental contribution would be reduced to less than significant**.**

CUL-3 Implement Mitigation Measures CUL-1 and CUL-2.

References

Chapman, Charles. 1920. "Sebastian Vizcaino: Exploration of California", in *Southwestern Historical Quarterly.* 23(4).

Fredrickson, D.A. 1974. “Cultural Diversity in Early Central California: A View from the North Coast Ranges.” *Journal of California Anthropology* 1(1): 41–53.

Fredrickson, D.A. 1994. “Archaeological Taxonomy in Central California Revisited.” In *Toward a New Taxonomic Framework for Central California Archaeology: Essays by James A. Bennyhoff and David A. Fredrickson*, edited by R.E. Hughes, 91–103. Contributions of the University of California Archaeological Research Facility no 52.

Grunsky, F. R. 1989. Pathfinders of the Sacramento Region: They Were There Before Sutter. Sacramento County Historical Society.

Heizer, Robert F. 1941. “Archaeological Evidence of Sebastian Rodriquez Cermeno’s California Visit in 1595”, in *California Historical Society Quarterly.* 20(4), San Francisco.

Kelly, I. 1978. “Coast Miwok.” In *Handbook of the North American Indians*, Volume 8, California, edited by R.F. Heizer, Volume 8, 414–425. Washington, DC: Smithsonian Institution.

Koenig, Heidi. 2009. Historic Property Survey Report for the Marin Countywide Bicycle Parking Pilot Program, Marin County, California

Kroeber, A.L. 1925. *Handbook of the Indians of California.* Bureau of American Ethnology Bulletin 78. New York, New York: Dover Publications Inc.

Milliken, R. 2009. *Ethnohistory and Ethnogeography of the Coast Miwok and Their Neighbors, 1783–1840*. Report prepared by Archaeological/Historical Consultants for National Park Service, Golden Gate National Recreation Area. Accessed June 1, 2015. https://data.doi.gov/dataset/ethnohistory-and-ethnogeography-of-the-coast-miwok-and-their-neighbors-1783-1840.

Origer, T. and E. Barrow 2014. A Cultural Resources Survey of a Portion of the Bordessa Ranch, 17000 Highway 1, Valley Ford, Sonoma County, California.

Sonoma County. 2006. Sonoma County General Plan 2020 Draft Environmental Impact Report. January 2006.

Sonoma County. 2016. Sonoma County General Plan 2020. Adopted September 23, 2008/ Amended August 2, 2016.

Wallace, W. 1955. “Suggested Chronology for Southern California Coastal Archaeology.” *Southwestern Journal of Anthropology* 11:214–230.

3.6 Geology and Soils

Introduction

This section of the Draft Environmental Impact Report (EIR) presents potential impacts to geology and soils of the Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas and Construction and Operation of Recreational Amenities project (proposed project). This section presents the environmental setting, regulatory framework, impacts of the proposed project on the environment, and proposed measures to mitigate any identified significant impacts.

No comments were received that raised concerns regarding geology and soils in response to the Notice of Preparation (NOP) or on the prior Mitigated Negative Declaration prepared for the project in October 2016. See Appendix A for a copy of the NOP and complete list of public comments received during the public scoping period.

To the extent that issues identified in public comments involve potentially significant effects on the environment according to the California Environmental Quality Act (CEQA), and/or were raised by responsible and trustee agencies or the public, they are identified and addressed in this EIR.

Environmental Setting

The project site is located in the northwestern portion of the Coast Ranges Geomorphic Province. The Coast Ranges span from northern to southern California along the state's coastline, subparallel to the active San Andreas Fault. Low mountain ranges and associated valleys characterize the Coast Ranges, and elevations typically range between 2,000 and 4,000 feet above sea level. The Coast Ranges primarily consist of thick late Mesozoic and Cenozoic sedimentary rocks. In some areas, the topography of the Coast Ranges is subject to the irregular, knobby outcrops of the landslide-prone rocks of the Franciscan Complex (CGS 2002).

Topography

Elevations within the project site range from sea level at the Estero American (Estero) to about 400 feet at the highest knoll on the northwestern corner of the site. The topography is characterized as rolling hills with a central valley created by a drainage that drains into the Estero at the southern end of the site.

Geology

The geologic units present on site—from youngest to oldest—are (CGS 2008):

- ***Alluvial Fan and Fluvial Deposits (Qal)****:* This is a Holocene-age geologic unit mapped along downstream ends of the stream channels and along Estero Americano. It consists

of medium to dark gray, dense, sandy to silty clay. Lenses of coarser material (silt, sand, and pebbles) may be locally present.

- ***Wilson Grove Formation (Twg)****:* This is a late Pliocene to late Miocene geologic unit mapped on most of the elevated and flatter portions of the site. It consists of mostly massive or thick-bedded, buff weathering, light-gray, fine-grained quartz-lithic arenite. It also locally includes beds of mollusk- and gastropodshell hash, pebble to boulder conglomerate, and tuff. Fossils from the Wilson Grove Formation range in age from late Miocene to late Pliocene.
- ***Graywacke and mélange (KJfs)****:* This is a Cretaceous- to Jurrassic-age unit mapped in a narrow band along the steeper hillslopes descending toward Estero Americano. It consists of massive to distinctly bedded, brown-, orange-, and white-weathering, green to gray, lithic wacke and dark-gray or black siltstone, shale, and slate, grading into mélange consisting of sheared argillite and greywacke matrix enclosing blocks and lenses of sedimentary, metamorphic, and volcanic rocks.

Soils

Overlying the geologic units described above (aside from rock outcrops and portions of active floodplains) is a mantle of soil that varies in thickness and character. In general, soil characteristics are strongly governed by slope, relief, climate, vegetation, and the geologic unit upon which they form. Soil types are important in describing engineering constraints such as erosion and runoff potential, corrosion risks, and various behaviors that affect structures, such as expansion and settlement.

Expansive soils increase in volume when they absorb water and shrink when they dry out. Expansion often occurs in soils that have clay minerals, primarily montmorillonite and illite (a non-expanding clay mineral). Damage from expansive soils can impact roadways, pavements, and other flat construction.

Table 3.6-1 lists the soil units mapped on the proposed project site, and their key physical characteristics. The soil map units on site are generally comprised of sandy loams, loams, and clayey loams with erosion and runoff characteristics that are neither very rapid nor very slow. Absorption of water and runoff is moderate or slow. Slopes of the soil map units range from near 0 to 50%.

Table 3.6-1
Soil Types Underlying the Project Site

Soil Type	Association	Shrink/ Swell Potential[a]	Erosion Hazard[b]	Runoff Potential[c]	Hydro Group[d]
Blucher fine sandy loam, overwash, 0 to 2 percent slopes	Pajaro Association	M	S	S	C

Table 3.6-1
Soil Types Underlying the Project Site

Soil Type	Association	Shrink/ Swell Potential[a]	Erosion Hazard[b]	Runoff Potential[c]	Hydro Group[d]
Kneeland sandy loam, sandy variant, 2 to 15 percent slopes	Kneeland-Rohnerville-Kinman Association	M	M	M	C
Kneeland rocky sandy loam, sandy variant, 9 to 30 percent slopes	Kneeland-Rohnerville-Kinman Association	M	M,H	R,M	C
Los Osos clay loam, thin solum, 30 to 50 percent slopes	Steinbeck-Los Osos Association	H,M	H	R	C
Steinbeck loam, 2 to 9 percent slopes	Steinbeck-Los Osos Association	M	M,S	M,S	B
Steinbeck loam, 9 to 15 percent slopes	Steinbeck-Los Osos Association	M	M	M	B
Steinbeck loam, 9 to 15 percent slopes, eroded	Steinbeck-Los Osos Association	M	M	M	B
Steinbeck loam, 15 to 30 percent slopes, eroded	Steinbeck-Los Osos Association	M	M	M	B
Steinbeck loam, 30 to 50 percent slopes, eroded	Steinbeck-Los Osos Association	M	H	R	B

Notes:
[a] H = High, M=Moderate, L=Low
[b] VH= Very High, H=High, M=Moderate, S=Slight
[c] VR= Very Rapid, R=Rapid, M=Moderate, S=Slight
[d] A=Absorbs water rapidly, low runoff potential, B= Absorbs water moderately; moderate runoff potential, C= Absorbs water slowly; moderate runoff potential, D= Absorbs water very slowly; high runoff potential
Source: USDA 2017, Sonoma County 2006, USDA 1972.

Faults and Seismicity

Sonoma County is located at the active plate margin between the North American Plate and Pacific Plate, which is defined by the San Andreas Fault system. The San Andreas Fault system is a zone of active, dormant, and inactive faults surrounding and including the San Andreas Fault, which occurs along most of the western boundary of California. The San Andreas Fault is the only fault within the County with known surface displacement during historic times (Sonoma County 2006). In 1906, a magnitude 8.3 earthquake occurred along this fault and resulted in an average 15 feet horizontal displacement and fault rupture throughout Sonoma County from the

Gualala area to the Bodega Bay area. In addition, the Healdsburg, Rodgers Creek, and Mayacamas faults have had surface displacement within the past 11,000 years and are considered active faults (Sonoma County 2006). The County's General Plan considers the San Andreas and Rodgers Creek faults the two most important faults within Sonoma County for planning purposes (Sonoma County 2014a).

Figure PS-1b of the Sonoma County General Plan 2020 depicts major fault hazard zones within the County. The project site is not located within a major fault hazard zone (Sonoma County 2014a, Figure PS-1b).

Fault Rupture

The Alquist Priolo (AP) Earthquake Fault Zoning Act was passed in 1972 to mitigate the hazard of surface faulting to structures for human occupancy. In accordance with this act, the state geologist established regulatory zones, called "earthquake fault zones," around the surface traces of active faults and published maps showing these zones. Each earthquake fault zone extends approximately 200 to 500 feet on either side of the mapped fault trace, because many active faults are complex and consist of more than one branch. A review of the AP Earthquake Fault maps shows that the project site is not located within an AP fault zone (DOC 1974). The closest edge of an AP fault zone is an on-shore strand of the San Andreas Fault Zone, located approximately just over 1 mile to the southwest of the site (DOC 1972).

Seismic Ground Shaking

The primary tool that seismologists use to evaluate ground shaking hazard and characterize statewide earthquake risks is a probabilistic seismic hazard assessment (PSHA). The PSHA for the State of California takes into consideration the range of possible earthquake sources and estimates their characteristic magnitudes to generate a probability map for ground shaking. The PSHA maps depict values of peak ground acceleration (PGA) that have a 10% probability of being exceeded in 50 years (or a 1 in 475 chance). This probability level allows engineers to design structures for ground motions that have a 90% chance of not occurring in the next 50 years, making structures safer than if they were simply designed for the most likely events. Although the project proposes no habitable structures, the PGA still provides a useful estimate of ground shaking that can be reasonably expected to occur on the project site.

Based on the California Geological Survey's Probabilistic Seismic Hazards Mapping Ground Motion Page, there is a 10% probability of earthquake ground motion exceeding 0.48 g at the project site over a 50-year period (DOC 2008). According to the County's General Plan Environmental Impact Report (EIR), the County has a 70% probability of experiencing ground shaking from at least one major earthquake (magnitude 6.7 or greater) by 2030 (Sonoma County 2006). Bay and valley margin areas are most susceptible to ground shaking from earthquakes (Sonoma County 2006).

Figure PS-1a of the Sonoma County General Plan 2020 depicts areas within the County that are subject to strong, very strong, or violent ground shaking hazards based on the projected relative intensity of ground shaking and damage during a potential earthquake magnitude of 8.0 on the Northern San Andreas fault and a potential earthquake magnitude of 7.3 on the Hayward/Rodgers Creek fault. The project site is characterized on this map as being within an area of very strong to violent ground shaking probability (Modified Mercalli Intensity Scale VIII to IX) (Sonoma County 2014b, Figure PS-1a).

Landslides

According to the Sonoma County General Plan 2020, the most common type of ground failure within the County is landsliding. Due to the varied topography of the County, and the area's seismicity, most parts of the County are susceptible to damaging landslides. Earthquake-induced landslides can occur due to ground deformation and secondary ground cracks after seismic activity. Seismic lurching occurs when soil or a rock mass moves toward features such as a sea cliff, road cut, or steep natural hillside, and can result in landslides. Heavy rainfall, human activities, or earthquakes can trigger or intensify landslides.

Figure PS-1d of the Sonoma County General Plan depicts the landslide susceptibility of areas within the County based on regional estimates of rock strength and slope steepness. The project site is characterized on this map as including areas that have very high landslide susceptibility intermingled with areas of low landslide susceptibility. Areas of very high landslide susceptibility include very steep slopes in hard rock and moderate to very steep slopes in weak rock (Sonoma County 2014c, Figure PS-1d).

Liquefaction

Liquefaction is a soil condition in which earthquake-induced ground motion causes an increase in soil water pressure in saturated, loose, sandy soils, resulting in loss of soil shear strength. Liquefaction can lead to near-surface ground failure, which may result in loss of foundation support and/or differential ground settlement.

The Sonoma County General Plan EIR specifies that the areas within the County that are most susceptible to liquefaction are the silty "Bay muds" south of Petaluma and Sonoma and near Bodega Bay (Sonoma County 2006). Because areas that contain saturated unconsolidated alluvium with a fairly uniform grain size are also susceptible to liquefaction, alluvial basins within Sonoma County have the potential for liquefaction, especially during winter and spring when the ground water table is higher due to precipitation (Sonoma County 2006).

Figure PS-1c of the Sonoma County General Plan 2020 depicts the liquefaction susceptibility of areas within the County. The project site is not designated as having a very high, high, or medium

liquefaction hazard by the County (Sonoma County 2014d, Figure PS-1c). Due to the coarse scale of the map, it does not distinguish small scale features like streams and/or narrow estuaries. Based on the geology and soils present on site, it is possible that the lower sections of the streams where they meet the Estero could be subject to liquefaction in a regionally significant earthquake.

Paleontological Resources

The project site is located in central Sonoma County, near the community of Valley Ford. In this area, surface-mapped sedimentary deposits include unnamed Quaternary (Holocene age) alluvial deposits and late Pliocene to late Miocene age (approximately to 11.63 to 2.58 million years ago [Ma]) Wilson Grove Formation (CGS 2008; Cohen et al. 2013). The Quaternary alluvium is associated with drainages and consists of fan- and fluvial-derived deposits according to published mapping by CGS. These surficial, Holocene age (less than approximately 11,700 years old) alluvial deposits have low paleontological resource sensitivity due to their young age (Cohen et al. 2013). However, the older deposits assigned to the Wilson Grove Formation in this area have produced scientifically significant fossils and has high paleontological resource sensitivity (Powell et al. 2004).

Past excavation and trenching activities in the area surrounding the project site have encountered paleontological resources within the Wilson Grove Formation. This formation represents a shallow marine and terrestrial depositional environment from Pliocene and Miocene time and has produced important invertebrate fossils elsewhere in Sonoma County (Powell et al. 2004).

Regulatory Setting

Federal Regulations

Paleontological Resources Protection Act

The Paleontological Resources Protection Act (PRPA) of 2009 requires the Secretaries of the Interior and Agriculture to manage and protect paleontological resources on federal land. The Federal Highway Act of 1935 (20 United State Code [USC] 78) addresses paleontological resources. Section 305 of the Act (20 USC 78, 78a) gives authority to use federal funds to salvage archaeological and paleontological sites that are impacted by highway projects. There are several other laws and regulations that also address paleontological resources either directly or indirectly, such as the Antiquities Act of 1906 (16 USC 431-433), Archeological and Paleontological Salvage (23 USC 305), and the National Environmental Policy Act of 1969 (42 USC 138; 49 USC 1653).

State Regulations

Alquist Priolo Earthquake Fault Zoning Act

Surface rupture is the most easily avoided seismic hazard. The Alquist Priolo Earthquake Fault Zoning Act was passed in 1972 to mitigate the hazard of surface faulting to structures for human occupancy. In accordance with this act, the state geologist established regulatory zones, called "earthquake fault zones," around the surface traces of active faults and published maps showing these zones. Within these zones, buildings for human occupancy cannot be constructed across the surface trace of active faults. Each earthquake fault zone extends approximately 200 to 500 feet on either side of the mapped fault trace, because many active faults are complex and consist of more than one branch. This statute is not applicable to the project because it does not involve structures for human occupancy and is not crossed by an earthquake fault zone as defined in the Act.

Seismic Hazards Mapping Act

The California Geological Survey, CGS, provides guidance with regard to seismic hazards. Under the CGS Seismic Hazards Mapping Act, seismic hazard zones are to be identified and mapped to assist local governments for planning and development purposes. The intent of the Act is to protect the public from the effects of strong ground shaking, liquefaction, landslides, or other types of ground failure, and other hazards caused by earthquakes. CGS Special Publication 117, Guidelines for Evaluating and Mitigating Seismic Hazards in California, provides guidance for evaluation and mitigation of earthquake-related hazards for projects within designated zones of required investigations. This statute is not applicable to the project because it does not involve structures for human occupancy and because seismic hazards mapping has not been conducted in the area.

Paleontological Resources

Paleontological resources are afforded consideration under CEQA (Title 14, Division 6, Chapter 3, California Code of Regulations: 15000 et seq.). Public Resources Code (PRC) Section 5097.5 specifies that any unauthorized removal of paleontological remains is a misdemeanor. Further, the California Penal Code Section 622.5 sets the penalties for damage to or removal of paleontological resources.

Local Regulations

The following local/regional regulations pertaining to geology and soils would apply to the proposed project.

Sonoma County General Plan 2020

The Public Safety Element of the Sonoma County General Plan provide objectives, policies, and programs regarding Geology and Soils, including the following:

Goal PS-1: Prevent unnecessary exposure of people and property to risks of damage or injury from earthquakes, landslides, and other geologic hazards.

Policy PS-1b: Continue to use studies of geologic hazards prepared during the development review process.

Policy PS-1f: Require and review geologic reports prior to decisions on any project which would subject property or persons to significant risks from the geologic hazards areas shown on Public Safety Element hazard maps and related file maps and source documents. Geologic reports shall describe the hazards and include mitigation measures to reduce risks to acceptable levels. Where appropriate, require an engineer's or geologist's certification that risks have been mitigated to an acceptable level and, if indicated, obtain indemnification or insurance from the engineer, geologist, or developer to minimize County exposure to liability.

Impacts

Methods of Analysis

The project setting was developed by reviewing available information on geology and soils in the project vicinity, including the County's General Plan, Sonoma County General Plan 2020 EIR, Sonoma County Soil Survey, and Natural Resources Conservation Service Web Soil Survey. Records of on-site geologic and soil characteristics from CGS were used to classify geologic hazards associated with the project site.

It is important to note impacts of the environment on a project or plan (as opposed to impacts of a project or plan on the environment) are beyond the scope of required CEQA review. "[T]he purpose of an EIR is to identify the significant effects of a project on the environment, not the significant effects of the environment on the project" (*Ballona Wetlands Land Trust v. City of Los Angeles* (2011) 201 Cal.App.4th 455, 473 and *California Building Industry Association v. Bay area Air Quality Management District* (2015) Cal.App 4th.). However, information pertaining to potential impacts associated with the environment on the project are included for informational purposes.

Thresholds of Significance

Consistent with Appendix G of the CEQA Guidelines and the County's General Plan, a significant impact would occur if development of the proposed project would do any of the following:

- Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

  - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42;
  - Strong seismic ground shaking;
  - Seismic-related ground failure, including liquefaction;
  - Landslides.
- Result in substantial soil erosion or the loss of topsoil.
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.
- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.
- Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water.
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

Significance Criteria Not Applicable to the Proposed Project

Due to the location and characteristics of the proposed project, certain significance thresholds are not applicable to the proposed project and therefore, are not considered potential impacts. These thresholds are addressed briefly below and are not discussed further in this document.

The proposed project does not include any residences or buildings that would require water or sewer services. No septic tanks or alternative wastewater disposal systems are included in the proposed project. Restrooms would consist of a portable unit serviced weekly or as frequently as necessary to maintain sanitary conditions. Therefore, the project would have no impact related to septic tanks or alternative wastewater disposal systems and these issues are not further evaluated.

Project Impacts and Mitigation Measures

3.6-1: Implementation of the proposed project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map. This is a less-than-significant impact.

As described above, the closest known active fault traces are those of the San Andreas Fault, approximately 1 mile southwest of the project site (DOC 1974). Because the project site is not located on the trace of an Alquist-Priolo Fault Zone or any other potentially active fault, fault-line surface rupture would not be a hazard within the project area. In addition, the project does not include any buildings that could be impacted in the event of an earthquake. Therefore, impacts related to fault rupture potential would be **less than significant**.

Mitigation Measures

No mitigation measures are required.

3.6-2: Implementation of the proposed project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking. This is a less-than-significant impact.

The intensity of ground shaking depends on the distance from the earthquake epicenter to the site, the magnitude of the earthquake, site soil conditions, and the characteristics of the source. As described previously, the Sonoma County General Plan 2020 determined that the project site is located within an area of very strong to violent ground shaking (Sonoma County 2016). Visitors to the project site could be exposed to strong ground-shaking during an earthquake on the San Andreas fault. However, the proposed project would not construct any buildings, and the project site would largely remain open and free of structures that could pose hazards during an earthquake. The use of the project site for low-intensity recreational uses would result in a low risk of loss, injury, or death involving seismic ground shaking. Therefore, impacts related to exposing people to seismic risks would be **less than significant**.

Mitigation Measures

No mitigation measures are required.

3.6-3: Implementation of the proposed project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction. This is a less-than-significant impact.

Soil liquefaction most commonly occurs when ground shaking from an earthquake causes a sediment layer saturated with groundwater to lose strength and take on the characteristics of a fluid, thus becoming similar to quicksand. Factors determining the liquefaction potential are the level and duration of seismic ground motions, the type and consistency of soils, and the depth to groundwater. Loose sands and peat deposits, uncompacted fill and other Holocene materials

deposited by sedimentation in rivers and lakes (fluvial or alluvial deposits), and debris or eroded material (colluvial deposits) are the most susceptible to liquefaction.

The project site is not designated as having a very high, high, or medium liquefaction hazard by the County (Sonoma County 2014). The proposed project does not include constructing any buildings that could be impacted if liquefaction were to occur. Construction of trails and staging or parking areas would not expose people to significant safety hazards associated with liquefaction, and the use of the project site for low-intensity recreational uses would result in a very low risk of loss, injury, or death involving liquefaction. Therefore, the impact is considered **less than significant.**

Mitigation Measures

No mitigation measures are required.

3.6-4: Implementation of the proposed project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides. This is a less-than-significant impact.

The highly fractured rock formations, steep topography, long coastline, and seismic activity within the County make it especially susceptible to landsliding (Sonoma County 2006). Landslides are especially likely to occur along coastal bluffs and steep streams or riverbanks, and in hilly terrain. Figure PS-1d of the Sonoma County General Plan depicts the landslide susceptibility of areas within the County based on regional estimates of rock strength and slope steepness. Landslide areas designated as high to very high landslide susceptibility on these maps have the potential for adverse impacts.

The project site is characterized on this map as including areas that have a low to moderate landslide susceptibility intermingled with areas of very high landslide susceptibility (Sonoma County 2014). The landslide susceptibility map included in the general plan is based solely on slope and geology, and is prepared at a statewide scale. However, based on a geologic map at a 1:24,000 scale, there are no existing landslides mapped on the project site (CGS 2008), but the areas underlain by Wilson Grove Formation with a slope of more than 30% are likely to be mapped in the very high susceptibility category. A portion of the Trail Easement would cross Figure PS-1bthese areas.

The proposed project would construct two 5-foot-wide pedestrian-only trails, two associated staging areas for parking lots and trailhead access, and would improve the access road within the designated Trail Easement. The main access road on the site would be widened to 12-feet wide and re-graded with a gravel base. The bridge would be replaced and paved with asphalt or concrete. The bridge would be designed to span from bank to bank to eliminate disturbance or construction in the channel. The future development of the staging areas would likely include

relocation and extension of the existing access road to both staging areas. Excavations for these improvements are expected to be minimal.

Typical trail building and construction techniques, consistent with County Regional Park's standards, would be sufficient to avoid or minimize exposure of people to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides. Though construction of trails, approximately 5-feet in width, would require cuts into the hillside, these would be minor in depth and insufficient to affect the global stability of the hillside. Periodic monitoring of the site by County staff would take note of any issues associated with soil sloughing or soil creep, especially following intense rain events, and if necessary, would stabilize such areas in accordance with Regional Parks' standard practice. Therefore, impacts related to landslides would remain **less than significant**.

Mitigation Measures

No mitigation measures are required.

3.6-5: Implementation of the proposed project would not result in substantial soil erosion or the loss of topsoil. This is a less-than-significant impact.

As shown in Table 3.6-1, the project site possesses soils with a varying degree of erosion hazard and permeability. Soils with high erosion hazards are primarily located in the southern portion of the site, near the Estero, with Steinbeck loam (30-50% slopes, eroded) occurring in the northwestern portion of the site (USDA 2017). Construction and use of proposed trail corridors and staging areas, and widening, relocation, extension, and use of the access road, has the potential to result in erosion. However, to address potential erosion issues and to provide access through the tidal or mud flat area near the Estero during project operation the County is proposing to use a roll-out surface protection mat that would be approximately 5-feet wide and 400-feet long. The protection mat would begin at the bottom of the slope and would cross the mud flats to allow access to the Estero, if the County decides to provide access to the Estero. Two systems are under consideration which are similar in style and performance; both are open mesh or grate-like hard plastic panels that snap together and secure with clips as well as anchors that secure the mats to the soil. GeoSystems provides the GeoRunner (a harder plastic grate-like mat), and the GeoTerra (a more flexible mat). Both allow sunlight to penetrate beneath the mat to allow vegetation to continue to grow-further allowing stabilization of the soil under the mats.

Construction activities, such as grading, is expected to result in land disturbance of less than five acres; which includes construction of five-foot wide trails and two small staging areas. However, short-term temporary construction-related disturbance could occur within the 50-foot-wide trail corridors which includes approximately 30.3 acres, plus the 1.5 acres for the staging areas for a total area of 31.8 acres. Because implementation of the project would collectively require construction activities resulting in a land disturbance of more than one acre, the County is

required to obtain coverage under the Construction General Permit (SWRCB Order 2009-0009-DWQ, as amended), which pertains to pollution from grading and project construction. Coverage under the Construction General Permit requires a qualified individual to prepare a Stormwater Pollution Prevention Plan (SWPPP), which would address the potential for construction-related activities to contribute to pollutants within the project's receiving waterways, including contaminants produced from construction-related soil erosion or loss of topsoil. The SWPPP must demonstrate that a combination of best management practices (BMPs) would be implemented that are adequate to meet the discharge prohibitions, effluent standards, and receiving water limitations contained in Construction General Permit. BMP's include erosion control measures such as dust controls, stockpile containment and exposed soil stabilization structures (e.g., visqueen, fiber rolls, gravel bags and/or hydroseed). In addition, all earthwork, grading, trenching, backfilling and compaction operations would be conducted in accordance with the County's erosion control provisions of the Grading, Drainage, and Vineyard and Site Development Regulations (Chapter 11, Sonoma County Code), and Stormwater Quality Ordinance (Chapter 11A, Sonoma County Code). The BMPs required for coverage under the Construction General Permit and the County's erosion control provisions of the Grading and Stormwater Quality Ordinances would prevent soil erosion and topsoil impacts during project construction.

An acceptable degree of soil stability can be achieved by the required incorporation of soil treatment programs (e.g., compaction, drainage control, lime treatment) in the excavation and construction plans to address site-specific soil conditions. Furthermore, widening of the access road and construction of the staging areas would include a gravel base and trail access to the Estero would use the GeoSystems technology, which would reduce operational soil erosion from use of these features. Periodic inspections would reveal areas of erosion, if any, and would implement fixes as necessary. Such fixes may include placement of root wads or woody debris, placement of sandbags or gravel, and/or revegetation, as necessary.

As the project would implement BMP's to reduce erosion, comply with the County's erosion control requirements, and incorporate soil stabilization measures, impacts to soil erosion and loss of topsoil would be **less than significant.**

Mitigation Measures

No mitigation measures are required.

3.6-6: The proposed project would not be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse. This is a less-than-significant impact.

As stated previously, the project site is located in an area of low liquefaction potential, though landslide hazards vary across the project site (Sonoma County 2014d). The project does not

include the construction of any buildings that could be impacted by unstable soils including lateral spreading, subsidence, liquefaction or collapse. The use of the project site for low-intensity recreational uses would result in a low risk of loss, injury, or death involving unstable geology or soils. The impact would be **less than significant.**

Mitigation Measures

No mitigation measures are required.

3.6-7: The proposed project would not be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property. This is a less-than-significant impact.

Expansive soils shrink and swell as a result of moisture change. These volume changes can result in damage over time to building foundations, underground utilities, and other subsurface facilities and infrastructure if they are not designed and constructed appropriately to resist the damage associated with changing soil conditions. As shown in table 3.6-1, a review of USDA soil survey data indicates that the project area is composed of ten soil types which are characterized as having moderate shrink-swell potential (USDA 2017).

As mentioned previously, the project does not include construction of any buildings or structures that could be impacted by expansive soils. Should expansive soils affect trails, creek crossings, or staging areas, issues would be slow to develop, be detected by periodic monitoring of the site, and would be rectified, as needed. Expansive soils, if present, would be more of a site maintenance and repair issue, and would not have adverse impacts on public safety or the environment. Impacts would be **less than significant**.

Mitigation Measures

No mitigation measures are required.

3.6-8: The proposed project could directly or indirectly destroy a unique paleontological resource or site or unique geologic feature. No impact would occur.

As described previously, the project area contains surficial Holocene age alluvial deposits and late Pliocene to late Miocene age deposits of the Wilson Grove Formation (CGS 2008; Cohen et al. 2013). These surficial Holocene age alluvial deposits are considered to have low paleontological resource sensitivity due to their young age (Cohen et al. 2013). However, the older deposits assigned to the Wilson Grove Formation in this area have produced scientifically significant fossils and has high paleontological resource sensitivity (Powell et al. 2004).

While the project site has been heavily disturbed by grazing activities over the years, any excavation activities required to construct the trails, staging areas, and roadway widening is anticipated to be relatively shallow (less than three to five feet in depth). As such, any excavation activity is not anticipated to impact geological units with paleontological resource sensitivity (e.g., Wilson Grove Formation). Due to the limited ground disturbance required to construct this project (less than five feet of excavation) and the disturbed nature of the ground surface due to existing grazing activities, **no impacts** to paleontological resources are anticipated.

Mitigation Measures

No mitigation measures are required.

Cumulative Impacts

The geographic context considered for cumulative geology and soils impacts is the project site and immediate surroundings. As described above, all impacts related to geologic hazards and soils would be less than significant with implementation of the proposed project. The project would not increase geologic hazards on the project site or within the surrounding area.

3.6-9: The proposed project would not contribute to cumulatively significant impacts related to geology and soils. The project's contribution to an existing significant impact would not be considerable.

The General Plan EIR found that development under the General Plan would result in significant and unavoidable impacts related to risk of loss, injury, or death from seismic-related ground failures, landsliding, subsidence and settlement, soil erosion, and tsunamis and seiches. The proposed project involves development of two trail corridors and staging areas. No buildings or structures would be constructed. Therefore, although the General Plan EIR identifies cumulatively significant impacts related to geology and soils, the proposed project would not contribute to the cumulative impacts. The project's contribution would not be cumulatively considerable resulting in a less than significant contribution.

Mitigation Measures

No mitigation measures are required.

References

CGS (California Geological Survey). 2002. California Geomorphic Provinces: Note 36. December 2002.

CGS. 2008. Geologic Map of the Valley Ford 7.5' Quadrangle, Sonoma and Marin Counties, California: A Digital Database. Map scale 1:24,000. Revised 6/27/2008.

Cohen, K.M., S.C. Finney, P.L. Gibbard, and J.-X. Fan, 2013. The ICS International Chronostratigraphic Chart. Episodes 36: 199-204. Available at: http://www.stratigraphy.org/ICSchart/ChronostratChart2018-07.pdf

DOC (California Department of Conservation). 1972.

DOC. 1974. State of California Special Studies Zones: Valley Ford Quadrangle Map. July 1, 1974.

DOC (California Department of Conservation). 2008. Ground Motion Interpolator. Accessed April 10, 2010. Available at: http://www.quake.ca.gov/gmaps/PSHA/ psha_interpolator.html/

Powell, C.L., J.R. Allen, and P.J. Holland, 2004, Invertebrate paleontology of the Wilson Grove Formation (Late Miocene to Late Pliocene), Sonoma and Marin Counties, California, with some observations on its stratigraphy, thickness, and structure: U.S. Geological Survey Open-File Report 2004-1017, 105 p., 2 plates.

Society of Vertebrate Paleontology (SVP). 2010. Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources. 11 p. Available; http://vertpaleo.org/PDFS/68/68c554bb-86f1-442f-a0dc-25299762d36c.pdf. Sonoma County. 2016. Sonoma County General Plan 2020. August 2, 2016.

Sonoma County. 2006. Sonoma County GP 2020 Draft EIR: Geology and Soils. January 2006.

Sonoma County. 2014a. Figure PS-1b: Earthquake Fault Hazard Areas. September 9, 2014.

Sonoma County. 2014b. Figure PS-1a: Earthquake Ground Shaking Hazard Areas. September 9, 2014.

Sonoma County. 2014c. Figure PS-1d: Deep-seated Landslide Hazard Areas. September 9, 2014.

Sonoma County. 2014d. Figure PS-1c: Liquefaction Hazard Areas. September 9, 2014.

Sonoma County. 2016. Sonoma County. 2016. *Sonoma County General Plan 2020*. Adopted September 23, 2008. Amended August 2, 2016.

USDA (United States Department of Agriculture). 1972. Sonoma County Soil Survey. May 1972.

USDA (U.S. Department of Agriculture). 2017. Web Soil Survey. Accessed August 6, 2018. Available at: https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx.

3.7 Greenhouse Gas Emissions

Introduction

This section of the Draft Environmental Impact Report (EIR) presents potential impacts regarding greenhouse gas (GHG) emissions of the Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas and Construction and Operation of Recreational Amenities project (proposed project). This section presents the environmental setting, regulatory framework, impacts of the proposed project on the environment, and proposed measures to mitigate any identified significant impacts.

No comments were received that raised concerns regarding GHG emissions in response to the Notice of Preparation (NOP) or the prior Mitigated Negative Declaration that was prepared for the project in October 2016. See Appendix A for a copy of the NOP and complete list of public comments received during the public scoping period.

To the extent that issues identified in public comments involve potentially significant effects on the environment according to the California Environmental Quality Act (CEQA), and/or were raised by responsible and trustee agencies or the public, they are identified and addressed in this EIR.

Environmental Setting

Climate Change Overview

Climate change refers to any significant change in measures of Earth's climate, such as temperature, precipitation, and wind patterns, lasting for an extended period of time (decades or longer). The Earth's temperature depends on the balance between energy entering and leaving the planet's system. Many factors, both natural and human-caused, can cause changes in Earth's energy balance, including variations in the sun's energy reaching Earth, changes in the reflectivity of Earth's atmosphere and surface, and changes in the greenhouse effect, which affects the amount of heat retained by Earth's atmosphere (EPA 2017a).

The greenhouse effect is the trapping and build-up of heat in the atmosphere (troposphere) near the Earth's surface. The greenhouse effect traps heat in the troposphere through a threefold process, as follows: Short-wave radiation emitted by the sun is absorbed by the Earth, the Earth emits a portion of this energy in the form of long-wave radiation, and GHGs in the upper atmosphere absorb this long-wave radiation and emit it into space and toward the Earth. The greenhouse effect is a natural process that contributes to regulating the Earth's temperature and creates a pleasant, livable environment on Earth. Human activities that emit additional GHGs to the atmosphere increase the amount of infrared radiation that gets absorbed before escaping into space, thus enhancing the greenhouse effect and causing the Earth's surface temperature to rise.

The scientific record of the Earth's climate shows that the climate system varies naturally over a wide range of time scales, and that, in general, climate changes prior to the Industrial Revolution in the 1700s can be explained by natural causes, such as changes in solar energy, volcanic eruptions, and natural changes in GHG concentrations. Recent climate changes, in particular the warming observed over the past century, however, cannot be explained by natural causes alone. Rather, it is extremely likely that human activities have been the dominant cause of that warming since the mid-20th century, and is the most significant driver of observed climate change (EPA 2017a; IPCC 2013). Human influence on the climate system is evident from the increasing GHG concentrations in the atmosphere, positive radiative forcing, observed warming, and improved understanding of the climate system (IPCC 2013). The atmospheric concentrations of GHGs have increased to levels unprecedented in the last 800,000 years, primarily from fossil fuel emissions and secondarily from emissions associated with land use changes (IPCC 2013). Continued emissions of GHGs will cause further warming and changes in all components of the climate system, which is discussed further later in Potential Effects of Climate Change.

Greenhouse Gases

A GHG is any gas that absorbs infrared radiation in the atmosphere; in other words, GHGs trap heat in the atmosphere. As defined in California Health and Safety Code Section 38505(g) for purposes of administering many of the state's primary GHG emissions reduction programs, GHGs include carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) (see also CEQA Guidelines Section 15364.5).[1] Some GHGs, such as CO_2, CH_4, and N_2O, occur naturally and are emitted into the atmosphere through natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. For GHGs included in manufacturing and/or industrial processes, please refer to Appendix B for further details. The following paragraphs provide a summary of the most common GHGs and their sources.[2]

Carbon Dioxide. CO_2 is a naturally occurring gas and a by-product of human activities, and is the principal anthropogenic GHG that affects the Earth's radiative balance. Natural sources of CO_2 include respiration of bacteria, plants, animals, and fungus; evaporation from oceans; volcanic out-gassing; and decomposition of dead organic matter. Human activities that generate CO_2 are the combustion of fuels such as coal, oil, natural gas, and wood, and changes in land use.

Methane. CH_4 is produced through both natural and human activities. CH_4 is a flammable gas and is the main component of natural gas. Methane is produced through anaerobic (without

1 Climate-forcing substances include GHGs and other substances such as black carbon and aerosols. This discussion focuses on the seven GHGs identified in California Health and Safety Code Section 38505, so impacts associated with other climate-forcing substances are not evaluated herein.

2 The descriptions of GHGs are summarized from the Intergovernmental Panel on Climate Change's (IPCC) Second Assessment Report (1995), IPCC's Fourth Assessment Report (2007), California Air Resources Board's "Glossary of Terms Used in GHG Inventories" (CARB 2017a), and U.S. Environmental Protection Agency's "Glossary of Climate Change Terms" (EPA 2016).

oxygen) decomposition of waste in landfills, flooded rice fields, animal digestion, decomposition of animal wastes, production and distribution of natural gas and petroleum, coal production, and incomplete fossil fuel combustion.

Nitrous Oxide. N_2O is produced through natural and human activities, mainly through agricultural activities and natural biological processes, although fuel burning and other processes also create N_2O. Sources of N_2O include soil cultivation practices (microbial processes in soil and water), especially the use of commercial and organic fertilizers, manure management, industrial processes (such as in nitric acid production, nylon production, and fossil-fuel-fired power plants), vehicle emissions, and using N_2O as a propellant (such as in rockets, racecars, and aerosol sprays).

Water Vapor. The primary source of water vapor is evaporation from the ocean, with additional vapor generated by sublimation (change from solid to gas) from ice and snow, evaporation from other water bodies, and transpiration from plant leaves. Water vapor is the most important, abundant, and variable GHG in the atmosphere, and maintains a climate that is necessary for life.

Ozone. Tropospheric ozone, which is created by photochemical reactions involving gases from both natural sources and human activities, acts as a GHG. Stratospheric ozone, which is created by the interaction between solar ultraviolet radiation and molecular oxygen (O_2), plays a decisive role in the stratospheric radiative balance. Depletion of stratospheric ozone due to chemical reactions that may be enhanced by climate change results in an increased ground-level flux of ultraviolet-B radiation.

Aerosols. Aerosols are suspensions of particulate matter in a gas emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat, and can cool the atmosphere by reflecting light.

Global Warming Potential

Gases in the atmosphere can contribute to climate change both directly and indirectly. Direct effects occur when the gas itself absorbs radiation. Indirect radiative forcing occurs when chemical transformations of the substance produce other GHGs, when a gas influences the atmospheric lifetimes of other gases, and/or when a gas affects atmospheric processes that alter the radiative balance of the Earth (e.g., affect cloud formation or albedo (i.e., the reflection of radiation)) (EPA 2016). The Intergovernmental Panel on Climate Change (IPCC) developed the global warming potential (GWP) concept to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The GWP of a GHG is defined as the ratio of the time-integrated radiative forcing from the instantaneous release of 1 kilogram of a trace substance relative to that of 1 kilogram of a reference gas (IPCC 2014). The reference gas used is CO_2; therefore, GWP-weighted emissions are measured in metric tons (MT) of carbon dioxide equivalent (CO_2e).

Sources of GHG Emissions

According to California's 2000–2017 GHG emissions inventory (2019 edition), California emitted 424.09 MMT CO_2e in 2017, including emissions resulting from out-of-state electrical generation (California Air Resources Board [CARB] 2019). The sources of GHG emissions in California include transportation, industrial uses, electric power production from both in-state and out-of-state sources, commercial and residential uses, agriculture, high GWP substances, and recycling and waste. The California GHG emissions source categories (as defined in CARB's 2008 Climate Change Scoping Plan: A Framework for Change (Scoping Plan) (CARB 2008)) and their relative contributions in 2017 are presented in Table 3.7-1.

Table 3.7-1
Greenhouse Gas Emissions Sources in California

Source Category	Annual GHG Emissions (MMT CO_2e)	Percent of Total[a]
Transportation	169.86	40%
Industrial uses	89.40	21%
Electricity generation[b]	62.39	15%
Residential and commercial uses	41.14	10%
Agriculture	32.42	8%
High GWP substances	19.99	5%
Recycling and waste	169.86	2%
Total	**424.09**	**100%**

Source: CARB 2019.
Notes: GHG = greenhouse gas; MMT CO_2e = million metric tons of carbon dioxide equivalent; GWP = global warming potential. Emissions reflect 2017 California GHG inventory.
[a] Percentage of total has been rounded and total may not sum due to rounding.
[b] Includes emissions associated with imported electricity, which account for 23.94 MMT CO_2e.

Between 2000 and 2017, per capita GHG emissions in California have dropped from a peak of 14.1 MT per person in 2001 to 10.7 MT per person in 2017, representing a 24% decrease. In addition, total GHG emissions in 2017 were approximately 5 MMT CO_2e less than 2016 emissions. The declining trend in GHG emissions, coupled with programs that will continue to provide additional GHG reductions going forward, demonstrates that California will continue to reduce emissions below the 2020 target of 431 MT CO_2e (CARB 2019).

Total GHG emissions for all of Sonoma County in 2010 (the most recent year available) were estimated at approximately 1,004,500 MT CO_2e. Transportation emissions constituted 59% of the GHG emissions while building energy accounts for 35%. Other sources including solid waste, off-road transportation equipment, wastewater treatment, and water conveyance account for 3%, 2%, 1.1%, and 1% respectively. Total per capita GHG emissions from the County in 2010 were 12.1 MT CO_2e per person (Sonoma County 2016).

Potential Effects of Climate Change

Globally, climate change has the potential to affect numerous environmental resources through uncertain impacts related to future air temperatures and precipitation patterns. The 2014 Intergovernmental Panel on Climate Change Synthesis Report (IPCC 2014) indicated that warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. Signs that global climate change has occurred include warming of the atmosphere and ocean, diminished amounts of snow and ice, rising sea levels, and ocean acidification (IPCC 2014).

In California, climate change impacts have the potential to affect sea-level rise, agriculture, snowpack and water supply, forestry, wildfire risk, public health, frequency of severe weather events, and electricity demand and supply. The primary effect of global climate change has been a 0.2°C (0.36°F) rise in average global tropospheric temperature per decade, determined from meteorological measurements worldwide between 1990 and 2005. Scientific modeling predicts that continued emissions of GHGs at or above current rates would induce more extreme climate changes during the 21st century than were observed during the 20th century. A warming of approximately 0.2°C per decade is projected, and there are identifiable signs that global warming could take place.

Although climate change is driven by global atmospheric conditions, climate change impacts are felt locally. A scientific consensus confirms that climate change is already affecting California. The average temperatures in California have increased, leading to more extreme hot days and fewer cold nights. Shifts in the water cycle have been observed, with less winter precipitation falling as snow, and both snowmelt and rainwater running off earlier in the year. Sea levels have risen, and wildland fires are becoming more frequent and intense due to dry seasons that start earlier and end later (CAT 2010).

Model projections for precipitation over California continue to show the Mediterranean pattern of wet winters and dry summers, with seasonal, year-to-year, and decade-to-decade variability. For the first time, however, several of the improved climate models shift toward drier conditions by the mid- to late 21st century in central, and most notably, Southern California. By the late century, all projections show drying, and half of them suggest that 30-year average precipitation will decline by more than 10% below the historical average (CCCC 2012). Additional information is included in Appendix B.

Regulatory Setting

Federal Regulations

Massachusetts v. EPA.

In Massachusetts v. EPA (April 2007), the U.S. Supreme Court directed the EPA administrator to determine whether GHG emissions from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, or whether the science is too

uncertain to make a reasoned decision. In December 2009, the administrator signed a final rule with the following two distinct findings regarding GHGs under Section 202(a) of the federal Clean Air Act:

- The administrator found that elevated concentrations of GHGs—CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6—in the atmosphere threaten the public health and welfare of current and future generations. This is the "endangerment finding."
- The administrator further found the combined emissions of GHGs—CO_2, CH_4, N_2O, and HFCs—from new motor vehicles and new motor vehicle engines contribute to the GHG air pollution that endangers public health and welfare. This is the "cause or contribute finding."

These two findings were necessary to establish the foundation for regulation of GHGs from new motor vehicles as air pollutants under the Clean Air Act.

Energy Independence and Security Act of 2007

The Energy Independence and Security Act of 2007 (December 2007), among other key measures, would do the following, which would aid in the reduction of national GHG emissions (EPA 2007):

- Increase the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel by 2022.
- Set a target of 35 miles per gallon for the combined fleet of cars and light trucks by model year 2020, and directs the National Highway Traffic Safety Administration (NHTSA) to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for work trucks.
- Prescribe or revise standards affecting regional efficiency for heating and cooling products and procedures for new or amended standards, energy conservation, energy-efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances.

Federal Vehicle Standards

In response to the U.S. Supreme Court ruling discussed above, the Bush Administration issued Executive Order (EO) 13432 in 2007 directing the EPA, the Department of Transportation, and the Department of Energy to establish regulations that reduce GHG emissions from motor vehicles, non-road vehicles, and non-road engines by 2008. In 2009, the NHTSA issued a final rule regulating fuel efficiency and GHG emissions from cars and light-duty trucks for model year 2011, and in 2010, the EPA and NHTSA issued a final rule regulating cars and light-duty trucks for model years 2012–2016.

In 2010, President Barack Obama issued a memorandum directing the Department of Transportation, Department of Energy, EPA, and NHTSA to establish additional standards regarding fuel efficiency and GHG reduction, clean fuels, and advanced vehicle infrastructure. In response to this directive, EPA and NHTSA proposed stringent, coordinated federal GHG and fuel economy standards for model years 2017–2025 light-duty vehicles. The proposed standards projected to achieve 163 grams per mile of CO_2 by model year 2025 on an average industry fleet-wide basis, which is equivalent to 54.5 miles per gallon if this level were achieved solely through fuel efficiency. The final rule was adopted in 2012 for model years 2017–2021. On January 12, 2017, the EPA finalized its decision to maintain the current GHG emissions standards for model years 2022–2025 cars and light trucks (EPA 2017b).

In addition to the regulations applicable to cars and light-duty trucks described above, in 2011, the EPA and NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks for model years 2014–2018. The standards for CO_2 emissions and fuel consumption are tailored to three main vehicle categories: combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles. According to the EPA, this regulatory program will reduce GHG emissions and fuel consumption for the affected vehicles by 6%–23% over the 2010 baselines.

In August 2016, the EPA and NHTSA announced the adoption of phase two of the program related to the fuel economy and GHG standards for medium- and heavy-duty trucks. The phase two program will apply to vehicles with model years 2018 through 2027 for certain trailers, and model years 2021 through 2027 for semi-trucks, large pickup trucks, vans, and all types and sizes of buses and work trucks. The final standards are expected to lower CO_2 emissions by approximately 1.1 billion MT and reduce oil consumption by up to 2 billion barrels over the lifetime of the vehicles sold under the program (EPA and NHTSA 2016).

State Regulations

The statewide GHG emissions regulatory framework is summarized below by category: state climate change targets, building energy, renewable energy and energy procurement, mobile sources, solid waste, water, and other state regulations and goals. The following text describes executive orders, legislation, regulations, and other plans and policies that would directly or indirectly reduce GHG emissions and/or address climate change issues. For state regulations not included in the following text, please refer to Appendix B for further details.

State Climate Change Targets

Executive Order S-3-05

EO S-3-05 (June 2005) established the following statewide goals: GHG emissions should be reduced to 2000 levels by 2010, GHG emissions should be reduced to 1990 levels by 2020, and GHG emissions should be reduced to 80% below 1990 levels by 2050.

AB 32 and CARB's Climate Change Scoping Plan

In furtherance of the goals established in EO S-3-05, the Legislature enacted Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006. AB 32 requires California to reduce its GHG emissions to 1990 levels by 2020.

Under AB 32, CARB is responsible for and is recognized as having the expertise to carry out and develop the programs and requirements necessary to achieve the GHG emissions reduction mandate of AB 32. Under AB 32, CARB must adopt regulations requiring the reporting and verification of statewide GHG emissions from specified sources. This program is used to monitor and enforce compliance with established standards. CARB also is required to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emissions reductions. AB 32 relatedly authorized CARB to adopt market-based compliance mechanisms to meet the specified requirements. Finally, CARB is ultimately responsible for monitoring compliance and enforcing any rule, regulation, order, emissions limitation, emissions reduction measure, or market-based compliance mechanism adopted.

In 2007, CARB approved a limit on the statewide GHG emissions level for 2020, consistent with the determined 1990 baseline (427 MMT CO_2e). CARB's adoption of this limit is in accordance with Health and Safety Code Section 38550.

Further, in 2008, CARB adopted the Climate Change Scoping Plan: A Framework for Change (Scoping Plan) in accordance with Health and Safety Code Section 38561. The Scoping Plan establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions for various emission sources/sectors to 1990 levels by 2020. The Scoping Plan evaluates opportunities for sector-specific reductions, integrates all CARB and Climate Action Team early actions and additional GHG reduction features by both entities, identifies additional measures to be pursued as regulations, and outlines the role of a cap-and-trade program. The key elements of the Scoping Plan are the following (CARB 2008):

- Expanding and strengthening existing energy efficiency programs and building and appliance standards.
- Achieving a statewide renewable energy mix of 33%.

- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system and caps sources contributing 85% of California's GHG emissions.
- Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets.
- Adopting and implementing measures pursuant to existing state laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard.
- Creating targeted fees, including a public goods charge on water use, fees on high GWP gases, and a fee to fund the administrative costs of the state's long-term commitment to AB 32 implementation.

In the Scoping Plan, CARB determined that achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of approximately 28.5% from the otherwise projected 2020 emissions level (i.e., those emissions that would occur in 2020 absent GHG-reducing laws and regulations, referred to as "business-as-usual"). For purposes of calculating this percent reduction, CARB assumed that all new electricity generation would be supplied by natural gas plants, that no further regulatory action would impact vehicle fuel efficiency, and that building energy efficiency codes would be held at 2005 standards.

In the 2011 Final Supplement to the Scoping Plan's Functional Equivalent Document, CARB revised its estimates of the projected 2020 emissions level in light of the economic recession and the availability of updated information about GHG reduction regulations. Based on the new economic data, CARB determined that achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of 21.7% (down from 28.5%) from the business-as-usual conditions (CARB 2011). When the 2020 emissions level projection also was updated to account for newly implemented regulatory measures, including Pavley I (model years 2009–2016) and the Renewables Portfolio Standard (RPS) (12% to 20%) (CPUC 2015), CARB determined that achieving the 1990 emissions level in 2020 would require a reduction in GHG emissions of 16% (down from 28.5%) from the business-as-usual conditions.

In 2014, CARB adopted the First Update to the Climate Change Scoping Plan: Building on the Framework (First Update). The stated purpose of the First Update is to "highlight California's success to date in reducing its GHG emissions and lay the foundation for establishing a broad framework for continued emission reductions beyond 2020, on the path to 80% below 1990 levels by 2050" (CARB 2014). The First Update found that California is on track to meet the 2020 emissions reduction mandate established by AB 32, and noted that California could reduce emissions further by 2030 to levels squarely in line with those needed to stay on track to reduce emissions to 80% below 1990 levels by 2050, if the state realizes the expected benefits of existing policy goals.

In conjunction with the First Update, CARB identified "six key focus areas comprising major components of the state's economy to evaluate and describe the larger transformative actions that will be needed to meet the state's more expansive emission reduction needs by 2050" (CARB 2014). Those six areas are energy, transportation (vehicles/equipment, sustainable communities, housing, fuels, and infrastructure), agriculture, water, waste management, natural and working lands. The First Update identifies key recommended actions for each sector that will facilitate achievement of EO S-3-05's 2050 reduction goal.

CARB's research efforts presented in the First Update indicate that it has a "strong sense of the mix of technologies needed to reduce emissions through 2050" (CARB 2014). Those technologies include energy demand reduction through efficiency and activity changes; large-scale electrification of on-road vehicles, buildings, and industrial machinery; decarbonizing electricity and fuel supplies; and the rapid market penetration of efficient and clean energy technologies.

As part of the First Update, CARB recalculated the state's 1990 emissions level using more recent GWPs identified by the IPCC. Using the recalculated 1990 emissions level (431 MMT CO_2e) and the revised 2020 emissions level projection identified in the 2011 Final Supplement (CARB 2011), CARB determined that achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of approximately 15% (instead of 28.5% or 16%) from the business-as-usual conditions (CARB 2014).

On January 20, 2017, CARB released its 2017 Climate Change Scoping Plan Update (Second Update) for public review and comment (CARB 2017b). This update presents CARB's strategy for achieving the state's 2030 GHG target as established in Senate Bill (SB) 32 (discussed below), including continuing the Cap-and-Trade Program through 2030, and includes a new approach to reduce GHGs from refineries by 20%. The Second Update incorporates approaches to cutting short-lived climate pollutants (SLCPs) under the Short-Lived Climate Pollutant Reduction Strategy (a planning document that was adopted by CARB in March 2017), acknowledges the need for reducing emissions in agriculture, and highlights the work underway to ensure that California's natural and working lands increasingly sequester carbon. During development of the Second Update, CARB held a number of public workshops in the natural and working lands, agriculture, energy, and transportation sectors to inform development of the 2030 Scoping Plan Update (CARB 2018). When discussing project-level GHG emissions reduction actions and thresholds, the Second Update states, "achieving no net increase in GHG emissions is the correct overall objective, but it may not be appropriate or feasible for every development project. An inability to mitigate a project's GHG emissions to zero does not necessarily imply a substantial contribution to the cumulatively significant environmental impact of climate change under CEQA" (CARB 2017b). The Second Update was approved by CARB's Governing Board on December 14, 2017.

EO B-30-15. EO B-30-15 (April 2015) identified an interim GHG reduction target in support of targets previously identified under EO S-3-05 and AB 32. EO B-30-15 set an interim target goal of reducing statewide GHG emissions to 40% below 1990 levels by 2030 to keep California on its trajectory toward meeting or exceeding the long-term goal of reducing statewide GHG emissions to 80% below 1990 levels by 2050, as set forth in EO S-3-05. To facilitate achievement of this goal, EO B-30-15 calls for an update to CARB's Scoping Plan to express the 2030 target in terms of MMT CO_2e. The executive order also calls for state agencies to continue to develop and implement GHG emission reduction programs in support of the reduction targets. EO B-30-15 does not require local agencies to take any action to meet the new interim GHG reduction target.

SB 32 and AB 197. SB 32 and AB 197 (enacted in 2016) are companion bills that set a new statewide GHG reduction targets, make changes to CARB's membership, increase legislative oversight of CARB's climate-change-based activities, and expand dissemination of GHG and other air-quality-related emissions data to enhance transparency and accountability. More specifically, SB 32 codified the 2030 emissions reduction goal of EO B-30-15 by requiring CARB to ensure that statewide GHG emissions are reduced to 40% below 1990 levels by 2030. AB 197 established the Joint Legislative Committee on Climate Change Policies, consisting of at least three members of the Senate and three members of the Assembly, to provide ongoing oversight over implementation of the state's climate policies. AB 197 also added two members of the Legislature to CARB as nonvoting members; requires CARB to make available and update (at least annually via its website) emissions data for GHGs, criteria air pollutants, and toxic air contaminants from reporting facilities; and requires CARB to identify specific information for GHG emissions reduction measures when updating the Scoping Plan.

Other State Regulations and Goals

SB 97. SB 97 (Dutton) (August 2007) directed the Governor's Office of Planning and Research (OPR) to develop guidelines under CEQA for the mitigation of GHG emissions. In 2008, the OPR issued a technical advisory as interim guidance regarding the analysis of GHG emissions in CEQA documents. The advisory indicated that the lead agency should identify and estimate a project's GHG emissions, including those associated with vehicular traffic, energy consumption, water usage, and construction activities (OPR 2008). The advisory further recommended that the lead agency determine significance of the impacts and impose all mitigation measures necessary to reduce GHG emissions to a level that is less than significant. The CNRA adopted the CEQA Guidelines amendments in December 2009, which became effective in March 2010.

Under the amended CEQA Guidelines in the California Code of Regulations (CCR), a lead agency has the discretion to determine whether to use a quantitative or qualitative analysis, or apply performance standards to determine the significance of GHG emissions resulting from a particular project (14 CCR 15064.4(a)). The CEQA Guidelines require a lead agency to consider the extent to

which a project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4(b)). The CEQA Guidelines also allow a lead agency to consider feasible means of mitigating the significant effects of GHG emissions, including reductions in emissions through implementation of project features or off-site measures. The adopted amendments do not establish a GHG emissions threshold, but allow a lead agency to develop, adopt, and apply its own thresholds of significance or those developed by other agencies or experts. The CNRA also acknowledges that a lead agency may consider compliance with regulations or requirements implementing AB 32 in determining the significance of a project's GHG emissions (CNRA 2009a).

With respect to GHG emissions, the CEQA Guidelines state in CCR Section 15064.4(a) that lead agencies should "make a good faith effort, to the extent possible on scientific and factual data, to describe, calculate or estimate" GHG emissions. The CEQA Guidelines note that an agency may identify emissions by either selecting a "model or methodology" to quantify the emissions, or by relying on "qualitative analysis or other performance based standards" (14 CCR 15064.4(a)). Section 15064.4(b) states that the lead agency should consider the following when assessing the significance of impacts from GHG emissions on the environment: the extent a project may increase or reduce GHG emissions compared to the existing environmental setting; whether project emissions exceed a threshold of significance that the lead agency determines applies to the project; and the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4(b)).

Local Regulations

Sonoma County General Plan 2020

The Open Space and Resource Element of the Sonoma County General Plan (Sonoma County 2016) provides objectives, policies, and programs regarding Air Quality, including the following that are applicable to the project:

Goal OSRC-14.4: Reduce greenhouse gas emissions by 25% below 1990 levels by 2015.

Policy OSRC-14g: Develop a Greenhouse Gas Emissions Reduction Program, as a high priority, to include the following:

1. A methodology to measure baseline and the future VMT and greenhouse gas emissions
2. Targets for various sectors including existing development and potential future development of commercial, industrial, residential, transportation, and utility sources

3. Collaboration with local, regional, and State agencies and other community groups to identify effective greenhouse gas reduction policies and programs in compliance with new State and Federal standards
4. Adoption of development policies or standards that substantially reduce emissions for new development
5. Creation of a task force of key department and agency staff to develop action plans, including identified capital improvements and other programs to reduce greenhouse gases and a funding mechanism for implementation

Goal OSRC-16: Preserve and maintain good air quality and provide for an air quality standard that will protect human health and preclude crop, plant, and property damage in accordance with the requirements of the Federal and State Clean Air Acts.

Objective OSRC-16.1: Minimize air pollution and greenhouse gas emissions.

Policy OSRC-16c: Refer projects to the local air quality districts for their review.

Sonoma County Climate Action 2020 and Beyond Regional Climate Action Plan

In 2016, Sonoma County adopted the Climate Action 2020 and Beyond Regional Climate Action Plan (CAP) which establishes the County GHG reduction goals below 1990 levels: 25% by 2020, 40% by 2030, and 80% by 2050, consistent with the state requirements. The CAP outlines the reduction efforts in six major GHG source areas, including building energy, transportation and land use, solid waste, water and wastewater, livestock and fertilizer, and advanced climate initiatives. Notably, based on projections from the 2010 GHG inventory, Sonoma County is not expected to meet the 2015 goal of 25% below 1990 levels. Furthermore, the County's population is projected to increase by 5% between 2010 and 2020, and employment is projected to increase by 13% over the same period. The two main factors which influence the growth of GHG emissions in the County are from population and economic growth.

In addition, Appendix A of the County's CAP includes a consistency checklist in which projects can identify all applicable mandatory local or regional measures in the CAP in order to demonstrate consistency. Projects that implement all applicable mandatory CAP measures can conclude that their impacts related to GHG emissions would be less than significant under CEQA. However, since the CAP checklist is intended for residential, commercial, and mixed-use projects, the proposed project is not a type of project addressed within the CAP. Thus, the County's CAP does not apply to the proposed project.

Impacts

Methods of Analysis

GHG emissions from construction of the proposed project were calculated using CalEEMod Version 2016.3.2. The current version of the California Emissions Estimator Model (CalEEMod) (Version 2016.3.2) assumes that the GWP for CH_4 is 25 (so emissions of 1 MT of CH_4 are equivalent to emissions of 25 MT of CO_2), and the GWP for N_2O is 298, based on the IPCC Fourth Assessment Report (IPCC 2007). The GWP values identified in CalEEMod were applied to the proposed project.

Construction model inputs are described in more detail in Section 3.3, Air Quality. In summary, the proposed project was assumed to be constructed over a 4-year period, in which construction activities would take place within the months of May and October each year beginning in 2020. Appendix B includes the model output data.

Thresholds of Significance

Consistent with Appendix G of the CEQA Guidelines, Bay Area Air Quality Management District thresholds, and the County's General Plan, a significant impact would occur if development of the proposed project would do any of the following:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Regarding impacts from GHGs, both Bay Area Air Quality Management District (BAAQMD) and the California Air Pollution Control Officers Association (CAPCOA) consider GHG impacts to be exclusively cumulative impacts (BAAQMD 2017; CAPCOA 2008); therefore, assessment of significance is based on a determination of whether the GHG emissions from a project represent a cumulatively considerable contribution to the global atmosphere. This analysis uses both a quantitative and a qualitative approach. The quantitative approach is used to address the first significance criterion: "Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?" This analysis considers that, because the quantifiable thresholds developed by BAAQMD were formulated based on AB 32 and California Climate Change Scoping Plan reduction targets for which its set of strategies were developed to reduce GHG emissions statewide, a project cannot exceed a numeric BAAQMD threshold without also conflicting with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Therefore, if a project exceeds a numeric threshold and results in a significant cumulative impact, it would also result in a significant cumulative impact with respect to plan, policy, or regulation consistency, even though the project may incorporate measures and have features that would reduce its contribution to cumulative GHG emissions.

Separate thresholds of significance have been established by the BAAQMD for operational emissions from stationary sources (such as generators, furnaces, and boilers) and nonstationary sources (such as on-road vehicles) (BAAQMD 2017). The threshold for stationary sources is 10,000 MT CO_2e per year (i.e., emissions above this level may be considered significant). For nonstationary sources, the following three separate thresholds have been established:

- Compliance with a Qualified Greenhouse Gas Reduction Strategy (i.e., if a project is found to be out of compliance with a Qualified Greenhouse Gas Reduction Strategy, its GHG emissions may be considered significant).
- 1,100 MT CO_2e per year (i.e., emissions above this level may be considered significant).
- 4.6 MT CO_2e per service population per year (i.e., emissions above this level may be considered significant). (Service population is the sum of residents plus employees expected for a development project.)

The quantitative threshold of 1,100 MT CO_2e annually adopted by BAAQMD is applied to this analysis. If the project GHG emissions would exceed this threshold then, consistent with BAAQMD Guidelines, it would be considered to have a cumulatively considerable contribution of GHG emissions and a cumulatively significant impact on climate change.

Project Impacts and Mitigation Measures

3.7-1: Implementation of the proposed project may generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment. This would be a less-than-significant impact.

Construction

Construction of the proposed project would result in GHG emissions, which are primarily associated with use of off-road construction equipment, vendor trucks, and worker vehicles. Since the BAAQMD has not established construction-phase GHG thresholds, construction GHG emissions were amortized assuming a 30-year development life after completion of construction and were compared to the BAAQMD operational GHG threshold. Amortized GHG emissions associated with project construction would result in annualized generation of 5.2 MT CO_2e.

A detailed depiction of the construction schedule—including information regarding phasing, equipment utilized during each phase, trucks, and worker vehicles—is included in Appendix B. The estimated project-generated GHG emissions from construction activities are shown in Table 3.7-2.

Table 3.7-2
Estimated Annual Greenhouse Gas Emissions

Emission Source/Year	CO_2e (MT/yr)
2020	52.3
2021	44.7
2022	43.8
2023	15.4
Total	**157.3**
Amortized Construction Emissions	**5.2**
BAAQMD GHG Threshold	*1,100*
Significant (Yes or No)?	***No***

Source: See Appendix B for detailed results.
Note: Total emissions may not sum due to rounding.
CO_2e = carbon dioxide-equivalent; MT/year = metric tons per year

Operation

Once operational, the proposed project would consist of a pedestrian-only trail along with two staging areas. Long-term operation of the proposed project would require minimal upkeep and maintenance. The main source of emissions from operation of the proposed project would include motor vehicle emissions generated by visitors to the site and County maintenance vehicles. As presented in Section 3.13, Transportation and Circulation, because the standard trip generation rates published by the Institute of Transportation Engineers (ITE) in the Trip Generation Manual, 10th Edition, 2017 for a public park would overestimate vehicle trips for the proposed project, surveys were conducted to establish vehicle trip rates for trailhead parking lots in Sonoma County (W-Trans 2018). The surveys were conducted at three separate County Parks and based on the data collected, the average of these three surveyed parks were used to estimate project trips. The proposed project was estimated to generate approximately 26 weekday p.m. peak hour trips and 43 weekend midday peak hour trips (W-Trans 2018). This volume of project trips would be minimal and would result in a negligible increase in GHGs. Furthermore, amortized GHG emissions associated with proposed project construction would result in annualized generation of approximately 5.2 MT CO_2e, which is less than the 1,100 MT CO_2e threshold. Accordingly, operational emissions are anticipated to be minimal and would be **less than significant**.

Mitigation Measures

No mitigation measures are required.

3.7-2: Implementation of the proposed project may conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases. This would be a less-than-significant impact.

As discussed in the Regulatory Setting section, the County adopted a CAP in 2016, which includes a consistency checklist for project's to implement applicable GHG reduction measures. However, because the CAP checklist is intended for residential, commercial, and mixed use projects and in some cases industrial projects, the proposed project is not a type of project which is addressed within the CAP. Thus, the County's CAP does not apply to the proposed project.

Consistency with CARB's Scoping Plan

The Scoping Plan, approved by CARB on December 12, 2008, provides a framework for actions to reduce California's GHG emissions and requires CARB and other state agencies to adopt regulations and other initiatives to reduce GHGs. As such, the Scoping Plan is not directly applicable to specific projects. Relatedly, in the Final Statement of Reasons for the Amendments to the CEQA Guidelines, the Natural Resources Agency observed that "[t]he [Scoping Plan] may not be appropriate for use in determining the significance of individual projects because it is conceptual at this stage and relies on the future development of regulations to implement the strategies identified in the Scoping Plan" (CNRA 2009b). Under the Scoping Plan, however, there are several state regulatory measures aimed at the identification and reduction of GHG emissions. CARB and other state agencies have adopted many of the measures identified in the Scoping Plan. Most of these measures focus on area source emissions (e.g., energy usage, high-GWP GHGs in consumer products) and changes to the vehicle fleet (i.e., hybrid, electric, and more fuel-efficient vehicles) and associated fuels (e.g., Low Carbon Fuel Standard), among others. To the extent that these regulations are applicable to the proposed project, the project would comply with all regulations adopted in furtherance of the Scoping Plan, to the extent required by law.

Consistency with SB 32 and EO S-3-05. Regarding consistency with SB 32 (goal of reducing GHG emissions to 40% below 1990 levels by 2030) and EO S-3-05 (goal of reducing GHG emissions to 80% below 1990 levels by 2050), there are no established protocols or thresholds of significance for that future-year analysis. However, CARB has expressed optimism with regard to both the 2030 and 2050 goals. It states in the First Update to the Climate Change Scoping Plan that "California is on track to meet the near-term 2020 GHG emissions limit and is well positioned to maintain and continue reductions beyond 2020 as required by AB 32" (CARB 2014). CARB believes that the state is on a trajectory to meet the 2030 and 2050 GHG reduction targets set forth in AB 32, SB 32, and EO S-3-05. This is confirmed in California's 2017 Climate Change Scoping Plan (2017 Scoping Plan), which states, "This Plan draws from the experiences in developing and implementing previous plans to present a path to reaching California's 2030 GHG reduction target. The 2017 Scoping Plan also states that although "the Scoping Plan charts the path to achieving the 2030 GHG emissions reduction target, we also need momentum to propel us to the 2050 statewide GHG target (80% below 1990 levels). In developing this Scoping Plan, we considered what policies are needed to meet our mid-term and long-term goals" (CARB 2017b).

The project would not interfere with implementation of any of the above-described GHG reduction goals for 2030 or 2050 because the project would not exceed the BAAQMD's GHG threshold of 1,100 MT CO_2e per year, which was established based on the goal of AB 32 to reduce statewide GHG emissions to 1990 levels by 2020. Because the proposed project would not exceed the threshold, this analysis provides support for the conclusion that the proposed project would not impede the state's trajectory toward the above-described statewide GHG reduction goals for 2030 or 2050.

Based on the above considerations, the proposed project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs, and no mitigation is required. This impact would be **less than significant**.

Mitigation Measures

No mitigation measures are required.

Cumulative Impacts

The geographic context for evaluating GHGs is future development occurring within the region including Sonoma County and Marin County.

3.7-3: The proposed project could contribute to cumulative GHG emissions within the region. The project's contribution would not be considerable.

GHG impacts are cumulative impacts (BAAQMD 2017; CAPCOA 2008); therefore, assessment of significance is based on a determination of whether the GHG emissions from a project represent a cumulatively considerable contribution to the global atmosphere. If a project exceeds the identified significance thresholds, its contribution of GHG emissions would be cumulatively considerable, resulting in a cumulatively significant impact on climate change. As discussed in Impact 3.7-1, the proposed project would not result in GHG emissions in exceedance of the BAAQMD significance threshold. Therefore, the proposed project's GHG emissions would not be cumulatively considerable and the impact is less than significant.

Mitigation Measures

No mitigation measures are required.

References

14 CCR 15000–15387 and Appendices A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

14 CCR 15064.4. Determining the Significance of Impacts from Greenhouse Gas Emissions.

BAAQMD (Bay Area Air Quality Management District). 2009. Revised Options and Justifications Report – California Environmental Quality Act Thresholds of Significance. October 2009. http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/revised-draft-ceqa-thresholds-justification-report-oct-2009.pdf?la=en.

BAAQMD. 2017. *California Environmental Quality Act Air Quality Guidelines.* Updated May 2017. http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en.

CAPCOA (California Air Pollution Control Officers Association). 2008. *CEQA and Climate Change – Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*. January 2008. http://www.energy.ca.gov/2008publications/CAPCOA-1000-2008-010/CAPCOA-1000-2008-010.PDF.

CAPCOA. 2017. *California Emissions Estimator Model (CalEEMod) User's Guide Version 2016.3.2*. Prepared by BREEZE Software, A Division of Trinity Consultants in collaboration with South Coast Air Quality Management District and the California Air Districts. Accessed December 2017. http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4.

CARB (California Air Resources Board). 2008. *Climate Change Scoping Plan: A Framework for Change*. December 12, 2008. http://www.arb.ca.gov/cc/scopingplan/document/psp.pdf.

CARB. 2011. Final Supplement to the AB 32 Scoping Plan Functional Equivalent Document. Released August 19, 2011. https://www.arb.ca.gov/cc/scopingplan/document/final_supplement_to_sp_fed.pdf.

CARB. 2018. "AB 32 Scoping Plan." CARB Website Tracking Progress on the 2030 Scoping Plan Update. December 2, 2018. https://www.arb.ca.gov/cc/scopingplan/scopingplan.htm.

CARB 2017a. "Glossary of Terms Used in GHG Inventories." Last updated June 6, 2017. https://www.arb.ca.gov/cc/inventory/faq/ghg_inventory_glossary.htm.

CARB. 2017b. *The 2017 Climate Change Scoping Plan Update: The Proposed Strategy for Achieving California's 2030 Greenhouse Gas Target*. January 20, 2017. Accessed January 2017. https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf.

CARB. 2018.

CARB. 2019. “California Greenhouse Gas Emission Inventory—2019 Edition.” August 12, 2019. Accessed August 2019. http://www.arb.ca.gov/cc/inventory/data/data.htm CAT (California Climate Action Team). 2006. *Final 2006 Climate Action Team Report to the Governor and Legislature*. Sacramento, California: CAT. March 2006. http://www.climatechange.ca.gov/climate_action_team/reports/2006report/2006-04-03_FINAL_CAT_REPORT.PDF.

CAT. 2010. *Climate Action Team Biennial Report*. Sacramento, California: CAT. April 2010. Accessed February 2014. http://www.energy.ca.gov/2010publications/CAT-1000-2010-004/CAT-1000-2010-004.PDF.

CCCC (California Climate Change Center). 2012. *Our Changing Climate 2012: Vulnerability & Adaptation to the Increasing Risks from Climate Change in California*. July 2012. Accessed August 2016. http://www.energy.ca.gov/2012publications/CEC-500-2012-007/CEC-500-2012-007.pdf.

CNRA (California Natural Resources Agency). 2009a. *2009 California Climate Adaptation Strategy: A Report to the Governor of the State of California in Response to Executive Order S-13-2008*. http://resources.ca.gov/docs/climate/Statewide_Adaptation_Strategy.pdf.

CNRA. 2009b. *Final Statement of Reasons for Regulatory Action: Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB 97*. December 2009.

CPUC (California Public Utilities Commission). 2013. “California’s Zero Net Energy Policies and Initiatives.” September 18, 2013. http://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=10718.

CPUC. 2015. Renewables Portfolio Standard.

EPA (U.S. Environmental Protection Agency). 2007. Energy Independence and Security Act of 2007. Accessed December 2016. https://www.gpo.gov/fdsys/pkg/BILLS-110hr6enr/pdf/BILLS-110hr6enr.pdf.

EPA. 2016. “Glossary of Climate Change Terms.” August 9, 2016. Accessed August 2016. https://www3.epa.gov/climatechange/glossary.html.

EPA. 2017a. “Climate Change.” Last updated January 19, 2017. Accessed January 2017. https://www.epa.gov/climatechange.

EPA. 2017b. *Carbon Pollution Standards for Cars and Light Trucks to Remain Unchanged Through 2025*. January 13. Accessed February 2017. https://www.epa.gov/newsreleases/carbon-pollution-standards-cars-and-light-trucks-remain-unchanged-through-2025.

EPA and NHTSA (Department of Transportation's National Highway Traffic Safety Administration). 2016. *Regulations and Standards: Heavy-Duty. EPA and DOT Finalize Greenhouse Gas and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles*. Last updated on August 30, 2016. https://www.epa.gov/newsreleases/epa-and-dot-finalize-greenhouse-gas-and-fuel-efficiency-standards-heavy-duty-trucks-0.

IPCC (Intergovernmental Panel on Climate Change). 1995. *IPCC Second Assessment Synthesis of Scientific-Technical Information Relevant to Interpreting Article 2 of the U.N. Framework Convention on Climate Change*.

IPCC. 2007. "Summary for Policymakers." In *Climate Change 2007: The Physical Science Basis*, edited by S. Solomon, D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor, and H.L. Miller, 1–18. A Report of Working Group I of the IPCC. New York, New York, Cambridge University Press. Accessed September 2017. https://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-spm.pdf.

IPCC. 2013. *Climate Change 2013: The Physical Science Basis*. *Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. Edited by T.F. Stocker, D. Qin, G.K. Plattner, M. Tignor, S.K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex, and P.M. Midgley. New York, New York: Cambridge University Press. http://www.climatechange2013.org/images/report/WG1AR5_ALL_FINAL.pdf.

IPCC. 2014. *Climate Change 2014: Synthesis Report*. Contribution of Working Groups I, II, and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. https://www.ipcc.ch/pdf/assessment-report/ar5/syr/SYR_AR5_FINAL_full_wcover.pdf.

OPR (California Governor's Office of Planning and Research). 2008. *Technical Advisory – CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review.* http://opr.ca.gov/docs/june08-ceqa.pdf.

Sonoma County. 2016. Sonoma County General Plan 2020. Adopted September 23, 2008. Amended August 2, 2016.

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3.8 Hydrology and Water Quality

Introduction

This section of the Draft Environmental Impact Report (EIR) presents potential hydrology and water quality impacts of implementation of the Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas and Construction and Operation of Recreational Amenities project (proposed project). This section presents the environmental setting, regulatory framework, impacts of the proposed project on the environment, and proposed measures to mitigate any identified significant impacts.

In response to the Notice of Preparation (NOP), the California Department of Transportation (Caltrans) emphasized the necessity of hydrological studies to study whether project level activities would affect riparian flow patterns upstream of bridges, trestles, culverts, or other structures. The Greater Farallones National Marine Sanctuary (GFNMS) expressed concern for possible construction material that could be discharged or deposited into the Estero Americano (Estero) and cause harm. Comments received in response to the prior Mitigated Negative Declaration released in October 2016, included concerns associated with the potential adverse effects on wetlands. The comments note that wetlands provide flood control, water quality maintenance and purification, and are important for recharging aquifers. The California Coastal Commission stressed that public access does not supersede wetland protection. See Appendix A for a copy of the NOP and complete list of public comments received during the public scoping period. These concerns are addressed in this section.

To the extent that issues identified in public comments involve potentially significant effects on the environment according to the California Environmental Quality Act (CEQA), and/or were raised by responsible and trustee agencies or the public, they are identified and addressed in this EIR.

Environmental Setting

The U.S. Geological Survey (USGS) Watershed Boundary Dataset delineates watersheds according to hydrologic units, which are nested within one another according to the scale of interest. USGS identifies hydrologic units by name and by hydrologic unit code (HUC), which gets longer as the watershed boundaries get more detailed. At the highest level of detail for the USGS Watershed Boundary Dataset, the proposed project is within the 38-square-mile Estero Americano sub-watershed (HUC 180500050302), which includes the entirety of Americano Creek's headwaters that flows into the Estero Americano, thence into the Pacific Ocean to the west. Tributaries to the Estero Americano include streams and other surface waters from both Marin and Sonoma County (USGS 2018). This sub-watershed is within the larger 160-square-mile Tomales Bay-Bodega Bay watershed (HUC 1805000503) (USGS 2018).

In managing water resources, the State Water Resources Control Board (SWRCB) and the local governments classify watersheds in a hierarchical system similar to the USGS Watershed Boundary Dataset, but with somewhat different watershed names and boundaries. These geographic boundaries are likewise watershed based, but are typically referred to as hydrologic basins and are defined in the *Water Quality Control Plan for the North Coast Region* (NCRWQCB 2018). These generally constitute the geographic basis around which many surface water quality problems and goals/objectives are defined. The proposed project is within the Bodega hydrologic unit (HU No. 115.00), and the Estero Americano hydrologic area (HA No. 114.22) (NCRWQCB 2018).

The Estero is a scenic and biologically rich coastal estuary along the boundary of Sonoma and Marin counties. The Estero is part of the Gulf of the Farallones National Marine Sanctuary, part of the California Marine Protected Area network, and designated as a State Marine Recreational Management Area by the National Marine Sanctuary Foundation (NMSF) (NMSF 2018; NOAA 2018a). It is also within areas designated as critical habitat for steelhead trout by the National Oceanic and Atmospheric Administration (NOAA) Fisheries Service, and is identified by the California Department of Fish and Wildlife (CDFW) as containing some of the most significant habitat areas in the State (NOAA 2005; CDFW 2008). It is currently listed as an impaired water body by the SWRCB due to historic land uses further described below.

Surface Water Hydrology

Surface waters are categorized by their characteristics as rivers, streams, reservoirs, lakes, and wetlands. Streams are further categorized into ephemeral, intermittent, perennial, and/or headwater. Streams that flow briefly in direct response to precipitation in the immediate vicinity, and whose channel is at all times above the local groundwater table are considered ephemeral. Streams where portions flow continuously only at certain times of the year or seasonally are referred to as intermittent. Streams which flow year-round are considered a permanent (perennial) stream. Generally, perennial stream flow outside of the rainy season is maintained by groundwater seeps and springs located along the streambank or higher up in the watershed. Headwaters are usually small streams at the top of a watershed.

The project site is crossed by two intermittent drainages (one transects the central portion and the other transects the eastern portion), two ephemeral drainages on the western portion of the project site, one vegetated roadside swale parallel to the access roadway, and four ponds/wetland areas mainly associated with the central intermittent drainage and the western portion of the project site (Dudek 2018). The unnamed intermittent drainage in the central portion of the project site (also referred to as the central creek drainage) drains rainwater runoff south into the Estero, ultimately flowing into the Pacific Ocean west of the project site. Several ephemeral drainages channel water from the hills in the western portion of the project site into the central

intermittent drainage (see Figure 3.4-3 in Section 3.4, Biological Resources for the location of these drainage features). The intermittent drainage that transects the project site on the east also flows south into the Estero. A constructed roadside ditch parallels the access road through the center of the project site before also draining into the central intermittent drainage. Construction of the current access road and the subsequent channelization into the roadside ditch has somewhat altered hydrology of the western hillslope down to the unnamed intermittent drainage, although none of the project site appears to be significantly altered as a result of human activities.

Soil Types

The United States Department of Agriculture's (USDA) Natural Resource Conservation Service (NRCS) online Web Soil Survey system provides soil data and information produced by the National Cooperative Soil Survey (NCSS). Data available includes soil properties, qualities, erosion susceptibility, groundwater sources, vegetation data, and other physical and chemical soil properties. The project site consists of four major soil types (ten subtypes) which are listed in Table 3.6-1 in Section 3.6, Geology and Soils (NRCS 2018).

Soil types and vegetation determine the susceptibility of erosion and sedimentation potential that future development would have on a site. The proposed project site is entirely covered by California annual grassland, common velvet grass, perennial ryegrass fields, slough sedge swards, purple needle grass grasslands, coyote brush scrub, arroyo willow thickets, eucalyptus groves, and Baltic and Mexican rush marshes (Dudek 2017 Biological Resources Assessment for the Estero Trail Project). The majority of the site is covered in vegetation. Vegetation cover reduces the potential for stormwater erosion from rainfall as the soil is not exposed to the kinetic energy of the rain. Soils on the project site related to erosion hazards range from slight (approximately 54 percent) to severe (approximately 32%) with the severe erosion areas mainly located on the southwestern portion of the project site within steep slopes, on the southeastern portion of the project site within steep slopes, and in portions of the northwestern corner of the project site, also on steep sloped areas (NRCS 2018).

Hydrologic soil groups are based on estimates of runoff potential that each soil type has based on physical and chemical attributes. Soils are assigned a group (A through D) according to their rate of water infiltration within the protection of vegetation, completely saturated, and receive long-term precipitation durations. Hydrologic soil groups A through D (and dual classes of A/D, B/D, and C/D) are defined as follows:

- Group A: Soils having high infiltration rates (or a low runoff potential). These are typical to sands or gravelly sands.
- Group B: Soils having a moderate infiltration rate. These soils can consist of moderately fine to moderately course physical soil particles.

- Group C: Soils having a slow infiltration rate. These soils consist of moderately fine to fine particles that do not allow water to be easily transmitted through.
- Group D: Soils in this group have a very slow infiltration rate (high runoff potential). Soils in this group consist of clay-type coils, high shrink-swell potential, areas with a high water table, claypan near the surface, and soils that are shallow over impervious surfaces (like bedrock).

The majority of the project site consists of group B and C soils in areas on the project site that do not contain steep-sloped hillsides. Near the southwestern and southeastern portions of the project site, where steep slopes against the Estero occur, hydrologic soil group D is located and consists of approximately 17% of the project site's land base (NRCS 2018).

Surface Water Quality

The Americano Creek borders the southern edge of the Bordessa Ranch property and is currently recorded on the 2012 California Integrated Report (Clean Water Act Section 303(d) List/ 305(b) Report) (SWRCB 2010). The nutrient and sediment/siltation impairments within Americano Creek and estuary is likely due to agricultural activities such as dairies, pasture grazing-riparian, intensive animal feeding operations, range grazing-upland, and manure lagoons. Being impaired (also referred to as "water quality limited") means that a water body is "not reasonably expected to attain or maintain water quality standards" without additional regulation. The law requires that the California Environmental Protection Agency (EPA) develop total maximum daily loads (TMDLs) for each impaired water body in the nation, which specifies the maximum amount of a pollutant that a water body can receive and still meet water quality standards. A TMDL is required, but has not yet been developed for this surface water body for nutrient impairments (SWRCB 2010).

Flood Hazards

The Federal Emergency Management Agency (FEMA) is responsible for coordinating the federal government's response to disasters. FEMA provides help to local and state governments and residents. Flood plan management is one branch of the agency's services for state and local governments. Flood hazard areas identified on the Flood Insurance Rate Map (FIRM) are identified as Special Flood Hazard Area (SFHA). A SFHA is defined as the area that would be inundated by a flood event having a 1-percent change of being equaled or exceeded in any given year. The 1-percent annual chance flood is also referred to as the base flood, or 100-year flood. SFHAs are labeled as Zone A, Zone AO, Zone AH, Zones A1-A30, Zone A99, Zone AR, Zone AR/AE, Zone AR/AO, Zone AR/A1-A30, Zone AR/A, Zone V, Zone VE, and Zones V1-V30. Moderate flood hazard areas, labeled Zone B or Zone X (shaded) are also shown on the FIRM, and are the areas between the limits of the base flood and the 0.2-percent-annual-chance (or 500-year) flood. The areas of minimal flood hazard, which are the areas outside the SFHA and higher than the elevation of the 0.2-percent-annual-chance flood, are labeled Zone C or Zone X (unshaded) (FEMA 2018).

The project site is in an area of "Undetermined Flood Hazard" Zone D (FEMA 2018). Flood Zone D designation is used for areas where there are possible but undetermined flood hazards, as no analysis of flood hazards has been conducted or recorded.

Due to the project site's topography, on-site surface waters, and location in relation to the Estero, it is likely that the southern portions and low-lying portions of the project site near the Estero could be exposed to potential flooding hazards.

Tsunami and Seiche

The California Department of Conservation (DOC) and California Office of Emergency Services (OES) partner to identify and record areas of California that may be affected by tsunami and seiche hazards in worst-case scenarios. Areas affected include bays, estuaries, coves, and areas of low-lying lands near the Pacific Ocean. According to the DOC's OES online mapping database, the project site is not within an area prone to tsunami or seiche hazards (DOC 2018). The closest area within the tsunami hazards area is located along the Estero, west of the project site approximately 1.3 miles. Due to the meandering characteristics of the Estero, steep hillsides, and change in elevation, tsunami inundation areas are not likely to reach the project site.

Groundwater Resources

The project site is located within groundwater basin 1-059: Wilson Grove Formation Highlands. The Wilson Grove Formations Highlands groundwater basin is categorized as having a very low prioritization according to the California Statewide Groundwater Elevation Monitoring (CASGEM) program online system regulated and updated by the state Department of Water Resources (DWR) (DWR 2018a). The nearest recorded active groundwater voluntary well data available through CASGEM includes a residential well (No. 48839) located in Bloomfield, CA, east of the project site approximately 7.0 miles (DWR 2018b). Monitoring for this well started in December 2011 and continued through October 2017. Data indicated that groundwater levels have been steady or risen over the past five years, even though drought conditions were present after the first year of monitoring (DWR 2018b). The well is monitored through a voluntary program where well owners or agencies can enter data into the online CASGEM system. The well is located adjacent to Americano Creek and is likely affected by the creek's water levels due to its proximity.

Regulatory Setting

Federal Regulations

The Clean Water Act (CWA), which established the basic structure for regulating discharges of pollutants to "waters of the U.S.", is a 1977 amendment to the federal Water Pollution Control

Act of 1972. Section 202 of CWA requires states to adopt water quality standards. Water quality standards are part of the National Pollutant Discharge Elimination System (NPDES) stormwater discharge permits. Title 33 of the CFR, Section 328.3, waters of the U.S. include all waters subject to interstate or foreign commerce, including tidal waters, interstate waters and wetlands, many intrastate waters, impoundments, tributaries, the territorial seas, and adjacent wetlands. Section 32.8.3 defines waters of the U.S. as:

a. For purposes of the CWA, 33 U.S.C 1251 et seq. and its implementing regulations, subject to the exclusions in paragraph (b) of this sections, the term "waters of the United States" means:
    1) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
    2) All interstate waters, including interstate wetlands;
    3) The territorial seas;
    4) All impoundments of waters otherwise identified as waters of the United States under this section;
    5) All tributaries, as defined in paragraph ©(3) of this section, of waters identified in paragraphs (a)(1) through (3) of this section;
    6) All waters adjacent to a water identified in paragraphs (a)(1) through (5) of this section, including wetlands, ponds, lakes, oxbows, impoundments, and similar waters.
b. The following are not "waters of the United States" even where they otherwise meet the terms in paragraphs (a)(4) through (8) of this section.
    1) Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the Clean Water Act.
    2) Prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

The U.S. Army Corps of Engineers (USACE) regulates the placement of fill or dredged materials that affect water of the U.S. which includes stream courses and jurisdictional wetlands. USACE regulates these activities under the authority of Section 404 of the CWA. USACE would regulate any development within the project that affects jurisdictional wetlands.

The NPDES program was developed by the U.S. EPA in accordance with Section 303 of CWA. This program regulates all discharges to waters of the U.S. including stormwater discharges

associated with municipal drainage systems, construction activities, industrial operations, and "point sources" (such as wastewater treatment plant discharges direct to a water body).

State Regulations

The SWRCB and each of the nine Regional Water Quality Control Boards (RWQCBs) regulate activities and discharges in waters of the U.S. through CWA Section 404. A 401 certification is required to obtain a 404 permit for construction of wetlands/habitat where waters of the U.S. are impacted. NPDES program is administered by the SWRCB and implemented and enforced by the RWQCBs. The project site is within the North Coast Regional Water Quality Control Board (NCRWQCB) jurisdiction.

Designated beneficial uses for the Estero and Americano Creek that may be impacted by water quality impairments include: municipal (MUN) and domestic, agricultural (AG), industrial service (IND), groundwater recharge (GWR), navigation (NAV), water contact recreation (REC1), non-contact recreation (REC2), commercial and sport fishing (COMM), cold freshwater habitat (COLD), estuarine habitat (EST), marine habitat (MAR), wildlife habitat (WILD), migration of aquatic organisms (MIGR), spawning (SPWN), reproduction and/or early development, and rare/threatened/ or endangered species (RARE) (Gold Ridge Resource Conservation District, 2007; Chapter 3).

Water quality objectives of the NCRWQCB are considered necessary to protect those present and probably beneficial uses listed above, and to protect existing high quality waters within the State (NCRWQCB, 2018). Objectives for inland surface waters, enclosed bays, and estuaries are outlined in Table 3.8-1 below. Only those objectives relevant to potential project-related pollutants of concern are included.

Table 3.8-1
North Coast Basin Plan's Water Quality Objectives Applicable to Inland Surface Waters, Enclosed Bays, and Estuaries

Constituent	North Coast Basin Plan Narrative Objective
Color	Waters shall be free of coloration that causes nuisance or adversely affects beneficial uses.
Floating Material	Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses.
Suspended Material	Waters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.
Settleable Material	Waters shall not contain substances in concentrations that result in deposition of material that causes nuisance or adversely affect beneficial uses.
Oil and Grease	Waters shall not contain oils, greases, waxes, or other materials in concentrations that result in a visible film or coating on the surface of the water or on object in the water that cause nuisance or that otherwise adversely affect beneficial uses.
Sediment	The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.

Table 3.8-1
North Coast Basin Plan's Water Quality Objectives Applicable to Inland Surface Waters, Enclosed Bays, and Estuaries

Constituent	North Coast Basin Plan Narrative Objective
Turbidity	Turbidity shall not be increased more than 20% above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver therefor.
Chemical Constituents	Waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the limits specified in California Code of Regulations, Title 22, Chapter 15, Division 4, Article 4, Section 64435 (Tables 2 and 3), and Section 64444.5 (Table 5), and listed in Table 3-2 of this Plan. Waters designated for use as agricultural supply (AGR) shall not contain concentrations of chemical constituents in amounts which adversely affect such beneficial use.

Source: NCRWQCB 2018.

The Porter-Cologne Water Quality Control Act (Porter-Cologne) is the principal law regulating water quality in California. This statute established enforcement and implementation measures for the SWRCB and the nine RWQCBs, which are charged with implementing this law. Porter-Cologne establishes a comprehensive program for the protection of water quality and the beneficial uses of water. It applies to surface waters, wetlands, and groundwater, and to both point- and nonpoint-sources.

Porter-Cologne also incorporates many provisions of the Clean Water Act, such as delegating the NPDES permitting program to the SWRCB and the RWQCBs.

California Coastal Commission

Pursuant to Sections 30231 and 30233 of the California Coastal Act, the California Coastal Commission (CCC) requires that most development avoid and buffer wetland resources. Policies require the maintenance and restoration of the biological productivity and quality of wetlands, as well as limit the filling of wetlands. The filling of wetlands is generally limited to high priority uses, and must be avoided unless there "is no feasible less environmentally damaging alternative, and authorized fill must be fully mitigated."

The 1976 Coastal Act Section 30121 defines the term "wetland" as: "[L]ands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens." Further, The Coastal Commission's Wetlands Briefing Background Information Handout 3 regulations (California Code of Regulations Title 14 (14 CCR)) establish a "one parameter definition" that only requires evidence of a single parameter to establish wetland conditions:

> Wetland shall be defined as land where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes,

> and shall also include those types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent and drastic fluctuations of surface water levels, wave action, water flow, turbidity or high concentrations of salts or other substances in the substrate. Such wetlands can be recognized by the presence of surface water or saturated substrate at some time during each year and their location within, or adjacent to, vegetated wetlands or deep-water habitats (14 CCR Section 13577).

The CCC's one parameter definition states that wetlands must have one or more of the following three attributes: "(1) at least periodically the land supports predominantly hydrophytes; (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is nonsoil and is saturated with water or covered by shallow water at some time during the growing season of each year."

The CCC provides further guidance on analyzing wetlands and wetland impacts in the Procedural Guidance for the Review of Wetland Projects in California's Coastal Zone (CCC 1994).

Local Regulations

Sonoma County General Plan 2020

The goals and policies listed in the following text summarize the priorities of the Sonoma County General Plan Water Resources Element (Sonoma County 2008) related to hydrology and water quality.

Goal WR-1: Protect, restore and enhance the quality of surface and groundwater resources to meet the needs of all reasonable beneficial uses.

Objective WR-1.2: Work with the RWQCB and interested parties in the development and implementation of RWQCB requirements.

Objective WR-1.2: Avoid pollution of stormwater, water bodies and groundwater.

Policy WR-1c: Prioritize stormwater management measures in coordination with the RWQCB direction, focusing first upon watershed areas that are urbanizing and watersheds with impaired water bodies. Work cooperatively with the RWQCBs to manage the quality and quantity of stormwater runoff from new development and redevelopment in order to:

(1) Prevent, to the maximum extent practicable, pollutants from reaching stormwater conveyance systems.

(2) Ensure, to the maximum extent practicable, that discharges from regulated municipal storm drains comply with water quality objectives.

(3) Limit, to the maximum extent practicable, stormwater from post development sites to pre-development quantities.

(4) Conserve and protect natural areas to the maximum extent practicable.

The County would obtain all federal, state and local permits, as required by law. The following agencies have been identified as having potential discretionary authority over approval of certain project elements, or alternatively, may serve in a ministerial capacity:

- North Coast Regional Water Quality Control Board will require either a Section 401 Water Quality Certification, Waiver of Waste Discharge Requirements for impacts to on-site wetlands.
- California Coastal Commission may require a Coastal Development Permit to construct the proposed project.
- California Coastal Conservancy (Project Funding).
- State Lands Commission is a trustee agency under CEQA with regard to state-owned "sovereign" lands, such as the beds of navigable waters including the Estero Americano.
- The U. S. Army Corps of Engineers (Corps) will require a Nationwide Permit/or Individual Permit under Section 404 of the Clean Water Act for impacts to on-site wetlands.
- Greater Farallones National Marine Sanctuary oversees construction activity adjacent to the Estero Americano.

Impacts

Methods of Analysis

A detailed and thorough review of the Clean Water Act, FEMA flood zones and hazards, Sonoma County General Plan's Water Resource Element, DWR's CASGEM online system, NCRWQCB's Water Quality Control Plan, and the California Coastal Commission were conducted to establish the existing surface water supply and quality, as well as groundwater supply and quality to determine potential impacts to water resources. In addition to regulatory review, a site visit and a Preliminary Jurisdictional Delineation (JD) of on-site wetlands and waters of the U.S. was prepared in March 2018 for the Sonoma County Agricultural Preservation and Open Space District (see Appendix C).

The Preliminary JD study indicates the site supports approximately 3.7 acres of wetlands and approximately 2,971.8 linear feet of other waters that are anticipated to meet the criteria for jurisdictional waters of the U.S., including wetlands based on analysis of the three parameters for wetlands (hydric soils, hydrology, and hydrophytic vegetation) and connectivity/proximity to

known waters of the U.S. (Dudek 2018). Approximately 1.08 acres of seasonally mesic areas do not meet all of the wetland parameters, however, they do meet one parameter to be considered sensitive wetland habitat under the CCC definitions (Dudek 2018). No Traditional Navigable Waters (TNWs), interstate waters, or waters that support interstate commerce, are located within the project site (Dudek 2018).

Thresholds of Significance

Consistent with Appendix G of the CEQA Guidelines and the County's General Plan, a significant impact would occur if development of the proposed project would do any of the following:

- Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality.
- Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
    i) result in substantial erosion or siltation on- or off-site;
    ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;
    iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or
    iv) impede or redirect flood flows.
- In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.
- Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

Significance Criteria not Applicable to the Proposed Project

Due to the location and characteristics of the proposed project, certain significance thresholds are not applicable and therefore, are not considered potential impacts. These thresholds are addressed briefly below and are not discussed further in this document.

The project site is not located within an area that has the potential to be inundated by a tsunami or seiche mapped by the California Conservation Corps (CCC 2009). Tsunami inundation areas are

identified by physical location and features that would cause the potential for a tsunami or seiche to occur based on the relative distance from the Ocean and elevation or topography of the surrounding areas between the Ocean and the area being analyzed. The inundation areas closest to the project site are approximately 0.6 mile west within the Estero. Therefore, this issue is not further addressed.

Project Impacts and Mitigation Measures

3.8-1: Implementation of the proposed project could violate water quality standards or waste discharge requirements or otherwise substantially degrade surface water quality. This is a less-than-significant impact.

Impacts to water quality through exceedance of water quality standards or waste discharge requirements would be minimal from the short-term effects of construction activities on stormwater runoff. No long term or operational effects to water quality or waste discharge requirements would occur as part of the proposed project.

Construction

During construction of the proposed project, construction activities may degrade surface water quality due to stormwater runoff and potential erosion on hillsides. Project components, including construction of the trails and staging (parking) areas would not significantly contribute to stormwater runoff or water quality degradation due to their limited impervious surface as well as compatibility with the existing topography and drainage patterns of the project site. Construction activities, such as grading, is expected to result in land disturbance of approximately five acres or less; including trails and staging areas and improvements to the access road. Within the two 50-foot-wide trail corridors there could be a temporary disturbance associated with construction equipment accessing the area to construct the trails to approximately 30.3 acres. The County has indicated the trails would be designed to follow existing topography to the greatest extent feasible, and would be designed to outslope[1] onto adjacent hillsides, thereby encouraging sheet flow, as opposed to capturing and concentrating flow from upslope areas (which can promote erosion). Pollutants typically present on construction sites include petroleum products and heavy metals from vehicles and equipment, and construction-related debris and/or litter, which could contain hazardous constituents. Without proper management of construction activities, they could result in water quality degradation if runoff containing sediment and/or other pollutants of concern (i.e., fuels and/or litter) entered receiving waters in sufficient quantities to exceed water quality objectives. Impacts from construction-related activities would generally be short term and of limited duration.

[1] Design that slopes towards the downhill side of the trail to better match the natural drainage patterns and minimize the potential for diversion/erosion to occur.

Because implementation of the project would collectively require construction activities resulting in a land disturbance of more than 1 acre, the County is required to obtain coverage under the Construction General Permit (SWRCB Order 2009-0009-DWQ, as amended), which pertains to pollution from grading and project construction. Coverage under the Construction General Permit requires a qualified individual (as defined by the SWRCB) to prepare a SWPPP to address the potential for construction-related activities to contribute to pollutants within the project's receiving waterways. The SWPPP must describe the type, location and function of stormwater BMPs to be implemented, and must demonstrate that the combination of BMPs selected are adequate to meet the discharge prohibitions, effluent standards, and receiving water limitations contained in Construction General Permit.

The following list includes examples of construction water quality BMPs that are standard for most construction sites subject to the Construction General Permit:

- Silt fences or fiber rolls installed along limits of work or the project construction site
- Stockpile containment and exposed soil stabilization structures (e.g., visqueen, fiber rolls, gravel bags and/or hydroseed)
- Runoff control devices (e.g., fiber rolls, gravel bag barriers/chevrons, etc.) used during construction phases conducted during the rainy season
- Wind erosion (dust) controls
- Tracking controls at the site entrance, including regular street sweeping and tire washes for equipment
- Prevention of fluid leaks (inspections and drip pans) from construction vehicles
- Materials pollution management
- Proper waste/trash management
- Regular inspections and maintenance of BMPs.

These BMPs would be refined or added to as necessary by a qualitied SWPPP professional to meet the performance standards in the Construction General Permit.

To obtain coverage under the Construction General Permit, the County must submit to the SWRCB a Notice of Intent and associated permit registration documents, including a SWPPP and site plan, and must obtain a Waste Discharge Identification Number. As a condition of grading permit approval, the County requires water quality BMPs are included on all construction plans and drawings. In addition, all earthwork, grading, trenching, backfilling and compaction operations must be conducted in accordance with the County's erosion control provisions of the Grading, Drainage, and Vineyard and Site Development Regulations (Chapter 11, Sonoma County Code), and Stormwater Quality Ordinance (Chapter 11A, Sonoma County Code).

The BMPs required for coverage under the Construction General Permit and the County's erosion control provisions of the Grading and Stormwater Quality Ordinances would prevent construction-related contaminants from reaching impaired surface waters and contributing to water quality impacts within applicable receiving waters. This would be a **less-than-significant impact.**

Operation and Maintenance

Operation and maintenance of the trails and staging areas would have minimal impact on water quality because the trails would be designed to follow existing topography, be narrow and outsloped for minimal impact on drainage patterns, and the site access / trailhead area would be designed to minimize erosion and sedimentation. Design features for trail access to the Estero includes GeoSystems products (such as the GeoRunner or GeoTerra mesh or grate-like plastic mats) that snap together to form a permeable yet structurally sound surface for to allow access through the mud flats to the Estero. The GeoSystems products allow sunlight to penetrate the mats which promote vegetation growth, reducing runoff potential. There would be no non-stormwater discharges because the restroom at the trailhead would consist of a potable unit serviced by an outside contractor and thus would not require a septic tank or leach field. Periodic inspections by County staff would reveal areas of erosion, if any, and would implement fixes as necessary. Such fixes may include placement of root wads or woody debris, placement of sandbags or gravel, and/or revegetation, as necessary. Given the minor watershed area encompassed by the proposed project, and the overall goal of the project to protect natural resources and encourage low-intensity recreation, the impact of operation and maintenance of the project on receiving water quality would be **less than significant**.

Mitigation Measures

No mitigation measures are required.

3.8-2: Implementation of the proposed project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin. This is a less-than-significant impact.

The proposed project does not include the use of groundwater for irrigation or drinking water for visitors. No groundwater wells would be drilled to support the proposed project. Proposed project components would not add significant amounts of impervious surfaces that would impede groundwater recharge of the project site, nor would project components contribute to stormwater runoff. This would be a **less-than-significant impact.**

Mitigation Measures

No mitigation measures are required.

3.8-3: Implementation of the proposed project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces resulting in substantial erosion, flooding, exceed the capacity of stormwater drainage systems, or impede or redirect flood flows. This is a less-than-significant impact.

As discussed within the project description in Chapter 2, project design and project components were intended to coincide with the natural topography of the project site, to reduce any potential impacts to erosion or siltation on- or off-site. Project components, such as foot-bridges to cross any on-site drainage and slightly sloped trail pathways, have been designed to mimic the natural topography and follow existing contours of the project site to minimize impacts to drainage patterns. No drainage patterns are anticipated to be altered by the natural designs of the crossings at the ephemeral drainages. All crossings would be designed to be consistent with would be designed consistent with the federal Architectural Barriers Act Accessibility Guidelines for backcountry trails and all footbridges would span the stream and not require any work in the channel so no permits would be needed.

The project site is located in a rural area in Sonoma County, consisting of low density rural residences or ranches, and is not served by public, planned, or engineered stormwater drainage systems. Runoff from the site would either infiltrate on site, collect within one of the four on-site ponds, or flow to the on-site drainages, ultimately discharging into Americano Creek and the Estero and into the Pacific Ocean. As stated in Chapter 2, Project Description, and under Impact 3.8-1, the project would slightly increase impervious surfaces with the development of trailheads/parking lots not to exceed 1.5 acres in size in total combined area and approximately 5 miles in trails. The trail(s) would be considered semi-pervious because while the trails would not be paved, it would be compacted to such a degree that it acts similar to impervious surface. However, given the trail(s) would be narrow and outsloped, this design would avoid problems with accelerated erosion or gullying, because outsloping trails promote sheet flow rather than erosive (i.e., concentrated/channelized) flows. As described further in Impact 3.8-1, the proposed project would not significantly contribute to an excessive increase in rate or volume of runoff compared to existing conditions. Stormwater runoff would not exceed the capacity of existing or planned stormwater drainage systems because none exist on-site or downstream. In addition, the proposed project does not include significant impervious surfaces (i.e., paved parking lots, buildings) that would contribute to the addition of substantial polluted runoff. This would be a less-than-significant impact.

Mitigation Measures

No mitigation measures are required.

3.8-4: Implementation of the proposed project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. This is a less-than-significant impact.

As discussed under Impact 3.9-1, the proposed project would comply with applicable regulations and permits designed to comply with the Water Quality Control Plan for the North Coast Region (NCRWQCB 2018). The SWPPP to be developed and implemented in compliance with the statewide Construction General Permit would be effective at meeting water quality objectives of the Basin Plan. As discussed in the Environmental Setting, the project is within the Wilson Grove Formation Highland groundwater basin (DWR Basin No. 1-059), which has been designated by DWR as having a very low priority. Under the Sustainable Groundwater Management Act, groundwater sustainability plans are only required for basins having a medium or high priority ranking, and there are no plans to develop a groundwater sustainability plan for the Wilson Ground Formation Highland groundwater basin. Because the project would be developed consistent with the Water Quality Control Plan for the North Coast Region, and because there is no sustainable groundwater management plan applicable to the project site, the impact of the project on water quality and groundwater management plans would be **less than significant**.

Mitigation Measures

No mitigation measures are required.

Cumulative Impacts

The cumulative context to evaluate potential cumulative effects of the project includes the area within the Tomales Bay-Bodega Bay watershed, the Wilson Grove Formations Highlands groundwater basin, development within Sonoma County, the North Coast Region of DWR, and tributaries to and of Estero Americano and Americano Creek.

3.8-5: Implementation of the proposed project would not result in a cumulative contribution related to impacts to hydrology and water quality. The project's contribution would not be considerable.

Past land uses within the Tomales Bay-Bodega Bay watershed have contributed to surface water quality impairments as described above. Existing impairments include nutrient levels and sedimentation (from erosion, agriculture, and development). As discussed above, stormwater impacts from construction would be minimized through compliance with NPDES measures that

address cumulative impacts during construction activities. Stormwater impacts from operation of the proposed project would not contribute significantly to water quality impacts and would not degrade surface water quality further. The proposed project, in addition to other projects, would not impact groundwater resources as no groundwater would be used, and no significant amount of impervious surfaces would be created to hinder groundwater recharge. Water quality standards would not be exceeded as part of the proposed project, because the project would have minimal impact on the water quality of the Estero and Americano creeks. Drainage patterns would not be altered significantly to change the course of potential sediment loads to surface waters.

The project's contribution to an existing hydrology or water quality cumulative impact would be negligible and not considerable. Therefore, the project's contribution would not be considerable resulting in a less-than-significant cumulative impact.

Mitigation Measures

No mitigation measures are required.

References

California Coastal Commission (CCC), 1994. California Coastal Sanctuary Act of 1994, signed into law on September 28, 1994.

California Department of Fish and Wildlife (CDFW), 2008. California MLPA North Central Coast Project Integrated Preferred Alternative Marine Protected Area (MPA) Proposal. Revised April 30, 2008. Accessed May 17, 2018. Available online at: http://www.dfg.ca.gov/marine/pdfs/ipa_description.pdf.

California Department of Water Resources (DWR), 2018a. California Statewide Groundwater Elevation Monitoring (CASGEM) program: Wilson Grove Formation Highlands Groundwater Basin. Accessed May 15, 2018. Available online at: https://www.water.ca.gov/Programs/Groundwater-Management/Groundwater-Elevation-Monitoring--CASGEM.

Department of Conservation (DOC), 2018. *Tsunami Inundation Map for Emergency Planning, Bodega Bay, Valley Ford* Quadrangle, Sonoma County. Produced by California Emergency Management Agency, California Geologic Survey, and University of Southern California – Tsunami Research Center, dated 2009, mapped at 1:24,000 scale. Accessed May 15, 2018. Available online at: http://www.conservation.ca.gov/cgs/geologic_hazards/Tsunami/Inundation_Maps/Sonoma/Documents/Tsunami_Inundation_BodegaHead_Quad.pdf.

Dudek, 2018. *Preliminary Jurisdictional Delineation Estero Trail Project, Sonoma County, California*. Prepared March 2018.

Dudek, 2017. *Biological Resources Assessment for the Estero Trail Project, Sonoma County, California.* Prepared November 8, 2017.

DWR, 2018b. *Groundwater Information Center Interactive Map Application: Public Well Data*: Site Code: 383137N1228521W001. Local Well Name WGFH-12. . Accessed May 15, 2018. Available online at: https://gis.water.ca.gov/app/gicima/.

Federal Emergency Management Agency (FEMA), 2018. Flood Insurance Rate Maps (FIRMs) online database mapping system. Search Results for Sonoma County Unincorporated Areas. FIRM panel 0609700850E (Not Printed). Accessed May 15, 2018. Available online at: https://msc.fema.gov/portal.

Gold Ridge Resource Conservation District, 2007. *The Estero Americano Watershed Management Plan: A project of the Gold Ridge Resource Conservation District with funding from the State Water Resource Control Board.* Version 1, February 2007: Chapter 3. Accessed May 15, 2018. Available online at: http://goldridgercd.org/documents/esteroamericanowmp_final.pdf.

National Marine Sanctuary Foundation (NMSF), 2018. *Greater Farallones National Marine Sanctuary.* Accessed May 17, 2018. Available online at: https://marinesanctuary.org/explore/greater-farallones/?gclid=Cj0KCQjw0PTXBRCGARIsAKNYfG3Gn4sDwVIzemDK8SxnF8hYsfOZSRd1M3YI_miO17py29OLZd7F26gaAoo2EALw_wcB

NOAA, 2005. Steelhead trout critical habitat mapping. Accessed May 15, 2018. Available online at: https://www.fisheries.noaa.gov/resource/map/steelhead-trout-critical-habitat-map.

National Oceanic and Atmospheric Administration (NOAA), 2018. *Greater Farallones National Marine Sanctuary.* Accessed May 17, 2018. Available online at: https://farallones.noaa.gov/.

Natural Resource Conservation Service (NRCS), 2018. “Custom Soil Resource Report for Sonoma County, California; 10330 Estero Trail.” Soil Survey Version 9, September 30, 2014. Accessed May 16, 2018. http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm.

NCRWQCB (North Coast Regional Water Quality Control Board), 2018. *Water Quality Control Plan for the North Coast Region*. June 2018. Accessed June 15, 2018. Available online at: https://www.waterboards.ca.gov/northcoast/water_issues/programs/basin_plan/basin_plan_documents/.

State Water Resources Control Board (SWRCB), 2010. *2010 Integrated Report (Clean Water Act Section 303(d) List / 305(b) Report).* Updated 10/10/17. Accessed May 15, 2018. Available online at: https://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml.

Sonoma County, 2008. Sonoma County General Plan: Water Resources Element. September 23, 2008. Accessed May 17, 2018. Available online at: http://sonomacounty.ca.gov/PRMD/Long-Range-Plans/General-Plan/Water-Resources/.

USGS. 2018. The National Map (Hydrography). Web Map Viewer, Watershed Boundary Dataset Data Layer. Accessed May 17, 2018. https://viewer.nationalmap.gov/advanced-viewer/.

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3.9 Land Use and Planning

Introduction

This section of the Draft Environmental Impact Report (EIR) describes existing and planned land uses within and adjacent to the project site, current land uses, land use designations and zoning, and analyzes the consistency of the proposed Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas and Construction and Operation of Recreational Amenities project (proposed project) with existing land use plans and policies, as well as land use compatibility with adjacent lands and with uses proposed internal to the project site. This section also contains a discussion of the project's general consistency with relevant Sonoma County General Plan land use policies. However, conflicts between a project and applicable policies do not constitute a significant physical environmental impact in and of themselves; as such, the project's consistency with applicable policies is included in a table at the end of the Land Use and Planning section. Please see also Section 3.2, Agricultural Resources, for information pertaining to the underlying agricultural uses and designation of the project site.

Comments received in response to the Notice of Preparation (NOP) that raised land use and planning issues included concerns regarding trespassing and camping on adjacent lands, potential for campfires, increase in litter, compatibility with the existing cattle ranch, and the potential for the public to come in contact with cattle. These concerns are not under the purview of CEQA, but a discussion of these concerns is included for informational purposes. Sections 3.2, Agricultural Resources and 3.11, Public Services and Safety, address the interface between cattle and the public. Section 3.11 addresses the issue of litter. Similar concerns were also noted in comments on the prior Mitigated Negative Declaration prepared for the project in October 2016. See Appendix A for a copy of the NOP and complete list of public comments received during the public scoping period.

To the extent that issues identified in public comments involve potentially significant effects on the environment according to the California Environmental Quality Act (CEQA), and/or were raised by responsible and trustee agencies or the public, they are identified and addressed in this EIR.

Environmental Setting

Existing Site

The approximately 500-acre Bordessa Ranch property, which includes the designated Trail Easement or project site is located at 17000 Valley Ford Cutoff, in unincorporated Sonoma County, west of the community of Valley Ford, as shown on Figure 2-1, Regional Location, in Chapter 2, Project Description. The project site is located in a rural area of the county approximately one mile south of the community of Bodega, California, and approximately 2.5

miles west of Valley Ford. The project site is bordered by State Route 1 (SR 1) on the north and extends to the Estero Americano (Estero) on its south.

The Bordessa Ranch property is currently an active cattle ranch with breeding livestock. Cattle use the property for grazing and are present throughout the site.

Access to the project site is from a one-lane gravel/dirt access road off SR 1. A metal gate is located approximately 450 feet from the highway that is typically closed restricting access to the property. The gravel road ends at approximately 0.4 of a mile at a large wooden barn with a smaller agricultural workshop located to the northwest. There are no other large buildings present on the site. Internal to the site is a concrete water tank, spring boxes and concrete water troughs, and two 2,500-gallon above-ground water tanks.

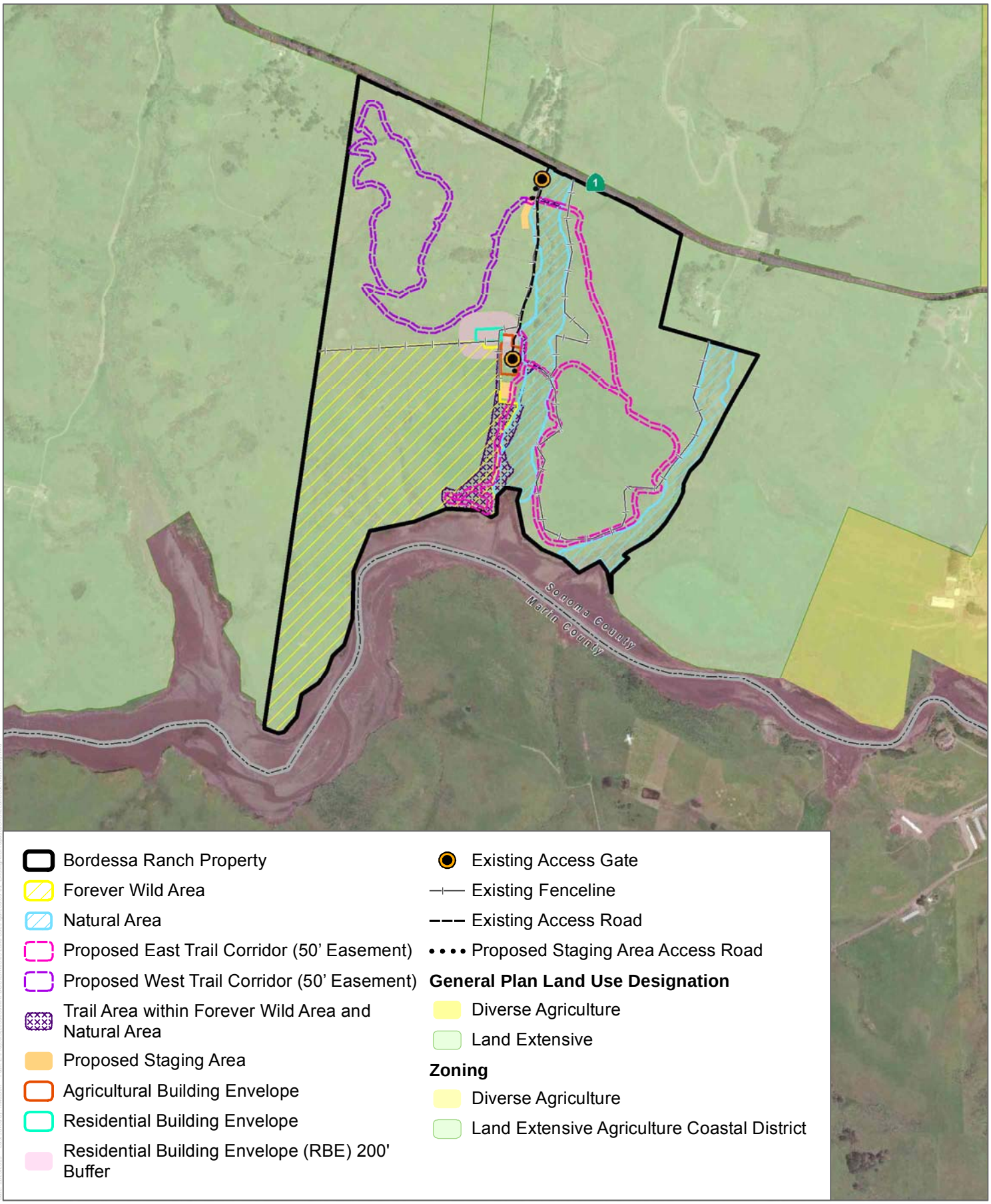
The topography of the property is characterized as rolling hills with a central valley created by a drainage (central creek) that drains into the Estero at the southern end of the site. The undeveloped parts of the project site consist of gently to steeply sloped hillsides, with annual grassland, rocky outcrops, stock ponds, springs, and hillside seeps. Refer to Section 3.4, Biological Resources, for a complete description of the habitat and vegetation on the site. In addition, a perennial creek (central creek) and several smaller drainages are located on the property. These drainages, as well as one of the stock ponds support riparian vegetation and/or eucalyptus groves. Two prominent knolls on the site provide expansive views of the Estero looking to the south.

Adjacent Land Uses

The project site is surrounded by private lands, primarily under agricultural use with similar ranch property adjacent to the north, west and east, with the Estero bordering the southern portion of the site. The only exception is the Sonoma Coast Villa Resort & Spa located across SR 1 generally northwest of the site. Figure 2-2 in Chapter 2, Project Description shows the proposed trail and staging area locations as well as the existing access road and on-site buildings.

Land Use Designation and Zoning

The project site is designated in the Sonoma County General Plan 2020 and zoning code for Land Extensive Agriculture Coastal District (Sonoma County 2013). Portions of the site are within the Riparian Corridor (RC) and Scenic Resource (SR) combining districts, as shown in Figure 2-2. The zoning permits one residence per 160 acres with a minimum lot size of 640 acres if the site were to be subdivided. The site is designated as a critical habitat area within the Coastal Zone, therefore the site includes a Biotic Resource (BR) overlay which requires a biological assessment be prepared if any development is proposed.



SOURCE: Bing Maps 2018; Sonoma County 2015

DUDEK

0 750 1,500 Feet

FIGURE 3.9-1

Existing General Plan Land Use Designation and Zoning

Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas Project

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The Conservation Easement covers the entire Bordessa Ranch property and designates areas for an Agricultural Building Envelope (ABE) and a Residential Building Envelope (RBE), as shown on Figures 2-3 and 2-4 in Chapter 2, Project Description. The Trail Easement specifies the staging areas and trail corridors shall not be placed within two hundred feet of the RBE. This 200-foot buffer or setback is provided between the RBE and the proposed staging areas and trail corridors to provide a separation between the publicly accessible areas and any future residences. As specified in the Conservation Easement, within the 2-acre ABE the landowner is allowed to develop agricultural residences including farm worker housing and farm family housing no larger than 2,000 square feet, barns, corrals, and one lighted horse arena not to exceed 90 feet by 180 feet in size to be used for personal use only. Within the 1-acre RBE the landowner is allowed to develop one primary residence no larger than 3,000 square feet including a garage measuring no larger than 1,200 square feet along with any additional accessory structures and improvements including a guest house, shed, swimming pool and other similar improvements. These improvements are not part of this project, and depending on the approvals required by the County the landowner may be required to conduct additional CEQA analysis if they opt to construct within the ABE or RBE. Figures 2-3 and 2-4 in Chapter 2, Project Description show the location of the ABE and RBE.

Regulatory Setting

Federal Regulations

National Marine Sanctuary Act

The National Marine Sanctuary Act (NMSA) of 1972 authorizes the Secretary of Commerce to designate and protect areas of the marine environment with special national significance due to their conservation, recreational, ecological, historical, scientific, cultural, archeological, educational or esthetic qualities as national marine sanctuaries. The NMSA provides the authority to issue regulations for each sanctuary and the system as a whole. These regulations can, among other things, specify the types of activities that can and cannot occur within the sanctuary. [See section 308 of the NMSA.]

State Regulations

California Coastal Act

The California Coastal Act became law in 1976 and is the primary law that governs decisions of the California Coastal Commission (CCC). The Coastal Zone of California encompasses 1.5 million acres of land that includes an inland boundary that ranges from several blocks in urban areas to as much as five miles inland in rural areas. The Coastal Act is designed to allow local governments prepare Local Coastal Programs (LCPs) to oversee conservation and use of

coastal resources. LCPs must be consistent with the policies of the Coastal Act and protect public access and coastal resources. The County's Local Coastal Plan (certified in 1982 and last amended in 2001) covers an area which is 55 miles in length and extends inland generally 1,000 yards from the mean tide line(Sonoma County 2001). In the Valley Ford area it extends up to five miles inland. Once a local government obtains LCP certification, projects are subject to local permit approval with the LCP as the standard of review.

While Sonoma County has a certified Local Coastal Program, components of the project may be within the CCC's retained permit jurisdiction. This can be seen in the County's Post-Certification Jurisdiction Maps which identify the County's Coastal Development Permit (CDP) jurisdiction, the CCC retained CDP jurisdiction, and appealable areas where projects may be appealed to the CCC. Coastal Act Section 30601.3 authorizes the CCC to process a consolidated CDP application, when requested by the local government and approved by the Executive Director of the CCC, for projects that straddle jurisdictions of the CCC and the local government. Therefore, we assume that the CDP will be processed directly by the CCC for the entire project in order to streamline the CDP process. As such, the project will be evaluated for consistency with Chapter three policies of the California Coastal Act, and the policies of the County's LCP will be used as guidance.

The Coastal Act establishes basic goals of the state for the coastal zone which include:

a) Protect, maintain, and where feasible, enhance and restore the overall quality of the coastal zone environment and its natural and artificial resources.

b) Assure orderly, balanced utilization and conservation of coastal zone resources taking into account the social and economic needs of the people of the state.

c) Maximize public access to and along the coast and maximize public recreational opportunities in the coastal zone consistent with sound resources conservation principles and constitutionally protected rights of private property owners.

d) Assure priority for coastal-dependent and coastal-related development over other development on the coast.

e) Encourage state and local initiatives and cooperation in preparing procedures to implement coordinated planning and development for mutually beneficial uses, including educational uses, in the coastal zone.

The Coastal Act supports priority uses such as coastal-depending development and recreational activities within the coastal zone and specifically notes in Article 2, Public Access; Article 3, Recreation; Article 4, Water Quality; and Article 5, Development, the following policies or standards for uses within the coastal zone are applicable to the project:

Article 2, Public Access

Section 30210 Access; recreational opportunities; posting. In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.

Section 30212.5 Public facilities; distribution. Wherever appropriate and feasible, public facilities, including parking areas or facilities, shall be distributed throughout an area so as to mitigate against the impacts, social and otherwise, of overcrowding or overuse by the public of any single area.

Section 30214 Implementation of public access policies; legislative intent.

a) The public access policies of this article shall be implemented in a manner that takes into account the need to regulate the time, place, and manner of public access depending on the facts and circumstances in each case including, but not limited to, the following:

    1 Topographic and geologic site characteristics.

    2 The capacity of the site to sustain use and at what level of intensity.

    3 The appropriateness of limiting public access to the right to pass and repass depending on such factors as the fragility of the natural resources in the area and the proximity of the access area to adjacent residential uses.

The need to provide for the management of access areas so as to protect the privacy of adjacent property owners and to protect the aesthetic values of the area by providing for the collection of litter.

b) It is the intent of the Legislature that the public access policies of this article be carried out in a reasonable manner that considers the equities and that balances the rights of the individual property owner with the public's constitutional right of access pursuant to Section 4 of Article X of the California Constitution. Nothing in this section or any amendment thereto shall be construed as a limitation on the rights guaranteed to the public under Section 4 of Article X of the California Constitution.

c) In carrying out the public access policies of this article, the commission and any other responsible public agency shall consider and encourage the utilization of innovative access management techniques, including, but not limited to, agreements with private organizations which would minimize management costs and encourage the use of volunteer programs.

Article 3, Recreation

30220. Protection of certain water-oriented activities. Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.

Section 30222. Private lands; priority of development purposes. The use of private lands suitable for visitor-serving commercial recreational facilities designed to enhance public opportunities for coastal recreation shall have priority over private residential, general industrial, or general commercial development, but not over agriculture or coastal-dependent industry.

Section 30223 Upland areas. Upland areas necessary to support coastal recreational uses shall be reserved for such uses, where feasible.

Section 30224 Recreational boating use; encouragement; facilities. Increased recreational boating use of coastal waters shall be encouraged, in accordance with this division, by developing dry storage areas, increasing public launching facilities, providing additional berthing space in existing harbors, limiting non-water-dependent land uses that congest access corridors and preclude boating support facilities, providing harbors of refuge, and by providing for new boating facilities in natural harbors, new protected water areas, and in areas dredged from dry land.

Article 4, Water Quality

Section 30230. Marine resources; maintenance. Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.

Section 30231. Biological productivity; water quality. The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface waterflow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.

Section 30233. Diking, filling or dredging; continued movement of sediment and nutrients.

a) The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:

    1 New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities.

    2 Maintaining existing, or restoring previously dredged, depths in existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps.

    3 In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities.

    4 Incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.

    5 Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.

    6 Restoration purposes.

    7 Nature study, aquaculture, or similar resource dependent activities.

b) Dredging and spoils disposal shall be planned and carried out to avoid significant disruption to marine and wildlife habitats and water circulation. Dredge spoils suitable for beach replenishment should be transported for these purposes to appropriate beaches or into suitable longshore current systems.

c) In addition to the other provisions of this section, diking, filling, or dredging in existing estuaries and wetlands shall maintain or enhance the functional capacity of the wetland or estuary. Any alteration of coastal wetlands identified by the Department of Fish and Game, including, but not limited to, the 19 coastal wetlands identified in its report entitled, "Acquisition Priorities for the Coastal Wetlands of California", shall be limited to very minor incidental public facilities, restorative measures, nature study, commercial fishing facilities in Bodega Bay, and development in already developed parts of south San Diego Bay, if otherwise in accordance with this division. For the purposes of this section, "commercial fishing facilities in Bodega Bay" means that not less than 80 percent of all boating facilities proposed to be developed or improved, where the improvement would create additional berths in Bodega Bay, shall be designed and used for commercial fishing activities.

d) Erosion control and flood control facilities constructed on watercourses can impede the movement of sediment and nutrients that would otherwise be carried by storm runoff into coastal waters. To facilitate the continued delivery of these sediments to the littoral zone, whenever feasible, the material removed from these facilities may be placed at appropriate points on the shoreline in accordance with other applicable provisions of this division, where feasible mitigation measures have been provided to minimize adverse environmental effects. Aspects that shall be considered before issuing a coastal development permit for these purposes are the method of placement, time of year of placement, and sensitivity of the placement area.

Section 30234. Commercial fishing and recreational boating facilities. Facilities serving the commercial fishing and recreational boating industries shall be protected and, where feasible, upgraded. Existing commercial fishing and recreational boating harbor space shall not be reduced unless the demand for those facilities no longer exists or adequate substitute space has been provided. Proposed recreational boating facilities shall, where feasible, be designed and located in such a fashion as not to interfere with the needs of the commercial fishing industry

Section 30235. Construction altering natural shoreline Revetments, breakwaters, groins, harbor channels, seawalls, cliff retaining walls, and other such construction that alters natural shoreline processes shall be permitted when required to serve coastal dependent uses or to protect existing structures or public beaches in danger from erosion, and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply. Existing marine structures causing water stagnation contributing to pollution problems and fish kills should be phased out or upgraded where feasible.

Article 6, Development

Section 30251. Scenic and visual qualities. The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas such as those designated in the California Coastline Preservation and Recreation Plan prepared by the Department of Parks and Recreation and by local government shall be subordinate to the character of its setting

Section 30253. Minimization of adverse impacts. New development shall do all of the following:

a) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.

b) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.

c) Be consistent with requirements imposed by an air pollution control district or the State Air Resources Board as to each particular development.

d) Minimize energy consumption and vehicle miles traveled.

e) Where appropriate, protect special communities and neighborhoods that, because of their unique characteristics, are popular visitor destination points for recreational uses.

Section 30255. Priority of coastal-dependent developments. Coastal-dependent developments shall have priority over other developments on or near the shoreline. Except as provided elsewhere in this division, coastal-dependent developments shall not be sited in a wetland. When appropriate, coastal-related developments should be accommodated within reasonable proximity to the coastal-dependent uses they support.

Greater Farallones National Marine Sanctuary

Designated in 1981, the Gulf of the Farallones National Marine Sanctuary (GFNMS) overseas 1,279-square-miles (966 square nautical miles) just north and west of San Francisco Bay, and protected open ocean, nearshore tidal flats, rocky intertidal areas, estuarine wetlands, subtidal reefs, and coastal beaches within its boundaries. The NMSA requires that the Office of National Marine Sanctuaries (ONMS) prepare regulations to implement the NMSA and national marine sanctuary management plans (15 CFR Part 922).

The ONMS regulations prohibit specific kinds of activities within the national marine sanctuaries, as set forth in Subpart H of section 922.82 of the Code of Federal Regulations. Prohibited activities within the GFNMS, include “[c]onstructing any structure other than a navigation aid on or in the submerged lands of the Sanctuary; placing or abandoning any structure on or in the submerged lands of the Sanctuary.

The GFNMS Management Plan provides comprehensive and coordinated conservation and management of the marine resources (NOAA 2008). The sanctuary includes Bolinas Bay, Bolinas Lagoon, most of Tomales Bay, Estero Americano, Estero de San Antonio, and Bodega Bay.

In order to be consistent with the guiding legislation established in the NMSA, the GFNMS has identified the following priority goals:

- Improve the conservation, understanding, and wise and sustainable use of marine resources;
- Enhance public awareness, understanding, and stewardship of the marine environment;

- Maintain for future generations the habitat and ecological services of the natural assemblage of living resources that inhabit these areas;
- Maintain the natural biological communities to protect, and where appropriate, restore and enhance natural habitats, populations, and ecological processes;
- Provide authority for comprehensive and coordinated conservation and management of these marine areas, and activities affecting them, in a manner which complements existing regulatory authorities;
- Create models of and incentives for ways to conserve and manage these areas, including the application of innovative management techniques; and
- Cooperate with global programs encouraging conservation of marine resources.

Local Regulations

The following local/regional regulations pertaining to land use compatibility would apply to the proposed project.

Sonoma County General Plan 2020

The Land Use Element and Agricultural Resources Element of the Sonoma County General Plan 2020 (Sonoma County 2008) provides objectives, policies, and programs regarding land use, including the following:

Land Use Element

City and Community Centered Growth

> **Policy LU-2b:** Evaluate all public or private projects within the cities and contiguous counties that could affect the unincorporated area for consistency with GP 2020. Inform the Board of any project that may be inconsistent with GP 2020. Work with the applicable city to resolve any inconsistencies in a manner that is consistent with GP 2020.

Protection of Agricultural Lands

> **Goal LU-9:** Protect lands currently in agricultural production and lands with soils and other characteristics that make them potentially suitable for agricultural use. Retain large parcel sizes and avoid incompatible non agricultural uses.
>
> **Objective LU-9.1:** Avoid conversion of lands currently used for agricultural production to non agricultural use.

Objective LU-9.3: Agricultural lands not currently used for farming but which have soils or other characteristics that make them suitable for farming shall not be developed in a way that would preclude future agricultural use.

Objective LU-9.4: Discourage uses in agricultural areas that are not compatible with long term agricultural production.

Objective LU-9.5: Support farming by permitting limited small scale farm services and visitor serving uses in agricultural areas.

Policy LU-9a: Limit extensions of sewer service into any agricultural production area to parcels with a health or safety problem. Out-of-service-area agreements are the preferred method of extending service in such cases.

Policy LU-9b: Apply a base zoning district of agriculture for any land area designated on the Land Use Map for agriculture. Other overlay zoning districts may be applied where allowed by the agricultural land use category.

Preservation of Scenic and Biotic Resource Areas

Goal LU-10: The uses and intensities of any land development shall be consistent with preservation of important biotic resource areas and scenic features.

Objective LU-10.1: Accomplish development on lands with important biotic resources and scenic features in a manner which preserves or enhances these features.

Sustainability

Goal LU-11: Promote a sustainable future where residents can enjoy a high quality of life for the long term, including a clean and beautiful environment and a balance of employment, housing, infrastructure, and services.

Policy LU-11d: Encourage methods of landscape design, landscape and park maintenance, and agriculture that reduce or eliminate the use of pesticides, herbicides, and synthetic fertilizers; and encourage the use of compost and conservation of water.

Sonoma Coast/Gualala Basin

Objective LU-12.4: In the Coastal Zone, limit the scale of any new visitor and tourist oriented uses and confine them to existing communities and locations that are designated for such uses. Assure that they are compatible with and protect the area's natural,

undeveloped scenic character. Avoid these uses outside of the Coastal Zone except in the RVSC and Agricultural designations.

Agricultural Resources Element

Mitigate Conflicts Between Agricultural and Non-agricultural Uses

Policy AR-4f: Anticipated conflicts between a proposed new agricultural use and existing agricultural activities shall be mitigated by the newer use or application.

Regulate the Location and Intensity of Visitor Serving Uses

Objective AR-6.2: Permit visitor serving uses in all agricultural land use categories if they support and do not adversely affect the agricultural production activities of the area. Bed and breakfast inns of five or fewer rooms, and campgrounds of up to 30 sites, are permissible recreational uses only in the "Land Extensive Agriculture" and "Diverse Agriculture" categories, if they do not adversely affect the agricultural production activities of the area.

Policy AR-6d: Follow these guidelines for approval of visitor serving uses in agricultural areas: (1) The use promotes and markets only agricultural products grown or processed in the local area. (2) The use is compatible with and secondary and incidental to agricultural production activities in the area. (3) The use will not require the extension of sewer and water. (4) The use is compatible with existing uses in the area. (5) Hotels, motels, resorts, and similar lodging are not allowed. (6) Activities that promote and market agricultural products such as tasting rooms, sales and promotion of products grown or processed in the County, educational activities and tours, incidental sales of items related to local area agricultural products are allowed. (7) Special events on agricultural lands or agriculture related events on other lands in the Sonoma Valley Planning Area will be subject to a pilot event coordination program which includes tracking and monitoring of visitor serving activities and schedule management, as necessary, to reduce cumulative impacts.

Policy AR-6e: Recreational facilities for off-road vehicles of any size shall not be permitted within any agricultural land use category.

Open Space and Resource Conservation Element

Goal OSRC-17: Establish a countywide park and trail system that meets future recreational needs of the County's residents while protecting agricultural uses. The emphasis of the trail system should be near urban areas and on public lands.

Objective OSRC-17.1: Provide for adequate parklands and trails primarily in locations that are convenient to urban areas to meet the outdoor recreation needs of the population, while not negatively impacting agricultural uses.

Sonoma County Local Coastal Plan

Pursuant to the 1976 Coastal Act each county and city along the coast are required to prepare a Local Coastal Plan (LCP). Each jurisdiction is responsible for developing a LCP covering a 20 year planning period which brings local government plans and regulations, as well as those of all public agencies into conformance with State Coastal Act policies. The County's LCP, certified in 1982 and last amended in 2001, provides recommendations and policy statements intended to implement State Coastal Act policies (Sonoma County 2001). The policy recommendations address development of appropriate recreation and access facilities in the coastal zone areas. Among the facilities needed for access ways and shoreline destinations are: safe trails, restrooms, parking areas, trash receptacles and signs (Sonoma County 2001, p. 59). Necessary facilities at a particular site will depend upon expected use and the availability of facilities nearby. Because the level of use is expected to increase over time, facilities may be developed in several phases with new or expanded facilities added as needed.

While normally the County's LCP is the standard of review for Coastal Development Permits (CDPs) within Sonoma County, as noted previously, this project crosses into the CCC's original jurisdiction where the CCC retains permit jurisdiction. As such, a consolidated CDP through the CCC would likely be obtained. The development will be evaluated for consistency with the California Coastal Act, and the policies of the County's LCP will be used as guidance.

Sonoma County Code of Ordinances

The County's Code of Ordinances regulates use and activities allowed within the coastal zone. Specifically, Chapter 20, Parks and Recreation, Section 20-8.5 specifies when dogs are allowed within recreation areas located within the coastal zone and Chapter 26C provides guidance within Coastal Zoning Resource Districts. Within Chapter 26C, Article III LEA CC Land Extensive Agriculture Coastal District, Section 26C-31 permits public parks that do not conflict or interfere with the Coastal Plan. Note, because the County is the lead agency it is exempt from showing compliance with the Sonoma County Zoning Code; however, the project prohibits dogs within the project site.

<u>Sec 20-8.5</u>

a) There are within the county of Sonoma numerous parks, campgrounds and other recreational sites located within the county's coastal zone, as that area is defined in the Sonoma County coastal plan certified by the State Coastal Commission in December, 1980. A coastal development permit granted by the county of Sonoma is required for any person, including the state of California and its agencies, to undertake to develop an area within this zone, pursuant to the California Coastal Act (Public Resources Code

section 30000 et seq.). Recommendation 22 of this coastal plan provides that if dog predation of coastal livestock cannot be effectively controlled, dogs may be prohibited from areas directly adjacent to vulnerable grazing lands.

b) Dogs shall be prohibited from parks, campgrounds and other recreational sites located within the coastal zone of Sonoma County whenever the decision-making body makes a finding and imposes a condition on the coastal development permit that such areas are adjacent to vulnerable grazing lands and dog predation cannot be effectively controlled, pursuant to the coastal plan of Sonoma County. This section shall not apply to seeing-eye dogs used to guide a blind person, provided that such dogs shall remain under the immediate control of such blind persons.

Sec. 26C-1

This section is adopted to promote and protect the public health, safety, peace, comfort, convenience, and general welfare. It is also adopted for the following specified purposes:

a) To ensure that the Coastal Act of 1976 (Division 20 of the Public Resources Code) is implemented in accordance with the coastal program of Sonoma County.

b) To provide for the orderly and beneficial land use of the coastal zone of Sonoma County.

c) To protect the character and social and economic stability of agricultural, residential, commercial, industrial, and other communities within the coastal zone of Sonoma County.

d) To protect the public safety and welfare by regulating the location and uses of all structures and land.

e) To protect and conserve the scenic, recreational and natural resource characteristics of the county.

f) To provide for the orderly and timely processing of development projects as anticipated by the California Permit Streamlining Act. Development projects do not include rezonings, plan amendments or other applications accompanied by a request for a rezoning or plan amendment.

Sec. 26C-31

This section provides the permitted uses, subject to site development and erosion control. Non-agricultural uses are permitted under (c), and required that the applicant must demonstrate that the use meets a local need, avoids conflict with agricultural activities and is consistent with objective AR-4.1 and policy AR-4a of the agricultural resources element. Specifically, it notes the following allowed use.

(9) Public parks which do not interfere with the primary purpose of the Coastal Plan land use designation.

Impacts

Methods of Analysis

Existing land uses in the vicinity of the project site were identified based on a site visit. Planned land uses were identified based on the County's General Plan and information provided by the County. The land use evaluation is based on a qualitative comparison of existing and proposed uses on the site and their compatibility with existing land uses and planned land uses, as defined in the County's General Plan.

The California Environmental Quality Act (CEQA) Guidelines, Section 15125(d) (found in 14 CCR 15000 et seq.), states that the environmental setting of an EIR must discuss "any inconsistencies between the proposed project and applicable general plans, specific plans, and regional plans." An inconsistency with a general plan or other policy would not necessarily create an environmental impact. In some cases, a general plan policy lays out the standard by which an environmental impact is judged to be significant or less than significant. The determination of project consistency with the County's General Plan must be made by the Board of Supervisors. The information provided in this section is meant to inform that decision.

The analysis below and in Table 3.9-1 evaluates the proposed project's consistency with applicable goals and policies contained in the County's General Plan, as well as other relevant planning documents. Physical environmental impacts resulting from development of the project site are discussed in the applicable technical sections in Chapter 3 of this Draft EIR. CEQA does not treat project consequences relating solely to land use, socioeconomic or population, employment, or housing issues as direct physical impacts to the environment. An EIR may provide information regarding land use, planning, and socioeconomic effects; however, CEQA does not recognize these types of project consequences as typical impacts on the physical environment. The analysis in this section discusses only general land use compatibility and land use policy consistency as opposed to analyzing the physical impacts on the environment that could occur with implementation of the project. This discussion complies with Section 15125(d) of the CEQA Guidelines, as discussed above.

Implementation of the proposed project would result in a minor change in a land use as compared to existing conditions, and would be consistent with the County's underlying Trail Easement, Conservation Easement, and General Plan land use designation of Land Extensive Agriculture (Sonoma County 2013). Changes in land use are regulated by the planning policies adopted by each local governmental jurisdiction in California. Therefore, this change in land use is evaluated in comparison to the planning goals and policies in the County's General Plan. General plans provide long-term goals, policies and standards for development, and all development proposals must be generally consistent with the overall land use guidance

provided in a general plan. Additional land use controls are applied through the County's zoning and grading requirements, as well as other County regulations and ordinances. The project's consistency with applicable ordinances, as well as specific land use implications associated with development of the project is discussed in this section. The analyses of consistency with other planning documents (e.g., regional air quality plans) are provided in the applicable technical sections in Chapter 3 of this Draft EIR.

Thresholds of Significance

Consistent with Appendix G of the CEQA Guidelines and the County's General Plan, a significant impact would occur if development of the proposed project would do any of the following:

- Physically divide an established community.
- Cause a significant environmental impact due to a conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

Project Impacts and Mitigation Measures

3.9-1: Implementation of the proposed project would not divide an existing established community. This would result in no project impact.

The ranch lands within the Conservation Easement and Trail Easement areas are currently used for grazing cattle and contain a barn and other ranch-related outbuildings. There is no other development on the site with the exception of an access road, gate, fencing, and other miscellaneous features noted above in the environmental setting. The physical division of an established community typically refers to the construction of a physical feature (such as a road, railroad tracks, or other type of structure that prohibits access) or removal of a means of access (such as a local road or bridge) that would impair internal access within an existing community, or between a community and adjacent areas.

The project is proposing to construct two trails on the site and other trail-related amenities consistent with the Trail Easement that the District acquired from the landowners. The existing barn and workshop are all located within the Conservation Easement that overlays the ranch property. There would be no changes or modifications to these existing uses as part of this project. Construction of the trails and trail-related amenities pursuant to the Trail Easement would not divide an established community because the project site does not contain an established community; therefore, there would be **no impact.**

Mitigation Measures

No mitigation measures are required.

3.9-2: Implementation of the proposed project would not conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. This is considered a less-than-significant impact.

The Sonoma County General Plan 2020 includes goals, objectives and policies to facilitate future parks, trails and other recreational amenities for County residents. Specifically, Open Space and Resource Conservation Goal OSRC-17 aims to "establish a countywide park and trail system that meets future recreational needs of the County's residents while protecting agricultural uses." The Trail Easement is located within a working cattle ranch which would continue to operate as a working ranch, with grazing still occurring throughout the entire property. Table 3.9-1 lists all applicable County goals and policies and addresses consistency with the project. As noted previously, conflicts between a project and applicable policies do not constitute a significant physical environmental impact in and of themselves. An inconsistency with a general plan goal or policy would not necessarily create an environmental impact unless the goal or policy sets forth physical changes to the environment that could result in an impact. In some cases, a general plan policy lays out the standard by which an environmental impact is judged to be significant or less than significant. The determination of project consistency with the County's General Plan must be made by the Board of Supervisors. The information provided is meant to inform that decision.

Consistency with other applicable plans and ordinances is included below.

California Coastal Act and Sonoma County Local Coastal Plan

As detailed under the Regulatory Setting, the California Coastal Act became law in 1976 and is the primary law that governs decisions of the California Coastal Commission (CCC). The Coastal Act is designed to allow local governments prepare LCPs to oversee conservation and use of coastal resources. LCPs must be consistent with the policies of the Coastal Act and protect public access and coastal resources. The County's LCP (certified in 1982 and last amended in 2001) includes the Valley Ford area (project site) and extends up to five miles inland. Once a local government obtains LCP certification, projects are subject to local permit approval with the LCP as the standard of review. However, the project site straddles jurisdictions of the CCC and the County; therefore, the project will be evaluated for consistency with Chapter three policies of the California Coastal Act, and the policies of the County's LCP will be used as guidance.

Applicable Chapter three policies of the Coastal Act include provision of public access; water-related recreation, marine resources and water quality; and allowable development.

Public Access

Section 30210 addresses providing maximum access and recreational opportunities for the public consistent with public safety, rights of private property owners and protecting natural resource areas from overuse. The project has been designed to allow public access within this area consistent with the preservation of natural resources and habitat connectivity; open space and scenic views; and existing agricultural resources. Section 30212.5 requires that public facilities, including parking areas be distributed throughout an area so as to mitigate against the impacts of overcrowding or overuse by the public of any single area. The proposed trail system is relatively small and would not exceed a total of 5 miles in length. To accommodate visitors to the area the project includes two staging/parking areas that would provide up to 55 parking spaces. Section 30214 sets forth the policies for public access that take into account a site's topography and geologic conditions, capacity of the site to sustain use and level of intensity, and the right to limit public access due to the presence of protected biological resources and proximity to residential uses. This section also addresses the need to provide oversight and management to protect the privacy of adjacent uses and to ensure litter control to protect aesthetic values. The project's trail system and staging/parking areas are located within the District's Trail Easement and have been designed consistent with the existing topography to allow public access consistent with the preservation of natural resources and habitat connectivity; open space and scenic views; and existing agricultural resources. The trails and staging/parking areas are to be located within the central portion of the property and are not within a close proximity to adjacent ranch uses to the west or east to affect privacy. Lastly, Maintenance of the trails and staging areas would be provided by County Regional Parks. Regional Parks would be responsible for ensuring the trails are kept functional and safe and trash would removed on a weekly basis, unless more frequent removal is required. The project is consistent with the intent of these policies.

Recreation

Sections 30220, 30222, 30223, and 30224 in Article 3 address protection of water-oriented activities; use of private lands to enhance public opportunities for coastal recreation and encouraging recreational boating. Section 30224 encourages increasing public launching facilities and providing new boat facilities in natural harbors. The East Trail includes potential access to the Estero to enable non-motorized boats (e.g., kayaks) to be carried to the water's edge. Within the East Trail, the County has identified installing a roll-out surface protection mat that would be approximately 5 feet wide and 400 feet long that would begin at the bottom of slope and would cross the mud flats to permit access to the Estero. The project is consistent with the intent set forth in these sections.

Water Quality

Sections 30230, 30231, 30233, 30234 and 30235 in Article 4, address maintaining marine resources in order to sustain biological productivity and maintain healthy populations of marine species; maintaining the biological productivity and quality of coastal waters by minimizing wastewater discharge, controlling runoff, and maintaining natural vegetation buffer areas to protect riparian habitats; diking, filling and dredging of coastal waters; commercial and recreational boating facilities; and construction activities that would alter the natural shoreline. Construction of the project would comply with the County's Stormwater Quality requirements included in Chapter 11A of the County's Municipal Code, which states construction activities are required to implement best management practices to prevent debris from entering any water source. In addition, Section 11.04.010 of the County's Municipal Code defines the construction grading permit requirements which the County would follow. Access to the Estero for hikers and non-motorized boats is proposed as part of the East Trail alignment and includes a temporary mat system designed for sensitive areas. The project does not incudes any uses or activities that would require diking, filling or dredging of coastal waters or construction activities that could alter the natural shoreline. In addition, access to the Estero would maintain the natural vegetation areas and would protect riparian habitats. The project is consistent with the intent set forth in these sections.

Development

Sections 30251, 30253 and 30255 address protection of scenic and visual coastal area due to development; minimization of impacts associated with development; and location of coastal development outside of wetland areas. Within the East Trail alignment the County has identified installing a roll-out surface protection mat that would be approximately 5 feet wide and 400 feet long that would begin at the bottom of slope and would cross the mud flats to the main Estero channel. The two systems under consideration include a series of open mesh panels (GeoSystems GeoRunner or Geoterra) that snap together and secure with clips as well as anchors (or rebar) that secure the mat to the soil surface. This design would enable the system to be removed before large storm events. Impacts associated with this type of system are addressed in Section 3.4, Biological Resources. This would not create a permanent structure within the Estero and would not result in adverse visual effect. The project is consistent with the intent set forth in these sections.

Sonoma County Local Coastal Plan

The County's LCP, certified in 1982 and last amended in 2001, provides recommendations and policy statements intended to implement the State's Coastal Act policies. The LCP policy recommendations address development of appropriate recreation and access facilities in the coastal zone areas. Among the facilities needed for access ways and shoreline destinations are: safe trails, restrooms, parking areas, trash receptacles and signs (Sonoma County 2001, p. 59).

The project includes a limited trail system comprised of two trails that would not exceed 5 miles in total length, a portable restroom facility at the trailhead, two staging/parking areas to accommodate up to 30 vehicles, trash receptacles, and informational and educational signage consistent with the LCP. The project is consistent with the guidance provided in the LCP for recreational facilities within the coastal zone.

Greater Farallones National Marine Sanctuary

The Greater Farallones National Marine Sanctuary (GFNMS) overseas 1,279-square-miles (966 square nautical miles) just north and west of San Francisco Bay, and protected open ocean, nearshore tidal flats, rocky intertidal areas, estuarine wetlands, subtidal reefs, and coastal beaches within its boundaries. The GFNMS Management Plan (NOAA 2008) provides comprehensive and coordinated conservation and management of the marine resources and includes a number of priority goals. The GFNMS Management Plan does not include specific policies for development, but identifies a number of priority goals including enhancing public awareness and stewardship of the marine environment, and maintaining the biological communities to protect, restore and enhance and incentives to conserve and manage these areas. The project includes informational and educational signage to be provided at the Estero informing people about the fragile environment and where access to the Estero is provided.

The National Marine Sanctuary Act requires that the Office of National Marine Sanctuaries (ONMS) prepare regulations to implement the NMSA and national marine sanctuary management plans (15 CFR Part 922). Prohibited activities within the GFNMS, include "[c]onstructing any structure other than a navigation aid on or in the submerged lands of the Sanctuary; placing or abandoning any structure on or in the submerged lands of the Sanctuary …" As described in Chapter 2, Project Description, access for boaters and hikers to the Estero would be via a removable system of matts that provide a solid surface. The system is designed to be removed in the event of a storm or seasonally if it is determined necessary.

Sonoma County Ordinances

The County is exempt from the Sonoma County Zoning Code and would not be required to obtain a coastal development permit, as required under Chapter 20, Parks and Recreation, Section 20-8.5. This section of the County's Zoning Code addresses prohibiting dogs from parks, campgrounds and other recreational sites located within the county's coastal zone if those site are located near grazing lands. The project would not allow dogs within the staging/parking lots or on the trails. This would be enforced through the County's Regional Park Rangers that would conduct periodic patrol of the trails and staging/parking areas and visitors calling to report anyone not complying with this rule of entry. The project is consistent with the allowable uses included within Chapter 26C, Land Extensive Agricultural District Coastal District that allows public parks which do not interfere with the primary purpose of the Coastal Plan land use designation.

Mitigation Measures

No mitigation measures are required.

Table 3.9-1
Consistency with Applicable Sonoma County General Plan 2020
Goals, Policies and Objectives

Goal/Policy/Objective	Consistency Analysis
Policy LU-2b: Evaluate all public or private projects within the cities and contiguous counties that could affect the unincorporated area for consistency with GP 2020. Inform the Board of any project that may be inconsistent with GP 2020. Work with the applicable city to resolve any inconsistencies in a manner that is consistent with GP 2020.	**Consistent**. Consistency with applicable goals, policies and objectives from the County's General Plan has been conducted as part of this EIR and is provided in this table.
GOAL LU-9: Protect lands currently in agricultural production and lands with soils and other characteristics that make them potentially suitable for agricultural use. Retain large parcel sizes and avoid incompatible non agricultural uses.	**Consistent**. The project is proposed within a Trails Easement purchased by the County and would not require the subdivision of land. The remainder of the project site is currently used for cattle grazing and is under a Conservation Easement. The project site is designated as Grazing Land by the California Department of Conservation Important Farmland Map and does not contain soils suitable for agricultural production.
Objective LU-9.1: Avoid conversion of lands currently used for agricultural production to non agricultural use.	**Consistent**. The project site is a working cattle ranch and would continue to be a working ranch and used for grazing. The project would develop trails and two staging/parking areas within a Trails Easement purchased by the County. The project would not create an irreversible commitment of agricultural lands.
Objective LU-9.3: Agricultural lands not currently used for farming but which have soils or other characteristics that make them suitable for farming shall not be developed in a way that would preclude future agricultural use.	**Consistent**. As discussed in Section 3.2, Agricultural Resources, the project site is designated as Grazing Land by the California Department of Conservation and does not contain soils suitable for farming.
Objective LU-9.4: Discourage uses in agricultural areas that are not compatible with long term agricultural production.	**Consistent**. The project includes development of trails and two staging/parking areas within a Trails Easement purchased by the County. The remainder of the project site is currently an active cattle ranch and used for cattle grazing. Trails and grazing are considered compatible uses and many trails in Sonoma County are in areas where cattle grazing occurs. Development of the project would not discourage the existing grazing activities.
Objective LU-9.5: Support farming by permitting limited small scale farm services and visitor serving uses in agricultural areas.	**Consistent**. The project supports the existing cattle ranch and is providing a recreational amenity in an agricultural area of the County.
Policy LU-9a: Limit extensions of sewer service into any agricultural production area to parcels with a health or safety problem. Out-of-service-area agreements are the preferred method of extending service in such cases.	**Consistent**. The project does not include the provision or extension of sewer, water or storm drain infrastructure to serve the site.
Policy LU-9b: Apply a base zoning district of agriculture for any land area designated on the Land Use Map for	**Consistent**. The project site is zoned Land Extensive Agriculture and portions of the site are within the Riparian Corridor (RC) and Scenic Resource (SR) combining districts.

Table 3.9-1
Consistency with Applicable Sonoma County General Plan 2020 Goals, Policies and Objectives

Goal/Policy/Objective	Consistency Analysis
agriculture. Other overlay zoning districts may be applied where allowed by the agricultural land use category.	In addition, the project site includes a Trail Easement and a Conservation Easement.
Goal LU-10: The uses and intensities of any land development shall be consistent with preservation of important biotic resource areas and scenic features.	**Consistent**. The Trail Easement, which includes the trails and staging/parking lot areas are not proposed within any important biotic resource areas, as detailed in Section 3.4, Biological Resources. Extensive surveying was done to identify where the important biological resources are located to ensure impacts to these resources could either be avoided or mitigated. In addition, the project would not affect any scenic resources.
Objective LU-10.1: Accomplish development on lands with important biotic resources and scenic features in a manner which preserves or enhances these features.	**Consistent**. The Trail Easement, which includes the trails and staging/parking lot areas has been designed to preserve the biotic resources and to enhance access to scenic features for the public to experience and enjoy.
Goal LU-11: Promote a sustainable future where residents can enjoy a high quality of life for the long term, including a clean and beautiful environment and a balance of employment, housing, infrastructure, and services.	**Consistent**. The project is designed to provide trails and public access within an area of the County that has limited access to trails and to views of the Estero Americano.
Policy LU-11d: Encourage methods of landscape design, landscape and park maintenance, and agriculture that reduce or eliminate the use of pesticides, herbicides, and synthetic fertilizers; and encourage the use of compost and conservation of water.	**Consistent**. The project would not use any pesticides, herbicides, or synthetic fertilizers and does not include any irrigation.
Objective LU-12.4: In the Coastal Zone, limit the scale of any new visitor and tourist oriented uses and confine them to existing communities and locations that are designated for such uses. Assure that they are compatible with and protect the area's natural, undeveloped scenic character. Avoid these uses outside of the Coastal Zone except in the RVSC and Agricultural designations.	**Consistent**. The project is located within the Coastal Zone in a designated Trail Easement that the County purchased to provide public access consistent with the preservation of natural resources and habitat connectivity; open space and scenic views.
Policy AR-4f: Anticipated conflicts between a proposed new agricultural use and existing agricultural activities shall be mitigated by the newer use or application.	**Consistent**. The project is designed to be compatible with the existing cattle ranch. The County has numerous parks where the public and cattle share the same area and have experienced few issues.
Objective AR-6.2: Permit visitor serving uses in all agricultural land use categories if they support and do not adversely affect the agricultural production activities of the area. Bed and breakfast inns of five or fewer rooms, and campgrounds of up to 30 sites, are permissible recreational uses only in the "Land Extensive Agriculture" and "Diverse Agriculture" categories, if they do not adversely affect the agricultural production activities of the area.	**Consistent**. The project is proposed within an existing Trail Easement purchased by the County in an area designated and zoned for agricultural uses. The County is proposing to provide public access consistent with the preservation of natural resources and habitat connectivity; open space and scenic views.
Policy AR-6d: Follow these guidelines for approval of visitor serving uses in agricultural areas: (1) The use promotes and markets only agricultural products grown or processed in the local area. (2) The use is compatible with and secondary and incidental to agricultural production	**Consistent**. The project has been designed consistent with the Trail Easement that allows for low-intensity public outdoor recreational and educational uses on consistent with the underlying Conservation Easement. Project uses are compatible with the County's underlying Land Extensive

Table 3.9-1
Consistency with Applicable Sonoma County General Plan 2020
Goals, Policies and Objectives

Goal/Policy/Objective	Consistency Analysis
activities in the area. (3) The use will not require the extension of sewer and water. (4) The use is compatible with existing uses in the area. (5) Hotels, motels, resorts, and similar lodging are not allowed. (6) Activities that promote and market agricultural products such as tasting rooms, sales and promotion of products grown or processed in the County, educational activities and tours, incidental sales of items related to local area agricultural products are allowed. (7) Special events on agricultural lands or agriculture related events on other lands in the Sonoma Valley Planning Area will be subject to a pilot event coordination program which includes tracking and monitoring of visitor serving activities and schedule management, as necessary, to reduce cumulative impacts.	Agriculture designation and zoning and existing cattle ranch. The project does not require the extension of water or sewer infrastructure and does not include growing or marketing of agricultural products; development of hotels, motels or other lodging; activities that promote and market agricultural products; or agricultural-related special events.
Policy AR-6e: Recreational facilities for off-road vehicles of any size shall not be permitted within any agricultural land use category.	**Consistent**. The project is designed to allow non-commercial low-intensity outdoor recreational and environmental education uses and non-motorized activities that do not adversely impact the natural resources or agriculture on the property. No off-road vehicles would be permitted as part of the project.
Goal OSRC-17: Establish a countywide park and trail system that meets future recreational needs of the County's residents while protecting agricultural uses. The emphasis of the trail system should be near urban areas and on public lands.	**Consistent**. The County purchased a Trail Easement in order to develop low-intensity outdoor recreational and environmental education uses that protect the existing cattle grazing operation and meets the recreational needs of County residents.
Objective OSRC-17.1: Provide for adequate parklands and trails primarily in locations that are convenient to urban areas to meet the outdoor recreation needs of the population, while not negatively impacting agricultural uses.	**Consistent**. The project's trail corridors are intended to provide public access from State Route 1 to scenic vista points and possible limited public access to the Estero Americano, and has been designed, consistent with the Trail Easement, to not adversely impact the natural resources or agriculture present on the site.

Cumulative Impacts

The land use analysis in an EIR does not typically include a discussion of cumulative impacts because the consistency analysis for applicable land use goals and policies and compatibility with existing adjacent uses is not an additive effect.

References

County of Sonoma. 2001. Local Coastal Program, Local Coastal Plan. 1981. Last amended 2001.

County of Sonoma. 2008. Sonoma County General Plan 2020. Land Use Element. 2008. Last amended August 2016.

County of Sonoma. Municipal Code. Last Amended June 20, 2019.

Public Resources Code. Division 20. California Coastal Act. 2018.

NOAA (National Atmospheric and Oceanic Administration). 2008. Gulf of the Farallones National Marine Sanctuary Final Management Plan (GFNMS). U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Ocean Service, National Marine Sanctuary Program. October 2008.

3.10 Noise

Introduction

This section of the Draft Environmental Impact Report (EIR) presents potential noise impacts of the Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas and Construction and Operation of Recreational Amenities project (proposed project). This section presents the environmental setting, regulatory framework, impacts of the proposed project on the environment, and proposed measures to mitigate any identified significant impacts.

No comments were received that raised concerns regarding noise in response to the Notice of Preparation (NOP) or the prior Mitigated Negative Declaration released in October 2016. See Appendix A for a copy of the NOP and complete list of public comments received during the public scoping period.

To the extent that issues identified in public comments involve potentially significant effects on the environment according to the California Environmental Quality Act (CEQA), and/or were raised by responsible and trustee agencies or the public, they are identified and addressed in this EIR.

Environmental Setting

This section describes the existing noise conditions in the project area and also identifies the resources that could be affected by the proposed project.

Noise Background Terminology

Fundamentals of Environmental Noise

Vibrations, traveling as waves through air from a source, exert a force perceived by the human ear as sound. Sound pressure level (referred to as sound level) is measured on a logarithmic scale in decibels (dB) that represent the fluctuation of air pressure above and below atmospheric pressure. Frequency, or pitch, is a physical characteristic of sound and is expressed in units of cycles per second or hertz (Hz). The normal frequency range of hearing for most people extends from about 20 to 20,000 Hz. The human ear is more sensitive to middle and high frequencies, especially when the noise levels are lower. As noise levels increase, the human ear starts to hear the frequency spectrum more evenly. To accommodate for this phenomenon, a weighting system has been developed to mimic the response of the human ear. The frequency weighting called “A” weighting is typically used for lower noise levels which de-emphasizes the low frequency components of the sound in a manner similar to the response of a human ear. This A-weighted sound level is referenced in units of dBA.

Since sound is measured on a logarithmic scale, a doubling of sound energy results in a 3 dBA increase in the noise level. “It is generally accepted that the average healthy ear…can barely perceive a noise level change of 3 dB” (Caltrans 2013). A change of 5 dBA is readily perceptible, and a change of 10 dBA is perceived as twice or half as loud. A doubling of sound energy results in a 3 dBA increase in sound, which means that a doubling of sound energy (e.g., doubling the average daily trips [ADT] on a road) would result in a barely perceptible change in sound level.

Community noise sources vary continuously, being the product of many noise sources at various distances, all of which constitute a relatively stable background or ambient noise environment. The background, or ambient, noise level gradually changes throughout a typical day, corresponding to distant noise sources, such as traffic, as well as changes in atmospheric conditions.

Noise levels are generally higher during the daytime and early evening when traffic (including airplanes), commercial, and industrial activity is the greatest. However, noise sources experienced during nighttime hours when background levels are generally lower can be potentially more conspicuous and irritating to the receiver. In order to evaluate noise in a way that considers periodic fluctuations experienced throughout the day and night, a concept termed “community noise equivalent level” (CNEL) was developed, wherein noise measurements are weighted, added, and averaged over a 24-hour period to reflect magnitude, duration, frequency, and time of occurrence.

Different types of measurements are used to characterize the time-varying nature of sound. These measurements include the equivalent sound level (L_{eq}), the minimum and maximum sound levels (L_{min} and L_{max}), percentile-exceeded sound levels (L_{xx}), the day–night sound level (L_{dn}), and CNEL. Below are brief definitions of these measurements and other terminology used in this report.

- *Decibel (dB)* is a unitless measure of sound on a logarithmic scale which indicates the squared ratio of sound pressure amplitude to a reference sound pressure amplitude. The reference pressure is 20 micropascals.
- *A-weighted decibel (dBA)* is an overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.
- *Equivalent sound level (Leq)* is the constant level that, over a given time period, transmits the same amount of acoustic energy as the actual time-varying sound. Equivalent sound levels are the basis for both the day–night average sound levels (Ldn) and community noise equivalent level (CNEL) scales.
- *Maximum sound level (Lmax)* is the maximum sound level measured during the measurement period.
- *Minimum sound level (Lmin)* is the minimum sound level measured during the measurement period.

- *Percentile-exceeded sound level (Lxx)* is the sound level exceeded x percent of a specific time period. L10 is the sound level exceeded 10% of the time.
- *Day–night average sound level (Ldn).* The Ldn is a 24-hour average A-weighted sound level with a 10 dB penalty added to the nighttime hours from 10:00 p.m. to 7:00 a.m. The 10 dB penalty is applied to account for increased noise sensitivity during the nighttime hours. Resulting values from application of Ldn versus CNEL rarely differ by more than 1 dB (see definition below), and therefore these two methods of describing average noise levels are often considered interchangeable.
- *Community noise equivalent level (CNEL)* The CNEL is the average equivalent A-weighted sound level during a 24-hour day. CNEL accounts for the increased noise sensitivity during the evening hours (7:00 p.m. to 10:00 p.m.) and nighttime hours (10:00 p.m. to 7:00 a.m.) by adding 5 dB to the sound levels in the evening and 10 dB to the sound levels at night. CNEL and Ldn are often considered equivalent descriptors.

Exterior Noise Distance Attenuation

Noise sources are classified in two forms: (1) point sources, such as stationary equipment or a group of construction vehicles and equipment working within a spatially limited area at a given time, and (2) line sources, such as a roadway with a large number of pass-by sources (motor vehicles). Sound generated by a point source typically diminishes (attenuates) at a rate of 6 dBA for each doubling of distance from the source to the receptor at acoustically “hard” sites and at a rate of 7.5 dBA for each doubling of distance from source to receptor at acoustically “soft” sites. Sound generated by a line source (i.e., a roadway) typically attenuates at a rate of 3 dBA and 4.5 dBA per doubling distance, for hard and soft sites, respectively. Sound levels can also be attenuated by man-made or natural barriers. For the purpose of sound attenuation discussion, a “hard” or reflective site does not provide any excess ground-effect attenuation and is characteristic of asphalt or concrete ground surfaces, as well as very hard-packed soils. An acoustically “soft” or absorptive site is characteristic of unpaved loose soil or vegetated ground.

Existing Noise Conditions

The project vicinity is rural in nature, and the primary noise source is vehicular traffic on local roadways, specifically State Route 1 (SR 1). No major industrial uses, airports, or large commercial or educational institutions are located in the project vicinity. The nearest roadway SR 1 is also known as Valley Ford Cutoff. In order to characterize noise levels existing in the project vicinity, a series of short-term noise measurements were conducted.

Dudek visited the proposed project site on October 9, 2017, to measure ambient sound levels in the vicinity. Short-term noise measurements were conducted at three locations (shown in Figure 3.10-1). One noise measurement (ST1) was conducted about 10 feet in front of the main gate

leading to the project site. This location is approximately 175 feet from the edge of the pavement of SR 1. A second noise measurement (ST2) was conducted in the parking lot of the Sonoma Coast Villa Resort & Spa located at 15999 Valley Ford Cutoff. The final measurement (ST3) was located on the driveway of the nearest residential receptor to the east of project site.

Short-term (ST#) measurements were conducted with a Rion NL-62 sound level meter placed on a tripod with the microphone positioned approximately 5 feet above the ground. This is an ANSI Type I sound level meter. Each of the noise measurements was 15 minutes in duration. In order to gather traffic volume data to be used in calibrating the traffic noise model, vehicle traffic was manually counted simultaneously with the measurement at location ST1. There were 185 automobiles, one medium truck, and eight heavy trucks observed during the ST1 measurement. Given traffic count information for SR 1 was collected during the sound level measurement at ST1, manual traffic counts were not performed with the sound level measurements at ST2 and ST3. The resulting sound level measurement data is summarized in Table 3.10-1.

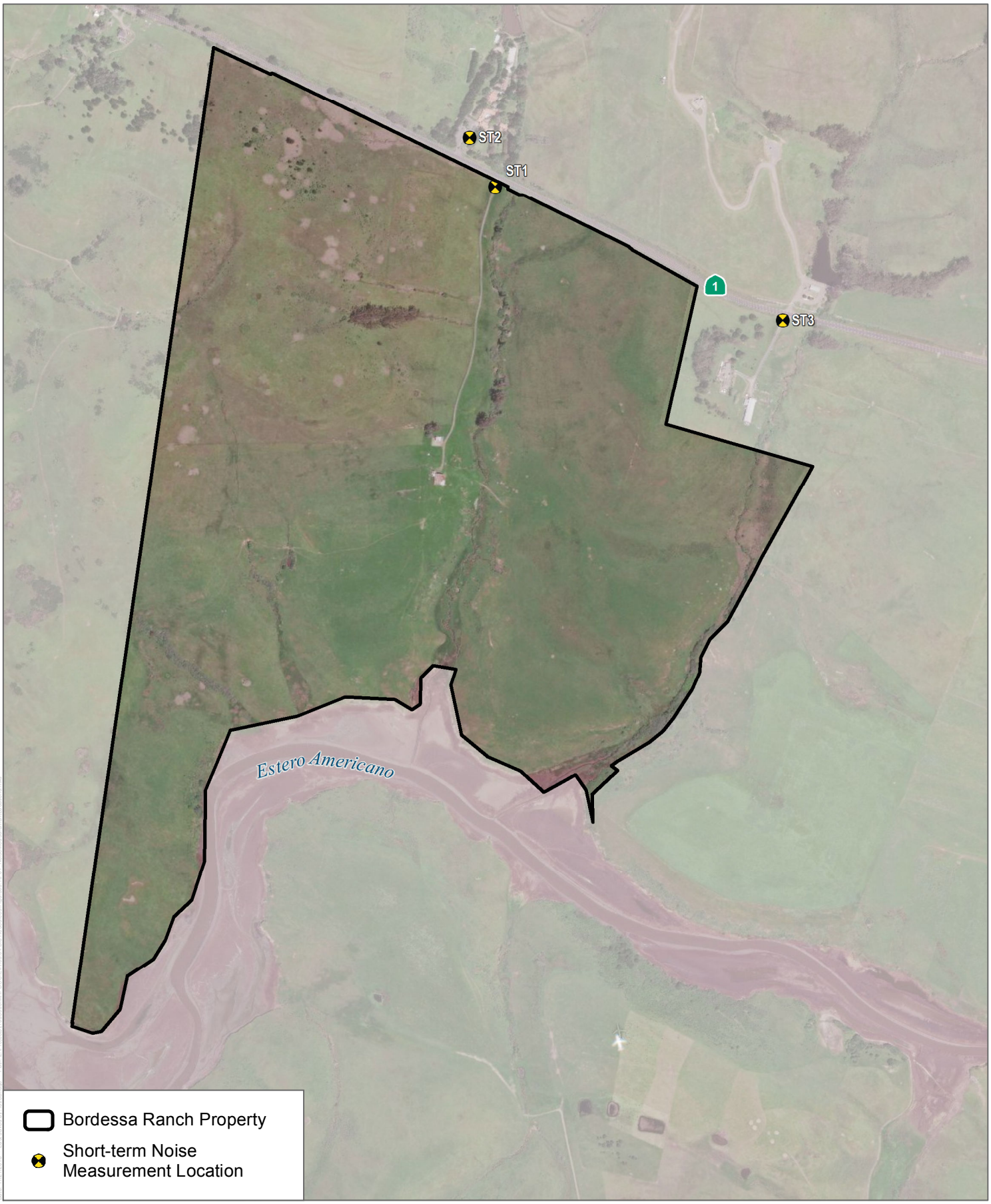
Table 3.10-1
Short-Term Noise Measurement Data Summary (dBA)

Site	Description	Measurement Date & Time	L_{eq} (dBA)	L_{max} (dBA)	L_{min} (dBA)
ST1	10 feet in front of gate to project site, approximately 175 feet from SR 1	1:20 p.m.–1:35 p.m.	56	66	25
ST2	Parking lot of the Sonoma Coast Villa Resort & Spa located across Valley Ford Cutoff from project site	1:47 p.m. – 2:02 p.m.	56	65	30
ST3	Residence Driveway at 15999 Valley Ford Cutoff, approximately 20 feet from the edge of the road pavement	2:13 p.m. – 2:28 p.m.	65	82	30

Notes: L_{eq} = equivalent continuous sound level (time-average sound level); L_{max} = maximum noise level; L_{min} = minimum noise level
Source: Dudek 2018.

As shown in Table 3.10-1, the existing ambient noise measurements ranged from 65 dBA L_{eq} near SR 1 to 56 dBA L_{eq} at distances over 100 feet from the road. Since traffic noise is the dominate noise source in the area, ambient sound levels are expected to be lower with increasing distances from the road.

At ST2 when traffic was not present, low levels of mechanical noise could be heard from the Sonoma Coast Villa Resort & Spa, located generally to the north of the project site. Tones from this equipment in the 63 Hz and 125 Hz octave bands were measured at approximately 28 dB when traffic was not present. This noise was not noticed near the project site or at the nearest residential receptor.



SOURCE: Bing Maps 2018

DUDEK

0 500 1,000 Feet
0 140 280 Meters
1:12,000

FIGURE 3.10-1

Noise Measurement Locations

Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas Project

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Transportation Noise

Roadways

Vehicular traffic along vicinity roadways is typically a primary contributor to the overall noise environment in any urban (or commonly rural) neighborhood.

Regulatory Setting

Federal Regulations

Federal Interagency Committee on Noise

Some guidance regarding the determination of a substantial permanent increase in ambient noise levels in the project vicinity above existing levels is provided by the 1992 findings of the Federal Interagency Committee on Noise (FICON), which assessed the annoyance effects of changes in ambient noise levels resulting from aircraft operations. The FICON recommendations are based upon studies that relate aircraft and traffic noise levels to the percentage of persons highly annoyed by the noise. The rationale for the FICON recommendations is that it is possible to consistently describe the annoyance of people exposed to transportation noise in terms of Ldn. Table 3.10-2 lists the significance criteria for an increase in ambient noise level, which is dependent upon the existing ambient noise level. Although the FICON recommendations were specifically developed to address aircraft noise impacts, they are used in this analysis to define a substantial increase in community noise levels related to all transportation noise sources and permanent non-transportation noise sources.

Table 3.10-2
Measures of Substantial Increase for Community Noise Sources

Ambient Noise Level Without Project (L_{dn})	Significant Impact Assumed to Occur if the Project Increases Ambient Noise Levels by:
<60 dB	+ 5 dB or more
60-65 dB	+ 3 dB or more
>65 dB	+ 2 dB or more

Source: FICON 2000.

Federal Transit Administration and Federal Railroad Administration Standards

Although Federal Transit Administration (FTA) standards are intended for federally funded mass transit projects, the impact assessment procedures and criteria included in the FTA *Transit Noise and Vibration Impact Assessment Manual* (May 2006; FTA 2006) are routinely used for projects proposed by local jurisdictions. The FTA and Federal Railroad Administration have

published guidelines for assessing the impacts of groundborne vibration associated with rail projects, which have been applied by other jurisdictions to other types of projects. The FTA measure of the threshold of architectural damage for conventional sensitive structures is 0.2 inch/second peak particle velocity (PPV).

State Regulations

There are no applicable state noise regulations that pertain to the project.

Local Regulations

Sonoma County General Plan 2020

The Noise Element of the Sonoma County General Plan 2020 (Sonoma County 2012) provides goals and policies that are germane for consideration with regard to the proposed project, as provided below.

Noise Element Policies

The Noise Element of the Sonoma County General Plan 2020 establishes policies aimed at protecting noise-sensitive land uses from elevated noise generated by transportation and non-transportation sources. The following policies from the Noise Element are applicable to the proposed project (* denotes Mitigation Policy):

> **Policy NE-1a:** Designate areas within Sonoma County as noise impacted if they are exposed to existing or projected exterior noise levels exceeding 60 dB L_{dn}, 60 dB CNEL, or the performance standards of Table NE-2.*
>
> **Policy NE-1c:** Control non-transportation related noise from new projects. The total noise level resulting from new sources shall not exceed the standards in Table NE-2 as measured at the exterior property line of any adjacent noise sensitive land use. Limit exceptions to the following:
>
> 1. If the ambient noise level exceeds the standard in Table NE-2, adjust the standard to equal the ambient level, up to a maximum of 5 dBA above the standard, provided that no measurable increase (i.e., +/- 1.5 dBA) shall be allowed.
> 2. Reduce the applicable standards in Table NE-2 by five dBA for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises, such as pile drivers and dog barking at kennels.
> 3. Reduce the applicable standards in Table NE-2 by 5 decibels if the proposed use exceeds the ambient level by 10 or more decibels.

4. For short term noise sources which are permitted to operate no more than six days per year, such as concerts or race events, the allowable noise exposures shown in Table NE-2 may be increased by 5 dB. These events shall be subject to a noise management plan including provisions for maximum noise level limits, noise monitoring, complaint response and allowable hours of operation. The plan shall address potential cumulative noise impacts from all events in the area.
5. Noise levels may be measured at the location of the outdoor activity area of the noise sensitive land use, instead of the exterior property line of the adjacent noise sensitive land use where:
   a. the property on which the noise sensitive use is located has already been substantially developed pursuant to its existing zoning, and
   b. there is available open land on those noise sensitive lands for noise attenuation.

This exception may not be used on vacant properties which are zoned to allow noise sensitive uses.*

Table 3.10-3
Maximum Allowable Exterior Noise Exposures for Non-transportation Noise Sources
[Table NE-2 in Sonoma County General Plan 2020 Noise Element]

Hourly Noise Metric, dBA [1]	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
L50 (30 minutes in any hour)	50	45
L25 (15 minutes in any hour)	55	50
L08 (4 minutes 48 seconds in any hour)	60	55
L02 (72 seconds in any hour)	65	60

Note:
[1] The sound level exceeded n% of the time in any hour. For example, the L50 is the value exceeded 50% of the time or 30 minutes in any hour; this is the median noise level. The L02 is the sound level exceeded 1 minute in any hour.

Policy NE-1f: Require development projects that do not include or affect residential uses or other noise sensitive uses to include noise mitigation measures where necessary to maintain noise levels compatible with activities planned for the project site and vicinity.

Policy NE-1m: Consider requiring the monitoring of noise levels for discretionary projects to determine if noise levels are in compliance with required standards. The cost of monitoring shall be the responsibility of the applicant.*

Impacts

Methods of Analysis

Short-term construction noise from the proposed project was assessed using the FHWA Roadway Construction Noise Model (RCNM) (FHWA 2008). For operational noise, project-

generated trips were compared against existing and build-out horizon year roadway traffic volumes (average daily trips, or ADT) to determine relative noise increases. Additionally, parking lot noise levels were assessed based upon data for similar parking lot operations, to determine impacts from parking lot activities related to the operation of the project.

Construction Equipment Noise Background

The FHWA Roadway Construction Noise Model (RCNM) (FHWA 2008) was used to estimate construction noise levels at the nearest occupied noise-sensitive land uses. Although the model was funded and promulgated by the FHWA, the RCNM is often used for non-roadway projects, because the same types of construction equipment used for roadway projects are also used for other project types. Input variables for the RCNM consist of the receiver/land use types, the equipment type and number of each (e.g., two graders, a loader, a tractor), the duty cycle for each piece of equipment (e.g., percentage time during a given period the equipment operates), and the distance between the construction activity and noise-sensitive receiver. No topographical or structural shielding was assumed in the modeling, and therefore identified sound levels from construction activities are considered conservative (i.e., if structures or topography is present between construction activity and receivers, noise levels would be lower than indicated in this conservative analysis). The RCNM has default duty-cycle values for the various pieces of equipment, which were derived from an extensive study of typical construction activity patterns. Those default duty-cycle values were used for this noise analysis.

The typical maximum noise levels for various pieces of construction equipment at a distance of 50 feet are presented in Table 3.10-4, Construction Equipment Maximum Noise Levels. Note that the equipment noise levels presented in Table 3.10-4 are maximum noise levels. Typically, construction equipment operates in alternating cycles of full power and low power, producing average noise levels less than the maximum noise level. The average sound level of construction activity also depends on the amount of time that the equipment operates and the intensity of the construction activities during that time. The Acoustical Use Factor shows the percentage of time a piece of equipment is expected to be used.

Table 3.10-4
Construction Equipment Noise Levels

Equipment Description	Acoustical Use Factor (%)	Measured L_{max} @50 feet (dBA, slow)
Backhoe	40	78
Compactor (ground)	20	83
Compressor (air)	40	78
Crane	16	81
Dozer	40	82

Table 3.10-4
Construction Equipment Noise Levels

Equipment Description	Acoustical Use Factor (%)	Measured L_{max} @50 feet (dBA, slow)
Dump Truck	40	76
Flat Bed Truck	40	74
Paver	50	77
Pickup Truck	40	75
Pneumatic Tools	50	85
Roller	20	80
Warning Horn	5	83

Source: DOT 2006.

The maximum noise levels at 50 feet for typical equipment would range up to 85 dB for the assumed construction equipment. The hourly noise levels would be expected to be lower since construction equipment operates in alternating cycles of full power and low power. Construction noise in a well-defined area typically attenuates at approximately 6 dB per doubling of distance, consistent with the rules applied for a point source with hard site conditions.

Thresholds of Significance

Consistent with Appendix G of the CEQA Guidelines and the County's General Plan, a significant impact would occur if development of the proposed project would do any of the following:

- Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
- Generate excessive groundborne vibration or groundborne noise levels.
- Expose people residing or working in the project area to excessive noise levels (for a project located within the vicinity of a private airstrip or an airport land use plan, or where such a plan has not been adopted, within 2 miles of a public airport or public use airport).

Significance Criteria Not Applicable to the Proposed Project

Due to the location and characteristics of the proposed project, certain significance thresholds are not applicable to the proposed project and therefore, are not considered potential impacts. These thresholds are addressed briefly below but are not discussed further in this document.

The primary source of groundborne vibration occurring as part of this project would be construction activity, because no major vibration-generating sources would be introduced as part of project operation. The grading and construction activities on the project site would have no potential to expose

adjacent off-site receptors to groundborne vibration, because construction activities would take place well beyond 200 feet from the closest off-site receptors. Impacts related to excessive groundborne vibration would be significant if the project results in the exposure of persons to or generation of excessive groundborne vibration equal to or in excess of 0.2 inches/second PPV. As a guide, major construction activity within 200 feet and pile driving within 600 feet may be potentially disruptive to sensitive operations (Caltrans 2002). No pile driving or blasting would be required for project development. The amount of groundborne vibration associated with construction would be minimal and due to the distance to the closest receptors would not be perceptible. Therefore, there would be no groundborne vibration impact and this issue is not further evaluated.

The project site is not located within an airport land use plan, nor is the project site within the vicinity of a private airstrip. The nearest public airport is the Petaluma Municipal Airport, located approximately 7.5 miles to the south. Therefore, the project would not expose people accessing the project site to excessive noise levels from airplanes and there would be no impact. Thus, this issue is not further evaluated.

Project Impacts and Mitigation Measures

3.10-1: The proposed project would not result in generation of a substantial temporary or permanent increase in ambient noise levels in excess of County standards. This would be a less-than-significant impact.

Construction Noise

Construction of the proposed project would generate noise that could expose nearby receptors to elevated noise levels. The magnitude of the impact would depend on the type of construction activity, equipment employed, duration of the construction, distance between the noise source and receiver, and presence or absence of intervening structures.

It is anticipated that construction of the proposed project would take approximately 3 to 4 years. Equipment that would be in operation during construction would include small bulldozers, backhoes, trucks, a crane (for replacing the bridge), and a roller.

Table 3.10-5 provides a summary of the assumed construction equipment used for the different phases of construction.

Table 3.10-5
Construction Scenario Assumptions

Construction Phase	Equipment		
	Equipment Type	*Quantity*	*Usage Hours*
West Trail			
Site Preparation (clearing and grubbing)	Backhoe	1	8
	Small bulldozer (crawler tractor)	1	8

Table 3.10-5
Construction Scenario Assumptions

Construction Phase	Equipment		
	Equipment Type	*Quantity*	*Usage Hours*
Grading	Backhoe	1	8
	Small bulldozer (crawler tractor)	1	8
Installation of wet crossings/foot bridges	N/A	N/A	N/A
Paving (gravel/concrete parking lots)	Roller	1	8
	Small bulldozer (crawler tractor)	1	8
Finish Work (i.e. signage, fencing, seating, etc)	N/A	N/A	N/A
East Trail			
Site Preparation (clearing and grubbing)	Backhoe	1	8
	Small bulldozer (crawler tractor)	1	8
Grading	Backhoe	1	8
	Small bulldozer (crawler tractor)	1	8
Installation of wet crossings/foot bridges	N/A	N/A	N/A
Building Construction (Estero Americano access bridge)	Crane	1	8
	Pumping equipment	1	8
Paving (gravel/concrete parking lots)	Roller	1	8
	Small bulldozer (crawler tractor)	1	8
Finish Work (i.e. signage, fencing, seating, etc)	N/A	N/A	N/A
Other Improvements			
Grading	Backhoe	1	8
	Small bulldozer (crawler tractor)	1	8
Building Construction (access road bridge)	Boom truck	1	8
	Pumping equipment	1	8
	Crane	1	8
Paving (gravel road/asphalt bridge)	Roller	1	8
	Small bulldozer (crawler tractor)	1	8
Finish Work (i.e. signage, fencing, seating, etc.)	N/A	N/A	N/A

Source: Dudek 2018.

Construction would take place approximately 350 feet from the Sonoma Coast Villa Resort & Spa (Resort & Spa), 750 feet from the nearest residences located to the east, and about 835 feet from the nearest residence to the west. Other receptors are located farther away, approximately 1,000 feet from proposed construction areas. Typical construction efforts would average 1,000 feet from the Resort & Spa and adjacent residences.

Using the FHWA RCNM construction noise model and construction information identified in Table 3.10-5, the estimated noise levels from construction were calculated for representative receivers, as presented in Table 3.10-6, Construction Noise Model Results Summary. The receiver distances selected for the analysis include the distance from a particular construction area to the closest noise sensitive use, and the average construction distance any construction activity to the closest sensitive receptor. The RCNM inputs and outputs are provided in Appendix F.

Table 3.10-6
Construction Noise Modeling Summary Results

Construction Phase	L_{eq} (dBA)	
	Nearest Receiver	*Typical Receiver*
West Trail	*(Approximately 835')*	*(Approximately 1000')*
Grading	53	55
Paving	55	55
Site Preparation	53	55
East Trail	*(Approximately 750')*	*(Approximately 1000')*
Access Bridge Construction	56	53
Grading	56	53
Paving	55	53
Site Preparation	56	53
Other Improvements	*(Approximately 350')*	*(Approximately 1000')*
Access Road Bridge Construction	63	54
Grading	62	53
Paving	62	53

Note: L_{eq} = equivalent continuous sound level; dBA = A-weighted decibels
Source: Dudek 2018.

As presented in Table 3.10-6, construction noise levels are expected to be greatest during the Other Improvements Phase, focused on the staging/parking lot area; at the nearest existing receptors, approximately 350 feet to the north, construction noise levels are estimated to be about 63 dBA L_{eq}. The other phases of construction have predicted noise levels that are generally similar with a variation of just 3 dB. These are relatively low levels for construction noise at vicinity receivers, because of the distance between construction and the nearest noise-sensitive land uses.

Construction noise is the only temporary increase in ambient noise that the project could produce. No substantial periodic increases in noise are expected due to project operation, as neither periodic trail use nor parking lot activities have been shown to generate noise levels at sensitive receptors which are above ambient levels. The project's construction noise levels are not substantially greater than the ambient noise levels measured in the site vicinity. As a temporary effect, construction noise is not expected to exceed the County's Maximum Allowable Exterior Noise Exposures for Non-Transportation Noise Sources, shown in Table 3.10-3 for extended periods of time. Large distances between proposed construction areas and the closest noise-sensitive receptors, usually hundreds of feet, would reduce construction-related noise. Based on the relatively low levels of construction noise identified for nearby receivers, and the temporary nature of the construction, the construction noise impacts would be **less than significant.**

Operational Noise

The primary permanent noise-related effect that most projects produce is a potential for on-site and off-site increases in traffic, which is the main source of noise in most urban and rural areas.

Section 3.13, Transportation and Circulation includes existing and future traffic data for SR 1. Weekday existing traffic volumes indicated for SR 1 are 5,200 average daily trips (ADT) with a peak hour volume of 465 vehicles, while the existing weekend traffic volume is 7,350 ADT with a midday peak hour volume of 705 vehicles. As noted in Section 3.13, a 20-year growth factor of 1.25 was assumed. This would equate to a 1.1% per year increase in traffic which is typical for a number of roads in the County.

The traffic analysis expects a 25% increase in traffic over the next 20 years. SR 1 would be expected to carry 582 vehicles per hour during the p.m. peak hour, 994 vehicles per hour during the weekend midday peak hour and an average of 6,480 vehicles per day in the project area by year 2038. A doubling (or 100% increase) of traffic is known to increase traffic noise levels by 3 dB. Therefore, traffic noise levels in the next 20 years are expected to increase by less than 3 dB.

The proposed project would be expected to generate 26 weekday p.m. peak hour trips and 43 weekend midday peak hour trips. When these project trips are compared to the existing peak hour traffic on SR-1, the project increases traffic by about 6%. When project trips are compared with future traffic the increase in trips is between 4 to 5%. This low percentage increase in traffic due to the project is not near the doubling in trips necessary to produce a 3 dB increase in traffic noise. The actual increase in noise levels would likely be about 1 dB or less.

This increase in traffic noise is compared to the FICON thresholds for noise increase (i.e., a 5 dBA increase in an ambient noise environment of less than 60 dBA L_{dn} and a 3 dBA noise increase in an ambient noise environment of 60 to 65 dBA L_{dn}) to assess whether project traffic noise would cause a significant impact. Since the expected traffic noise increase is less than 3 dB, the proposed project would not result in significant increase in noise levels in the project vicinity.

Noise sources from parking lots include car alarms, door slams, radios, and tire squeals. A noise assessment for the Historic Town Center in the City of San Juan Capistrano provides typical noise levels for different parking lot events. This source indicates that Car Door Slams and Engine Start-Ups usually are 60 to 70 dBA at 50 feet, Car Alarm noise is between 65 and 70 dBA at 50 feet, and Car Pass-Bys range from 55 to 70 dBA at 50 feet. (Mestre Greve 2011). These sources generally short-term and intermittent.

Significant distance separates the proposed staging or parking lot areas and the nearest noise sensitive land uses. Over 20 dB of attenuation would be expected from geometric spreading between the parking lot and the nearest noise sensitive receptors at 1,000 feet away. This would reduce the highest parking lot noises to about 50 dBA at the closest noise sensitive receptors. This level is similar to the existing ambient sound levels in the vicinity. Since the parking lot activities would be intermittent and last for a short period of time, these activities are not expected to increase the existing ambient noise levels. Use of the trail would involve people

walking on the paths and potentially talking. Given the large distance between the trails and the noise sensitive receptors, people walking and talking during hiking would not generate readily noticeable noise levels at the existing noise-sensitive receivers in the project vicinity. Therefore, noise generated from traffic, parking lots and trail usage would be **less than significant**.

Mitigation Measures

No mitigation measures are required.

Cumulative Impacts

The cumulative context for noise is future development within the western portion of Sonoma County.

3.10-2: The proposed project would not contribute to cumulative impacts with respect to noise. The project's contribution would not be considerable.

There are no known cumulative noise issues in the project vicinity based on the County's General Plan 2020 EIR (Sonoma County 2006). This area of the County supports minimal development and does not contain any uses or activities that contribute to high levels of noise. The analysis of roadway noise considers the cumulative noise scenario resulting from traffic in the vicinity of the project site, which is considered the greatest potential noise source in the area. As described in the impact discussion above, the proposed project would not result in any significant noise impacts during project operation. With no significant noise from operation and no known significant noise impacts in the project vicinity, the project would not contribute to an existing long-term (permanent) cumulative noise impact. There are also no identified future development projects within ¼ mile of the project site that are anticipated to be constructed simultaneously with the project. Thus, there is no potential for construction noise associated with the project to combine with other project construction noise. Thus, the proposed project would not result in a cumulatively considerable short-term or long-term noise impact and the cumulative impact is less than significant.

Mitigation Measures

No mitigation measures are required.

References

23 CFR 772.1–772.19. Procedures for Abatement of Highway Traffic Noise and Construction Noise.

Caltrans (California Department of Transportation). 2002. *Transportation-Related Earthborne Vibrations.* Report No. TAV-02-01-R9201. C; Environmental Program; Environmental Engineering; Noise, Air Quality, and Hazardous Waste Management Office. February 20, 2002. http://www.dot.ca.gov/hq/env/noise/pub/TRANSPORTATION%20RELATED%20EARTHBORNE%20VIBRATIONS.pdf.

Caltrans (California Department of Transportation). 2013. *Technical Noise Supplement to the Traffic Noise Analysis Protocol*. September 2013.

County of Sonoma. 2012. Sonoma County General Plan 2020, Noise Element. Adopted September 23, 2008. Amended by Resolution No. 12-0512, October 23, 2012. Accessed April 14, 2016. http://www.sonoma-county.org/prmd/gp2020/cte.pdf.

FICON (Federal Interagency Committee on Noise). 2000. Discussion of Methodologies of Measuring Noise Impact. October 22, 2000.

FHWA (Federal Highway Administration). 2004. FHWA Traffic Noise Model, Version 2.5. Washington D.C.: Office of Environment and Planning. February 2004.

FHWA. 2008. Roadway Construction Noise Model (RCNM).

FTA (Federal Transit Administration). 2006. *Transit Noise and Vibration Impact Assessment Manual.* FTA-VA-90-1003-06. FTA, Office of Planning and Environment. May 2006. https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/FTA_Noise_and_Vibration_Manual.pdf.

Mestre Greve Associates. Noise Assessment for Historic Town Center, City of San Juan Capistrano, January 20, 2011. Project #51790

Sonoma County. 2006. General Plan 2020 Draft EIR. Section 4.4 Noise.

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3.11 Public Services and Safety

Introduction

This section of the Draft Environmental Impact Report (EIR) presents potential public services and safety impacts of the proposed Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas and Construction and Operation of Recreational Amenities project (proposed project). This section evaluates potential impacts to service providers, specifically the ability of fire and police/sheriff protection and ambulance service to access the site in the event of an emergency. This section presents the environmental setting, regulatory framework, impacts of the proposed project on the environment, and proposed measures to mitigate any identified significant impacts.

Comments received in response to the Notice of Preparation (NOP) noted the lack of site access and limited cellular reception, increasing the difficulty for adequate response time in the event of an emergency. Comments received also stressed the danger of wildfires to the public and agricultural operations and the limited breadth of fire protection services in the area. The Sonoma County Farm Bureau (SCFB) raised concerns regarding the potential for public trail users to trespass onto adjacent private property and possibly commit theft, vandalism, and burglary, although not under the purview of CEQA a discussion of these concerns is included for informational purposes. Other issues raised by the SCFB included how law enforcement personnel would patrol trails to prevent trespass and crime on adjacent properties and how hours of operation and other on-site rules would be enforced. Comments were also received regarding emergency access to the project site. This issue is discussed in Section 3.13, Transportation and Circulation. Environmental effects associated with recreation services, such as parks, are evaluated in Section 3.12. All other concerns raised are addressed in this section. Comments received in response to the prior Mitigated Negative Declaration released in October 2016, included concerns with the overall increase in public visitation and potential for an increase in calls for emergency services and generation of litter. Several comment letters expressed concern regarding the remote location and the extended response time for emergency services, particularly for fire and sheriff. Illegal campfires and the potential for wildfires were also concerns raised. See Appendix A for a copy of the NOP and complete list of public comments received during the public scoping period.

To the extent that issues identified in public comments involve potentially significant effects on the environment according to the California Environmental Quality Act (CEQA), and/or were raised by responsible and trustee agencies or the public, they are identified and addressed in this EIR.

Environmental Setting

This section describes the existing public services that could be affected by the proposed project, including fire protection services, sheriff services, and ambulance access. In addition,

the potential for an increase in litter and maintenance activities will also be evaluated. Parks and recreational facilities are discussed in Section 3.12, Recreation.

The Bordessa Ranch property, including the Trail Easement area is currently an active cattle ranch with breeding livestock. Cattle use the property for grazing and are present throughout the site.

Fire Protection

The project site, including the Bordessa Ranch property and unincorporated lands within the project vicinity, is within a California Department of Forestry and Fire Protection (CAL FIRE) State Responsibility Area (SRA) (CAL FIRE 2007). Within SRA's, CAL FIRE has the responsibility for providing fire suppression and prevention services during the event of a wildfire. CAL FIRE is divided into 21 operational units that serve a designated region of the state. The CAL FIRE Sonoma-Lake-Napa Unit provides fire protection to the counties of Sonoma, Lake, Napa, Solano, Yolo and Colusa, including the project site. The Unit contains five divisions and ten field battalions, with the West Division serving Sonoma County (CAL FIRE 2017). The main causes of fire within the Unit include debris burning, vehicles, and down power lines (Fire Safe Sonoma 2016). The Unit's 2017 Fire Management Plan states that the primary fire fuel types within the Unit's service area are grass/oak woodland, chaparral, and mixed conifer forest. The County is served by approximately 115 CAL FIRE staff during the fire season and approximately 50 staff during the non-fire season (Fire Safe Sonoma 2016).

The West Division is comprised of four field battalions. The Division's main office is located in the City of Santa Rosa at 2210 West College Avenue, approximately 13 miles northeast of the project site. The West Division contains the Sonoma Air Attack Base, and nine fire stations with 14 engines and two dozers in total. Within the Santa Rosa Battalion (Battalion 1410), the battalion in which the project site is located, there are three engines, two in the City of Santa Rosa and one in the town of Occidental. The nearest fire station is located in the town of Occidental, approximately 5.5 miles north of the project site (CAL FIRE 2017). Battalion 1410 serves an area of 274,189 acres, a population of 274,700 and consists of 15 fire agencies (Fire Safe Sonoma 2016).

Local fire departments have the initial responsibility to respond to fire, medical, and other emergency incidents during the majority of the year. There are 41 local fire agencies, comprised of Fire Protection Districts (FPD's) and Community Service Districts (CSD's), six municipal fire departments, and 13 Volunteer Fire Companies (VFC's) within Sonoma County. The Sonoma County Fire and Emergency Services Department (SCFESD) oversees emergency and non-emergency services in the County, including fire suppression and prevention, hazardous materials incidents, and medical and emergency response. VFC's within the County are supported by over 200 volunteer first responders and firefighters, who respond to more than

1,000 calls each year. VFC's help support unincorporated areas of the County that are within SRA's (Fire Safe Sonoma 2016). The Bodega VFC, Bodega Bay FPD, Valley Ford Volunteer Fire Department (VFD), Occidental VFD, and Gold Ridge FPD would be the primary responders in the event of a fire or emergency incident. These agencies are trained in off-road, cliff, beach, and water rescue (Reese pers. comm. 2018).

The Valley Ford VFD is located approximately 2.3 miles southeast of the project site, and the Bodega VFC is located approximately 1.3 miles northwest of the site. The Bodega VFC covers an immediate response area of 16 square miles with a population of 1,080 and is served by 15 volunteers, two firefighting engines, one water truck, a utility vehicle with medical equipment and support supplies, and a Utility Terrain Vehicle (UTV) (Bodega Fire Department 2018a,b). The UTV is able to access and mitigate fires in rural areas, including rural ranches and trails in western Sonoma County and areas around the Estero (Bodega Fire Department 2018b). The average response time to the project site for fire and emergency calls is approximately 7 minutes (Reese, pers. comm. 2018). The project site is a dual response area for the well-staffed Bodega VFC and the Bodega Bay FPD, which is a paid department with an Advanced Life Support (ALS) ambulance and a backup ambulance. Furthermore, in the event that it is needed, local, California Highway Patrol and Coast Guard air ambulance and air rescue resources are available (Reese pers. comm. 2018).

Most of the County is served by volunteer or combination (volunteer and paid) fire departments. Both paid and volunteer fire department staff must satisfy the same training requirements and responsibilities, including response to medical emergencies, structure and wildland fires, vehicle crashes, hazardous materials incidents, and safety issues. Volunteer fire department staff often respond to calls from wherever they are, and this may add to response times as volunteers first have to travel to the firehouse to obtain equipment, then to the incident location (Fire Safe Sonoma 2016).

Emergency 911 calls within the County are routed through the REDCOM Fire & EMS Dispatch Center, which centralizes dispatching for over 40 emergency response agencies in the County. REDCOM Dispatch Center call-takers are trained to instruct bystanders in life-saving care procedures before first responders arrive. For serious emergencies, call-takers stay on the line with callers and patients until responders arrive. REDCOM's dispatch system can locate vehicles equipped with Automatic Vehicle Location to dispatch the closest and most appropriate resource for the emergency (REDCOM Dispatch 2018).

CAL FIRE possesses numerous automatic aid agreements and mutual threat zones with local fire agencies in the County, including the Santa Rosa Fire Department, Occidental CSD, and Rancho Adobe FPD. Local agencies hold the primary responsibility for fire response during the non-wildfire season, while CAL FIRE manages wildfires within the SRA (Fire Safe Sonoma 2016).

Emergency Medical Services

Emergency medical services (EMS) within the County are provided by first responder agencies, ground and air ambulance providers, the REDCOM Fire & EMS Dispatch Center, and eight acute care hospitals. Ambulances are provided by an Exclusive Operating Area (EOA) ambulance franchise, assessment district ambulance providers, fire department based ambulance providers, private ambulance providers, a private helicopter ambulance service, and a law enforcement based ALS rescue helicopter. Emergency calls are routed to the central REDCOM Dispatch Center, which dispatches ambulance services to the project area (Sonoma County 2006).

Law Enforcement Services

Patrol services within unincorporated Sonoma County are provided by the Sonoma County Sherriff's Office (SCSO). The Patrol Bureau (Bureau) of the SCSO provides law enforcement and crime prevention services within the unincorporated area of Sonoma County. The Bureau contains approximately 140 deputies that work during assigned shifts to patrol designated areas of the County. Deputy Sheriffs conduct preliminary criminal investigations, make arrests, issue citations, and respond to emergency calls (SCSO 2015a). The majority of Bureau deputies operate out of the main SCSO office located at 2796 Ventura Avenue in Santa Rosa, and remaining deputies are assigned to one of the two sub-stations that are located at the intersection of 1st Street and Church Street in Guerneville, approximately 12.2 miles north of the project site, and at 810 Grove Street in Sonoma Valley, approximately 26.3 miles east of the project site. Furthermore, three resident deputies are located along the Sonoma coastline (SCSO 2015a). According to the Sonoma County General Plan 2020 Draft EIR, the SCSO had a service ratio of approximately 1.01 officers per 1,000 residents in 2003. The General Plan EIR stated that the SCSO plans to hire two deputies per year between 2003 and 2020, to obtain a total of approximately 230 deputies by 2020 (Sonoma County 2006). This would increase the service ratio to 1.19 deputies per 1,000 residents by 2020.

The project site is located within Zone 1 of the SCSO service area, which covers about 446 square miles (SCSO 2013). This zone is staffed from the Guerneville substation and includes the entire 63 miles of Sonoma coastline to the west and to Forestville in the east (SCSO 2015a). Zone 1 is served by two Sergeants, sixteen Deputy Sheriffs, three Resident Deputy Sheriffs (who live on the coast in their respective beats), and one Community Services Officer. Resident Deputies live along the coast in the communities of Bodega Bay, Timber Cove, and Sea Ranch (SCSO 2015a).

Dispatch events are divided into three categories: (1) Priority 1 calls, which require immediate and urgent response, (2) calls for service, which are less urgent, and (3) deputy initiated events,

such as traffic stops. During the 18 month period from January 1, 2017 through June 30, 2018, the median response time for the 21 Priority 1 calls received by the SCSO was 34 minutes, 42 seconds (Harris, pers. comm. 2018).

The SCSO Crime Analyst provided average response times and number of Priority 1 calls for nearby County parks with similar characteristics as the proposed project over the same 18 month period. Average response times were only based on Priority 1 calls. No Priority 1 calls were received from the Shorttail Gulch Coastal Access Trail, a 0.5-mile trail which leads to a small beach in Bodega Bay, located approximately 1.7 miles west of the project site. One non-Priority 1 event occurred at this location over the 18 month period. Doran Regional Park, a 127-acre regional park containing a wide, 2-mile stretch of beach, extensive hiking trails, campgrounds, and a boat launch to access Bodega Harbor and Bodega Bay was associated with one Priority 1 call and 150 non-Priority 1 events over the 18 month period. The response time for the Priority 1 call was 27 minutes and 9 seconds. Furthermore, Westside Regional Park, a regional park with approximately 50 campsites and a boat and kayak launch located approximately 5 miles west of the project site, received no Priority 1 calls and 24 non-Priority 1 events over the aforementioned time period. On average, the SCSO receives approximately 46,000-51,000 calls for service per year (Harris pers. comm. 2018).

Regulatory Setting

Federal Regulations

There are no federal regulations regarding the provision of local services.

State Regulations

The following state regulations pertaining to public services would apply to the proposed project. There are no state regulations pertaining to law enforcement services.

Fire Protection

California Occupational Safety and Health Administration

In accordance with California Code of Regulations, Title 8, Sections 1270, Fire Prevention, and 6773, Fire Protection and Fire Equipment, the California Occupational Safety and Health Administration (Cal/OSHA) has established minimum standards for fire suppression and emergency medical services. The standards include, but are not limited to, guidelines on the handling of highly combustible materials, fire hosing sizing requirements, restrictions on the use of compressed air, access roads, and the testing, maintenance, and use of all firefighting and emergency medical equipment.

California Department of Forestry and Fire Protection

CAL FIRE offers fire protection services for SRAs and local jurisdictions with contracts with CAL FIRE. CAL FIRE also aids local fire departments by providing wildfire abatement services for their jurisdictions through mutual and automatic aid agreements. CAL FIRE also endorses state-legislated fire safety standards, supports fuel management efforts, and implements fire-safety inspections to further its objectives. CAL FIRE is responsible by law for responding to uncontrolled fire that has the capability for destruction of life, property or natural resources. The project site is located within unincorporated Sonoma County in a SRA. Therefore, the project site is also served by CAL FIRE.

Local Regulations

The following local/regional regulations pertaining to public services would apply to the proposed project.

Sonoma County General Plan 2020

The Public Facilities and Services Element (Sonoma County 2016) and Public Safety Element of the Sonoma County General Plan (Sonoma County 2014) provide objectives, policies, and programs regarding Public Services, including the following:

Goal PF-2: Assure that park and recreation, public education, fire suppression and emergency medical, and solid waste services, and public utility sites are available to the meet future needs of Sonoma County residents.

Policy PF-2g: Require dedication of land or in-lieu fees as a means of funding park and fire services and facilities.

Policy PF-2n: Require prior to discretionary project approval written certification that fire and related services customarily provided to comparable uses are available or will be available prior to occupancy for projects within the service area of the applicable fire agency.

Goal PS-3: Prevent unnecessary exposure of people and property to risks of damage or injury from wildland and structural fires.

Policy PS-3b: Consider the severity of natural fire hazards, potential damage from wildland and structural fires, adequacy of fire protection and mitigation measures consistent with the Public Safety Element in the review of projects.

Policy PS-3d: Refer projects and code revisions to the County Department of Fire and Emergency Services and responsible fire protection agencies for their review and comment.

Strategic Fire Plan Sonoma-Lake-Napa Unit

The CAL FIRE Strategic Fire Plan Sonoma-Lake-Napa Unit, last updated in 2017, was developed to identify high-risk and high-value areas within the six counties of Sonoma, Lake, Napa, Solano, Yolo, and Colusa to better plan for wildfire hazards within these areas (CAL FIRE 2017). The plan identifies assets at risk, vegetation fuel hazards, fire history, and the frequency of severe fire weather, and includes an ignition workload assessment and management prioritization. The plan identifies specific projects for each Battalion within the unit to reduce fire hazards within their management area. CAL FIRE Battalion 1410, which serves the project site, currently distributes mailers to 100-200 residences per year regarding fuel reduction methods, followed by inspections as needed. Future projects within this Battalion are intended to focus on areas identified as high risk/high hazard. The unit also treats available fuel inside the road/highway easement to improve safety for evacuation and emergency access.

Sonoma County Hazard Mitigation Plan Update

Sonoma County prepared its 2016 Hazard Mitigation Plan Update in accordance with Federal Emergency Management Agency's Local Hazard Mitigation Plan Guidelines (Sonoma County 2017). The plan identifies and prioritizes pre-disaster hazard mitigation, prevention and preparation actions. The plan also assesses the County's existing hazards, including seismic hazards, floods, wildland fires, and landslides. The plan sets forth specific mitigation actions for each jurisdiction to be implemented during the 2016-2021 cycle to reduce these potential hazards. Wildland fire mitigation actions described in the plan include the Sonoma County Fuel Reduction and Vegetation Management Program, which includes inspections of improved and unimproved properties in Sonoma County to identify high fire severity zones and reduce fire threats, the Sonoma County Roadside Chipper Program, which provides a free curbside chipper service to residents who reduce vegetation along access routes, and the CAL FIRE Fuels Reduction Program, which aims to reduce wildland fuel loadings that present a hazard to watershed resources and water quality.

Sonoma County Community Wildfire Protection Plan

The County's Community Wildfire Protection Plan (CWPP) intends to increase collaboration between stakeholders from federal, state, and local agencies and community groups to solve Wildland/Urban Interface wildland fire issues (Fire Safe Sonoma 2016). The CWPP identifies and prioritizes treatment areas, mitigation strategies, and treatments, and recommends measures to reduce the ignitability of structures. The CWPP is integrated with other plans such as the 2016 Sonoma County Hazard Mitigation Plan Update and the Sonoma-Lake-Napa Unit Fire Management Plan 2016 (described above). Projects included in the CWPP include programs or design concepts that improve the condition and health of fire-prone ecosystems, address fire-prone invasive plant species, and provide support and aid for fire agencies.

Sonoma County Fire Safe Standards

Chapter 13 of the Sonoma County Municipal Code adopts the California Fire Code and establishes minimum fire safe standards for development within the unincorporated area of the County. The County Fire Safe Standards ensure that all new development within the unincorporated County has a basic level of fire protection. Standards incorporated into this ordinance include emergency access requirements, minimum emergency water supply and sprinkler requirements, and fuel modification and defensible space requirements. Chapter 13A, adopted in March 2016, requires removal of hazardous vegetation and combustible material from around the exterior of improvements. In order to assist in implementation of this requirement, the County established the Fuel Reduction and Vegetation Management Program to remove hazardous fuels in the most fire-prone areas in the unincorporated County. Chapter 13 also includes requirements for the widths of gate entrances to ensure adequate emergency access is provided. Requirements include all gates that provide access from a public road to a private road or driveway to be located at least thirty feet from the roadway and have the ability to open to allow a vehicle to stop without obstructing traffic on the roadway. The ordinance also requires that all roads and driveways have a flammable vegetation clearance area on each side of the road or driveway of not less than ten feet, unless otherwise authorized. Flammable vegetation abatement measures would be required if vegetation on the project site is determined by the County to present a fire hazard that may endanger or damage neighboring property. These measures include removing flammable, dead, and dying vegetation and other combustible growth within ten feet of neighboring structures and roadway frontage, trimming grass and combustible surface vegetation within ten feet of neighboring structures and roadway frontage to less than four inches in height, and pruning all trees within ten feet of neighboring structures and roadway frontage to at least six feet above grade.

Impacts

Methods of Analysis

The impact analysis evaluates the ability of CAL FIRE, SCFESD and SCSO to provide fire protection and law enforcement services to the project site through a qualitative review of project characteristics, such as location, land uses, access routes, and availability of services.

The proposed project would construct two pedestrian-only trails and two associated staging areas (trailheads/parking lots) not to exceed 1.5 acres in size in total combined area within the designated Trail Easement on property located within unincorporated Sonoma County.

Thresholds of Significance

Consistent with Appendix G of the CEQA Guidelines and the County's General Plan, a significant impact would occur if development of the proposed project would do any of the following:

- Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:
    - Fire protection
    - Police protection
    - Schools
    - Other public facilities

Significance Criteria Not Applicable to the Proposed Project

Due to the location and characteristics of the proposed project, certain significance thresholds are not applicable to the proposed project and therefore, are not considered potential impacts. These thresholds are addressed briefly below and are not discussed further in this document.

The proposed project would not include any residential uses and would not result in a population increase that would require new schools or other public facilities or services to serve new County residents. For this reason, no impacts to schools or other public facilities would occur with development of the proposed project and this issue is not further addressed.

Concerns Raised Not Under the Purview of CEQA

This EIR is a public information document for use by governmental agencies and the public to identify and evaluate potential environmental consequences of the proposed project. CEQA allows agencies and members of the public an opportunity to identify relevant environmental issues to be further evaluated in an EIR during the 30-day NOP public comment period. Comments received from the public raised concerns regarding generation of litter, trespassing onto adjacent private property, vandalism, and burglary along with future maintenance activities on the project site. Although these issues are not included in Appendix G of the CEQA Guidelines and the County has no adopted thresholds to evaluate these concerns, a discussion of these issues is included for informational purposes.

The project includes animal-proof trash and recycling containers within the staging areas that would be disposed of on a weekly basis, unless more frequent removal is required. In addition,

Regional Park Rangers would patrol the trails and staging areas periodically and would remove any trash. Because the Park Rangers would be accessing the site on a daily basis to open/close the gate and to conduct periodic patrol of the trails, it is not anticipated litter would be an issue. However, if litter becomes a problem the County may require a Ranger be present during peak times to monitor the area and to remind visitors to properly dispose of all trash.

Project Impacts and Mitigation Measures

3.11-1: Implementation of the proposed project would not result in substantial adverse physical impacts associated with the need for new or physically altered fire protection or law enforcement facilities in order to maintain acceptable service ratios and response times. This is a less-than-significant impact.

Fire Protection

The Bordessa Ranch property is currently undeveloped and used as grazing land for cattle. The proposed project includes construction of two pedestrian-only trails with associated staging/parking lots within a designated Trail Easement that would allow for low-intensity public access to pursue outdoor, recreational, and educational uses. The project would also allow access to the Estero for hikers and hand-carried, non-motorized boats, such as kayaks and canoes. The project does not include the construction of new buildings or uses that would house either a permanent population or on-site employees.

The project would result in an increase in the number of people using the project site for low-intensity recreational and environmental education uses. It is anticipated trail users could include local school groups using the area for educational field trips, college and graduate school scientific research, day hikers, birders, kayak and canoe enthusiasts accessing the Estero, and other passive activities. However, the increase in people accessing the area could result in more emergency response calls and the potential for illegal campfires. The trails would be open daily from sunrise to sunset and a County Regional Park (Regional Park) Ranger would unlock and lock the gate on a daily basis. No overnight camping would be permitted. Signs noting allowable activities and the rules for access would be provided in the staging/parking areas and at the trailheads. Regional Parks Rangers would also conduct periodic patrol of the trails and parking areas. Regional Parks would coordinate with local law enforcement in the event of any illegal activities and the SCFESD in the event of a fire. In the event of an emergency the first responder would be the Valley Ford VFC or Bodega VFC. As described above, the Valley Ford VFC is located approximately 2.3 miles southeast of the project site, and the Bodega VFC is located approximately 1.3 miles northwest of the site. Both fire companies are trained in backcountry rescue and routinely respond to fires, vehicle accidents, hazardous materials, hazardous conditions, and medical incidents (Reese, pers. comm. 2018). Emergency

vehicles would be able to access the site via the main access road off SR 1 and park in one of the two parking areas. As stated above, the average response time for fire or EMS calls to the project site is 7 minutes. The Bodega VFC is well-staffed and well-equipped to respond to a fire or EMS event. In addition, the project site is located within a dual response area for the Bodega VFC and the Bodega Bay FPD, which is a paid department with an ALS ambulance (Reese, pers. comm. 2018). Furthermore, the increase in calls associated with trail activities is expected to be minimal and adequate staff and equipment are available to serve the project site. The SCFESD has indicated that adequate fire personnel is available to serve the project site and the expansion of existing facilities would not be required.

Another concern raised was the potential for an increase in wildfires to occur. CAL FIRE identifies Very High Fire Hazard Severity Zones throughout the state to help determine areas where fire hazard reduction measures are necessary to reduce the rate of fire spread and minimize the intensity of uncontrolled fire. The Very High Fire Hazard Severity Zone designations are based on vegetation density, slope severity, and population density, among other factors that contribute to fire hazards. CAL FIRE classifies lands within local responsibility areas, areas where local jurisdictions provide fire protection services, and SRA's. CAL FIRE does not have fire protection responsibility for densely populated areas, agricultural lands, or lands administered by the federal government. The project site is located within a SRA; therefore, CAL FIRE serves the site in addition to the SCFESD. Based on information provided by CAL FIRE, the site is located in an area designated as a moderate Fire Hazard Severity Zone (CAL FIRE 2007). There are no Very High Fire Hazard Severity Zones designated near the project site. Fire suppression services would continue to be provided by CAL FIRE and the SCFESD.

The Sonoma County Farm Bureau raised concerns in response to the County's Draft Outdoor Recreation Plan that trail users may build campfires or produce increased fire hazards that could spread to adjacent land, that many proposed trails are within areas of high fire hazard, and requested information about what measures could be undertaken to prevent fires from spreading onto adjacent land (Sonoma County 2003). The Sonoma County General Plan 2020 includes several goals and policies to curb the potential for wildland fire to occur, such as Policy PS-3a, which requires the County to use available information to reduce wildland and structural fire hazards and Policy PS-3b, which requires the County to consider the severity of natural fire hazards, and adequacy of fire protection and mitigation measures to reduce the potential for wildland fires in the review of new projects (Sonoma County 2016). In addition to the General Plan, the County uses several other planning documents that include policies and measures to reduce and respond to wildlife threats in the County. These include the Sonoma Lake Napa Unit Fire Management Plan, which guides fire management within the County's State Responsibility Area, the Sonoma County Hazard Mitigation Plan, which proposes priority action items to mitigate wildfire hazards, the Vision 2020 County Strategic Fire Plan, which includes recommended actions for improving and maintaining fire response services, and the Sonoma

County Community Wildfire Protection Plan, which identifies existing fuel loads and wildland/urban interface hazard areas, and recommends measures to reduce wildland fire hazards within the County. As stated in the General Plan, wildland fire hazards can be reduced by vegetation management, installation of water systems, and participation in the Sonoma County Community Wildfire Protection Plan. Furthermore, the Sonoma County Fire Safety Ordinance provides standards for new development within unincorporated areas of the County in order to ensure that these areas have adequate emergency access, emergency water supply, fuel modification and defensible space, sprinklers, and are able to be easily located in an emergency. The Fire Safety Ordinance is primarily focused on new development, but some aspects are applicable to a trail project. The Regional Parks Department adheres to all of these requirements when designing projects, including trails that would be adjacent to private land (Sonoma County 2003).

The proposed project does not include adding new buildings or residents and based on information provided by the SCFESD the existing firefighters and emergency personnel could serve the site and would not require an expansion of an existing fire station or the construction of a new one. For these reasons, the project would result in **a less-than-significant impact** on County fire protection services.

Law Enforcement Services

The project site is currently undeveloped and requires minimal law enforcement services from the SCSO at present. The proposed project would increase demand for law enforcement services by providing recreational uses that would increase visitor use of the site. The nearest Sheriff's station to the project site is located at the intersection of 1st Street and Church Street in Guerneville, approximately 12.2 miles to the north (SCSO 2015b).

Operating hours for public use of the trails would be sunrise to sunset seven days a week, including seasonal access to the Estero for recreational uses such as kayaking and canoeing and other such uses similar in nature and intensity. The access road would provide vehicle access to the parking areas and trail system in the event law enforcement is needed. Based on information provided by the SCSO, between January 1, 2017 and June 30, 2018, the median response time for the Priority 1 calls received by the SCSO from the project area was 34 minutes, 42 seconds (Harris, pers. comm. 2018). According to data provided by the SCSO on Priority 1 calls from nearby County Parks, parks similar to the proposed project received only one Priority 1 call in total during this same 18-month period. The only park within the project area that received a Priority 1 call during this period was Doran Regional Park, a 127-acre regional park approximately 3.6 miles west of the project site (Harris, pers. comm. 2018). This park is much larger than the proposed project and provides a variety of amenities including campgrounds that serve more people.

Maintenance of the trails and staging areas would be provided by Regional Parks. Regional Parks would be responsible for ensuring the trails are kept functional and safe. Regional Parks Rangers would conduct periodic patrol of the trails and parking areas and in the event a car is left in the parking lot when the main gate is closed the vehicle would be subject to a citation. In addition, the Park Ranger would do a foot patrol of the area to see if the vehicle owner can be located, which may include conducting a visual survey to see if it may be a kayaker in the Estero. The Park Ranger would also contact the Sheriff's Department to get information on the vehicle's owner which often includes a cell number. Additionally, Regional Parks would coordinate with local law enforcement in the event of any illegal activities.

In regards to trespass and criminal activity, the SCFB raised concerns about the potential for public trail users to trespass onto adjacent private property and possibly commit theft, vandalism, and burglary. Other issues raised by the SCFB included how law enforcement personnel would patrol trails to prevent trespass and crime on adjacent properties and how hours of operation and other on-site rules would be enforced. The County has previously conducted a "Neighbor Survey", which involved interviews of property owners adjacent to recreational areas, which identified common concerns and complaints. According to the survey, serious crimes such as trespassing and theft were not a major issue. Public safety and security is considered during the design process of Regional Parks projects. Overall, the benefits of nearby recreational facilities overrode the drawbacks for these residents (Sonoma County 2003).

The project site would be open to the public from sunrise to sunset seven days a week and would be patrolled by Regional Park Rangers regularly for maintenance and public safety. Regional Parks would be responsible for ensuring the trails are kept functional and safe. Regional Parks would also coordinate with local law enforcement in the event of any illegal activities, such as vandalism, trespassing, and poaching, and the County's Department of Emergency Services – Fire Prevention Division in the event of a fire. Lastly, several laws protect property owners from liability resulting from trespassing recreationists, such as Civil Code Section 846 and Public Resources Code Section 5075.5 (Sonoma County 2003).

The proposed project does not include adding new residents and based on information from the Sheriff's Department there is adequate capacity to serve the project and it would not require an expansion of an existing sheriff station or the construction of a new facility. For these reasons, the project would result in a **less-than-significant impact** on County law enforcement services.

Mitigation Measures

No mitigation measures are required.

Cumulative Impacts

The cumulative context for this analysis is the service areas for Battalion 1410, the SCFESD and SCSO for fire and law enforcement services. The service area for Battalion 1410 includes the 274,189-acre area between the Pacific Ocean and Mount St. Helena in Sonoma County. The service area for the SCFESD and SCSO includes the unincorporated area of Sonoma County.

3.11-2: The proposed project, when combined with other cumulative development, would not result in the cumulative contribution to any existing impacts associated with the provision of new or physically altered fire protection or law enforcement facilities in order to maintain acceptable service ratios and response times. The project's contribution would not be considerable.

The County's General Plan EIR identified cumulative impacts related to fire, EMS, and police protection services. These impacts are primarily related to projected population growth in the County associated with new development which would increase demand for public services. Furthermore, declining funding, increased costs, and lower volunteer availability might make existing fire protection and law enforcement and emergency services inadequate for future needs associated with buildout of the General Plan. In addition, more businesses and residences would be built in rural areas, increasing fire hazards within the County along with demand for fire prevention and suppression services in areas with longer response times, lack of sufficient water, heavy brush, substandard road systems, and other hazards. Law enforcement protection services would also be difficult to maintain due to an increase in population within the County, which would require expansion of existing facilities that have the potential to cause significant environmental impacts.

The proposed project involves the development of two trails and staging areas within an existing Trail Easement on a site currently used as an active cattle ranch. No buildings or structures are proposed on the site as part of the project. Therefore, the project would not generate a permanent increase in population within the County. However, as described previously, the proposed project would increase visitor use of the site for recreational activities such as hiking or kayaking. Any increase in calls for fire or police services is expected to be minimal due to the nature and size of the project. Furthermore, Regional Parks would be responsible for ensuring the trails are kept functional and safe. Therefore, the project's contribution would not result in a cumulatively considerable contribution to an existing cumulative impact and the impact is considered less than significant.

Mitigation Measures

No mitigation measures are required.

References

Bodega Fire Department. 2018a. Volunteers. Accessed August 13, 2018. Available at: http://www.bodegafire.org/volunteers.

Bodega Fire Department. 2018b. Apparatus. Accessed August 13, 2018. Available at: http://www.bodegafire.org/apparatus.

CAL FIRE. 2017. Strategic Fire Plan Sonoma-Lake-Napa Unit. May 2017.

CAL FIRE. 2016. Sonoma County Hazard Mitigation Plan: Fire Districts and Fire Stations Map. July 15, 2016.

CAL FIRE. 2007. Sonoma County: Fire Hazard Severity Zones in SRA. November 7, 2007.

Fire Safe Sonoma. 2016. Sonoma County Community Wildfire Protection Plan. September 20, 2016.

Harris, M. 2018. "RE: SCSO response times – Please forward to Matt Harris." Email from M. Harris (SCSO Crime Analyst) to S. Iyer (Dudek). August 10, 2018.

REDCOM Dispatch. 2018. REDCOM Fire & EMS Dispatch. Accessed August 13, 2018. Available at: https://www.redcomdispatch.org/about.html.

Reese, K. 2018. "RE: Sonoma County Fire Response Times." Email from K. Reese (REDCOM Dispatch Communications Manager) to S. Iyer (Dudek). August 21, 2018.

Sonoma County. 2003. Draft Sonoma County Outdoor Recreation Plan Volume I: Outdoor Recreation Plan. March 2003.

Sonoma County. 2014. Sonoma County General Plan 2020 Public Safety Element. Last amended September 9, 2014.

Sonoma County. 2016. Sonoma County General Plan 2020 Public Facilities and Services Element. Last amended August 2 2016.

Sonoma County. 2017. 2016 Hazard Mitigation Plan Update. April 2017.

Sonoma County. 2018. "Fire and Emergency Services". Accessed April 2, 2018. Available at: http://sonomacounty.ca.gov/Fire-and-Emergency-Services/.

Sonoma County. 2006. Sonoma County General Plan 2020 Draft Environmental Impact Report. January 2006.

SCSO (Sonoma County Sheriff's Office). 2013. Zone Map. November 1, 2013.

SCSO (Sonoma County Sheriff's Office). 2015a. Patrol Bureau. Accessed April 2, 2018. Available at: https://www.sonomasheriff.org/patrol-bureau/.

SCSO (Sonoma County Sheriff's Office). 2015b. "Overview". Accessed January 19, 2018. Available at: https://www.sonomasheriff.org/overview/.

Sonoma County Library. 2018. About. Accessed April 2, 2018. Available at: https://sonomalibrary.org/about/about.

3.12 Recreation

Introduction

This section of the Draft Environmental Impact Report (EIR) presents potential impacts of the Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas and Construction and Operation of Recreational Amenities project (proposed project) on recreational opportunities within the project vicinity. This section presents the environmental setting, regulatory framework, impacts of the proposed project on the environment, and proposed measures to mitigate any identified significant impacts.

Comments received in response to the Notice of Preparation (NOP) expressed concerns with boat access to the Estero Americano (Estero) and members of the public straying from designated trails. Multiple commenters requested alternatives to or elimination of access to the Estero and the construction of "docks" to allow boat access. Comments received in response to the prior Mitigated Negative Declaration released in October 2016, included concerns associated with the close proximity of active agricultural uses and proposed recreational uses, including the potential damage to terrain, infrastructure, and livestock on these properties. Comments also indicated concerns regarding members of the public trespassing on surrounding private properties and the potential introduction of diseases and non-native plant species. These concerns are addressed in Sections 3.2, Agricultural Resources and 3.11, Public Services and Safety. The California Coastal Commission also recommended completing a Grazing Plan that would address these concerns. As explained in Chapter 2, Project Description, the Bordessa Ranch is under a Conservation Easement and is private land that would continue to be operated as a cattle ranch and used for cattle breeding and grazing. The Conservation Easement limits the use of the land in order to protect its conservation value and requires the landowners to prepare a rangeland management plan (RMP) that integrates natural resources protection goals with cattle grazing. Preparation of a RMP is not be within the scope of the County to prepare. See Appendix A for a copy of the NOP and complete list of public comments received during the public scoping period.

To the extent that issues identified in public comments involve potentially significant effects on the environment according to the California Environmental Quality Act (CEQA), and/or were raised by responsible and trustee agencies or the public, they are identified and addressed in this EIR.

Environmental Setting

This section describes the existing setting in the project area and also identifies the recreation facilities that could be affected by the proposed project.

Sonoma County Regional Parks (Regional Parks) oversees the development, operation, management and maintenance of parks and recreational facilities within the County. There are

over 50 parks and beaches within the County that are managed by Regional Parks (Sonoma County 2018a). These parks feature trails, sports fields, playgrounds, and campgrounds. The Sonoma County 2020 General Plan EIR states that, by 2020, approximately 8,190 acres of Regional Open Space Parks would be required to meet the demand rate of 15 acres of parkland per 1,000 people (Sonoma County 2006).

The closest existing park to the project site is Doran Regional Park, located approximately 4.7 miles west of the project site. Doran Park includes 2-miles of beach on Bodega Bay with a boat launch and rock jetty. The park also features campgrounds and connections to the Bird Walk Coastal Access Trail (Sonoma County 2018b). The project site is also located approximately 8 miles from several open space areas maintained by Regional Parks.

Existing Project Site

The elevation of the project site ranges from sea level at the Estero to about 400 feet at the highest knoll on the northwestern corner of the site. The topography is characterized as rolling hills with a central valley created by a drainage that drains into the Estero at the southern end of the site. The approximately 500-acre Bordessa Ranch property is currently used as grazing land for cattle and contains a large barn, agricultural workshop, a gravel/dirt access road, fencing, and miscellaneous water facilities. With the exception of the access road, fencing, barn and workshop, and water facilities, the remainder of the site is undeveloped. The Bordessa Ranch property is currently an active cattle ranch with breeding livestock. Cattle use the property for grazing and are present throughout the site. There are no existing recreational facilities on the site.

Regulatory Setting

Federal Regulations

There are no federal regulations related to the provision of recreational facilities.

State Regulations

California Coastal Act

The California Coastal Act became law in 1976 and is the primary law that governs decisions of the California Coastal Commission (CCC). The Coastal Zone of California encompasses 1.5 million acres of land that includes an inland boundary that ranges from several blocks in urban areas to as much as five miles inland in rural areas. The Coastal Act establishes basic goals of the state for the coastal zone including providing public access to and along the coast and public recreational opportunities in the coastal zone. The Coastal Act is supportive of providing recreational activities within the coastal zone.

Local Regulations

Sonoma County General Plan 2020

The Open Space and Resource Conservation Element and Public Facilities and Services Element of the Sonoma County General Plan 2020 (Sonoma County 2008a, 2016b) provide objectives, policies, and programs regarding recreational facilities, including the following:

Goal OSRC-17: Establish a countywide park and trail system that meets future recreational needs of the County's residents while protecting agricultural uses. The emphasis of the trail system should be near urban areas and on public lands.

Policy OSRC-17d: The trails on Figure OSRC-3 of the County's General Plan make up the County's designated plan for trails. Trail locations are approximate and are described below. Roadways may be used where access cannot be obtained through private property.

- Gualala River Waterway Trail. The Gualala River is a navigable waterway and, as such, public access is protected by Article XV, Section 2 of the California Constitution. The trail follows the river from the Sonoma/Mendocino County line to Stewart's Point Road.
- Sonoma Coast Trail. The trail extends from Black Point southward to the Estero Americano, is consistent with California State Coastal Plan Policy 145 that calls for establishment of a coastal trail system statewide.
- Russian River Waterway Trail. The Russian River is a navigable waterway from Cloverdale to the coast and as such, public access is protected by Article XV, Section 2 of the California Constitution. This proposed waterway trail extends from the coast to Preston Bridge immediately north of Cloverdale.
- Santa Rosa Creek Trail. The proposed Santa Rosa Creek Trail is located between Guerneville Road and Highway 101 and is owned in fee by the SCWA.
- Santa Rosa - Forestville Trail. The proposed trail primarily follows the abandoned right-of-way of the Petaluma and Santa Rosa Railroad from Highway 101 to Steelhead Beach.
- Gossage and Hinebaugh Creek Trail. The proposed trail follows a SCWA channel between Llano Road and Petaluma Hill Road. The trail further extends southward to the intersection of Stony Point Road and Highway 116. It is owned in fee by the Agency.
- Copeland Creek Trail. The proposed trail follows Copeland Creek and links Rohnert Park near Sonoma State University to Crane Creek Regional Park.
- Taylor Mountain Trail. The proposed trail connects the proposed Taylor Mountain County Park with Annadel State Park.

- Stevenson Trail. The trail was proposed by the California State Department of Parks and Recreation in 1958 to connect Robert Louis Stevenson Park and the Napa Valley.
- Hood Mountain Trail North. The proposed trail links Hood Mountain County Park to a 240 acre Bureau of Land Management holding to the east at the Sonoma/Napa county line.
- Hood Mountain - Annadel Trail. The proposed trail links Hood Mountain County Park to Annadel State Park. However, a crossing at Highway 12 will be necessary.
- Valley of the Moon Trail. The proposed trail traverses the Valley of the Moon between Jack London State Park and the Sonoma/Napa County line and links Sonoma Valley Regional Park to the Glen Ellen community.
- Sonoma Trail. The proposed trail follows the right-of-way of the Northwestern Railroad from the City of Sonoma to Highway 121/12.
- Petaluma River Waterway Trail. The Petaluma River is a navigable waterway and as such, public access is protected by Article XV, Section 2 of the California Constitution. The proposed trail extends from Shollenberger River Park to San Pablo Bay.

Classify potential trails as follows:

1. **Recreational Waterways**. Recognize boating and canoeing activities on designated waterways. Limit hiking trails to connections between urban areas, parks and the waterway.
2. **Hiking and Equestrian Trails.** Locate a trail system along the Sonoma County/Napa County boundary. Link existing and proposed State and County parks adjacent to urban areas.
3. **Multiple Use Trails.** Use railroad rights-of-way and water agency channels as multiple use trails for hiking, equestrian and bike use. Use existing roadways as alternative routes if access cannot be obtained.

Policy OSRC-17e: Encourage private organizations to assist in the construction and maintenance of trails.

Goal PF-2: Assure that park and recreation, public education, fire suppression and emergency medical, and solid waste services, and public utility sites are available to the meet future needs of Sonoma County residents.

Policy PF-2a: Plan, design, and construct park and recreation, fire and emergency medical, public education, and solid waste services and public utilities in accordance with projected growth, except as provided in Policy LU-4d.

Policy PF-2c: Use the following standards for determination of park needs: Twenty acres of regional parks per 1,000 residents countywide and five acres of local and community parks

per 1,000 residents in unincorporated areas. A portion of State parklands may be included to meet the standard for regional parks.

Policy PF-2i: Consider user fees in County park areas where special facilities are available. Offer discounts to County residents.

Impacts

Methods of Analysis

The project setting was developed by reviewing available information on recreational facilities in the project vicinity. Information regarding the County's existing parks, recreational facilities, and open spaces was reviewed.

The proposed project does not include new residences that would generate an increase in the City's population resulting in the need to develop new parks; therefore, the analysis includes a qualitative discussion of the adequacy of parks and recreation as it pertains to the project.

Thresholds of Significance

Consistent with Appendix G of the CEQA Guidelines and the County's General Plan, a significant impact would occur if development of the proposed project would do any of the following:

- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.
- Include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment.

Project Impacts and Mitigation Measures

3.12-1: The proposed project would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. This is a less-than-significant impact.

The proposed project includes construction of two 5-foot-wide pedestrian-only trails and two associated staging areas (trailheads/parking lots) within the Trail Easement on the approximately 500-acre Bordessa Ranch property in unincorporated Sonoma County. The West Trail would provide a 2.01-mile trail located on the western side of central creek traversing the property (see Figure 2-3 in Chapter 2). The East Trail would not exceed 2.75 miles in length and could be accessed from both the northern and southern staging areas (see Figure 2-4 in Chapter 2). Two staging or parking areas of 1.5 acres in total combined area would be

designated to accommodate parking for trail users. Trail amenities and features would include signage, wood benches placed along the trails, picnic tables at the staging areas, animal-proof trash and recycling containers at the staging areas, and portable toilets. No buildings or structures would be constructed as part of the project.

The project would provide for low-intensity public outdoor recreational and educational uses on the property consistent with the underlying Conservation Easement and Trail Easement. These uses include hiking, nature study, bird watching, sightseeing, picnicking, outdoor education, docent-led tours, scientific research and observation, and other similar uses. The project also includes seasonal access to the Estero for hikers and hand-carried, non-motorized boats, such as kayaks and canoes. Uses would be dispersed, nonexclusive, and non-motorized activities that do not adversely impact the natural resources or cattle grazing on the property. Within the two designated trail corridors, the five-foot wide trails would be constructed for pedestrian use only (no dogs, bikes, or equestrians would be allowed) and would be open seven days per week from sunrise to sunset. Trail markers, posts, and interpretive signs would be placed at the trailheads and along the trails to provide information on acceptable activities and to inform people straying off trails is not permitted. The trail markers provided at the trailheads and at all trail intersections would provide directions and distances (in miles and tenths of a mile) to noteworthy locations along the trails.

New fencing and gates would be designed to accommodate cattle grazing and to minimize conflicts between trail users and natural resources, grazing, and other ranching activities. Fences and gates would be designed to match the existing on-site facilities where appropriate and would include “kissing gates” for trail users to access lands where livestock graze. A kissing gate is a type of gate that allows people, but not livestock, to pass through. The normal construction is a half-round, rectangular, trapezoidal or V-shaped enclosure with a hinged gate trapped between its arms. This style of gate eliminates the need to close or lock a gate as people pass through. Regional Parks has used this style of fencing and gates with success in other County facilities where hikers and cattle share the same area.

In accordance with the Conservation Easement, any new fencing would comply with the County’s Agricultural Preservation and Open Space District’s (District) standards for fences on conservation lands, which include: no more than 40-inches in height, with smooth bottom wire no closer than 16-inches from existing grade, two or three smooth or barbed central wires, and smooth top wire. The top wire would be set at 12-inches from the next wire to reduce the chance of wildlife entanglement.

The project does not include the addition of new residences that could increase the demand on existing neighborhood and regional parks. The project would provide new recreational facilities that would help relieve demand on existing County parks and recreation facilities. The project would not increase the use of existing County parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated; therefore, impacts are considered **less than significant**.

Mitigation Measures

No mitigation measures are required.

3.12-2: The proposed project would not include recreational facilities that could have an adverse physical effect on the environment. This is a less-than-significant impact.

As described above, the project includes construction of two public pedestrian-only trails totaling a maximum of 5 miles in length, and two parking/staging areas and non-motorized boat and hiker-only access to the Estero. The District acquired the Trail Easement from the landowners to develop trails to allow public access for low-intensity outdoor recreational and educational purposes consistent with the purpose of the intent of the Conservation Easement to preserve and protect natural resources, habitat connectivity, open space and scenic views, and agricultural resources. The project does not include any uses, such as residences, that would introduce a new population requiring new parks or the expansion of existing park facilities. The Trail Easement portion of the project site would be used for low-intensity public outdoor recreational and educational uses, consistent with the Conservation Easement requirements. The physical effects of construction and operation of the project on the environment have been evaluated in this document and are addressed in Sections 3.1 through 3.11 and Section 3.13 of this EIR. Based on the analysis all potential impacts can be addressed with mitigation and reduced to **less than significant.**

Mitigation Measures

No mitigation measures are required.

Cumulative Impacts

The geographic scope for cumulative recreation impacts is development within Sonoma County.

3.12-3: The proposed project would not contribute to cumulative impacts related to recreational resources. The project's contribution would not be considerable.

As described above, the proposed project would increase use of the site by constructing two trails and associated staging areas for low-intensity public outdoor recreational and educational uses. The project does not include new residences that could increase demand for existing recreation facilities. Potential impacts resulting from construction and operation of the trails has been evaluated and fully mitigated (see Sections 3.1 through 3.11 and 3.13). The County is providing recreational opportunities in an area of the County where limited recreational options currently exist. The County's General Plan EIR identified cumulatively significant impacts related to recreation resources due to a deficit in parkland acreage. The project is proposing to provide new recreational facilities within the County and would not contribute to any existing cumulatively considerable recreation impacts. The project's contribution to the cumulative impact is not considerable resulting in a less-than-significant cumulative impact.

Mitigation Measures

No mitigation measures are required.

References

Sonoma County. 2018a. About Us. Accessed April 10, 2018. Available at: http://parks.sonomacounty.ca.gov/Learn/About-Us/.

Sonoma County. 2018b. Doran Regional Park. Accessed April 10, 2018. Available at: http://parks.sonomacounty.ca.gov/Visit/Doran-Regional-Park/.

Sonoma County. 2016a. Sonoma County General Plan 2020 Open Space and Conservation Element. Adopted September 23, 2008. Amended August 2, 2016.

Sonoma County. 2016b. Sonoma County General Plan 2020 Public Facilities and Services Element. Last amended August 2, 2016.

Sonoma County. 2006. Sonoma County General Plan 2020 Draft Environmental Impact Report. January 2006.

3.13 Transportation and Circulation

Introduction

This section of the Draft Environmental Impact Report (EIR) presents potential transportation and circulation-related impacts of the Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas and Construction and Operation of Recreational Amenities project (proposed project). The analysis contained in this section is based on information provided by W-Trans traffic consultants. This section presents the environmental setting, regulatory framework, impacts of the proposed project on the environment, and proposed measures to mitigate any identified significant impacts.

In response to the Notice of Preparation (NOP), Caltrans commented that the operations analysis of the project should include project related trip generation, distribution, turning movements, storage capacity within the project vicinity, as well as the existing project's driveway capacity and staging area in relation to State Route 1 (SR 1). Caltrans also noted that the project site falls under Place Type 5 Rural Agricultural Lands – Rural Towns and included recommended Transportation Demand Management measures for the project. Other comments cited potentially unsafe conditions for vehicle access from SR 1 and stressed the need for a dedicated turn lane. See Appendix A for a copy of the NOP and complete list of public comments received during the public scoping period.

Comments received in response to the prior Mitigated Negative Declaration released in October 2016, include concerns associated with the overall increase in vehicle and foot traffic. The California Department of Transportation (Caltrans) comment contained recommendations for the transportation impact study (TIS) to include vehicle miles traveled (VMT) analysis and efforts to reduce regional VMT. Caltrans also recommended multimodal planning and connections to the proposed Class II bike lane on SR 1. Because the project is a recreational use in a rural area of the County and generates so few trips, preparing a VMT analysis is not practical or necessary for the project. In addition, the County has yet to adopt VMT thresholds of significance, so the significance of the project's VMT could not be determined.

To the extent that issues identified in public comments involve potentially significant effects on the environment according to the California Environmental Quality Act (CEQA), and/or were raised by responsible and trustee agencies or the public, they are identified and addressed in this EIR.

Environmental Setting

This section describes the existing setting in the project area and the built environment. The project site is located at 17000 Valley Ford Cutoff, in unincorporated Sonoma County, west of the unincorporated community of Valley Ford. Access to the site is provided via an unimproved driveway off SR 1.

The County of Sonoma's *Guidelines for Traffic Impact Studies* was referenced for this analysis. Since the project access is via a driveway, and not a public road intersection, specific criteria from the guidelines are relevant to this situation:

Intersection Operations – This criteria applies to all controlled intersections except for driveways and minor side streets that have less than 30 vehicle trips per hour per approach or exclusive left turn movement. In the case of the project driveway access, the intersection level of service standards do not apply. However, for informational purposes, the access was evaluated as a public road intersection in order to present its operations.

Turn Lanes – The guidelines indicate to identify situations where the addition of project traffic at an intersection, including project driveways, causes an intersection to meet or exceed criteria for provision of a right or left-turn lane on an intersection approach. This evaluation is presented in the analysis below.

Sight Distance - The guidelines indicate to identify situations where the proposed project constructs an unsignalized intersection (including driveways) and/or adds traffic to an existing un-signalized intersection(s), including project related driveways that have inadequate sight distance based on Caltrans or AASHTO criteria. This evaluation is presented in the analysis below.

Study Area and Periods

SR 1 is a two-lane highway that typically runs north-south, but runs east-west in the study area and connects to Freestone Valley Ford Road to the east and Bodega Highway to the west. The speed limit on SR 1 is not posted in the study area, but the *prima facie*[1] speed limit of 55 miles per hour (mph) was used for analysis purposes. SR 1 has 12-foot travel lanes and six-foot shoulders in each direction, fencing approximately 20 feet set back from roadway, and dashed yellow centerline striping to the west and striping which prohibits eastbound passing to the east, while carrying an average of 5,200 vehicles daily. Approximately three to four feet of shoulder is provided on both sides of the highway. The study area consists of the location where the project access road connects with SR 1. Approximately 350 feet north and west of the project access road is the Sonoma Coast Villa Resort & Spa driveway access. There is an existing driveway apron at the access point for the project site; it has a width of 14 feet at its neck.

Operating conditions during the weekday p.m. and weekend midday peak periods were evaluated as these time periods reflect the highest traffic volumes area wide and for the proposed project. The evening peak hour occurs between 4:00 and 6:00 p.m. and typically reflects the highest level of congestion of the day during the homeward bound commute, while the weekend midday peak occurs between 12:00 noon and 2:00 p.m.

[1] Based on general information a speed limit 55 mph is assumed, unless evidence to the contrary is provided.

Alternative Modes

Pedestrian, Bicycle and Transit Facilities

Since this is a rural setting, no pedestrian facilities are present in the study area. SR 1 in the study area does not currently have bicycle facilities (Class II striped bike lane) and bicyclists generally ride in the roadway; however, there are proposed Class II bike lanes for SR 1 based on the Countywide Bicycle and Pedestrian Plan. There are no transit facilities in the area.

Existing Traffic Operations

Capacity Analysis

Intersection Level of Service Methodologies

Level of Service (LOS) is used to rank traffic operation on various types of facilities based on traffic volumes and roadway capacity using a series of letter designations ranging from A to F. Generally, Level of Service A represents free flow conditions and Level of Service F represents forced flow or breakdown conditions. A unit of measure that indicates a level of delay generally accompanies the LOS designation.

Even though the project access point is a driveway, it was evaluated as an intersection for the purposes of this analysis. The study "intersection" was analyzed using the "Two-Way Stop-Controlled" methodology published in the Highway Capacity Manual (HCM - TRB 2010). This source contains methodologies for various types of intersection control, all of which are related to a measurement of delay in average number of seconds per vehicle. The "Two-Way Stop-Controlled" methodology determines a level of service for each minor turning movement by estimating the level of average delay in seconds per vehicle. Results are presented for individual movements together with the weighted overall average delay for the intersection.

The ranges of delay associated with the various levels of service are provided in Table 3.13-1.

Table 3.13-1
Two-Way Stop-Controlled Intersection Level of Service Criteria

LOS A	Delay of 0 to 10 seconds. Gaps in traffic are readily available for drivers exiting the minor street.
LOS B	Delay of 10 to 15 seconds. Gaps in traffic are somewhat less readily available than with LOS A, but no queuing occurs on the minor street.
LOS C	Delay of 15 to 25 seconds. Acceptable gaps in traffic are less frequent, and drivers may approach while another vehicle is already waiting to exit the side street.
LOS D	Delay of 25 to 35 seconds. There are fewer acceptable gaps in traffic, and drivers may enter a queue of one or two vehicles on the side street.
LOS E	Delay of 35 to 50 seconds. Few acceptable gaps in traffic are available, and longer queues may form on the side street.

Table 3.13-1
Two-Way Stop-Controlled Intersection Level of Service Criteria

LOS F	Delay of more than 50 seconds. Drivers may wait for long periods before there is an acceptable gap in traffic for exiting the side streets, creating long queues.

Source: *Highway Capacity Manual*, Transportation Research Board, 2010.

Traffic Volumes

Traffic counts were collected in April 2018, by machine counter near the project site and show a daily weekday volume of 5,200 vehicles per day, a weekday p.m. peak hour volume of 465 vehicles and a weekend daily volume of 7,350 and a midday peak hour volume of 705 vehicles total for both directions on SR 1. Based on 2016 traffic counts published by Caltrans, this section of SR 1 carries an average of 4,650 vehicles per day and 740 vehicles during the peak hour. Because the volume of bicyclists is very low, no bicycle counts were conducted.

The machine counts also collected speed surveys near the project's access roadway for a 24-hour period. Speeds in the area average approximately 53 miles per hour (mph) with an 85th percentile speed of 59 mph and a 95th percentile speed of 64 mph. Highway design guidelines suggest that the posted speed should represent the 85th percentile speed of the vehicles using the facility and that the roadway alignment should be designed to support the 95th percentile speed. The traffic counts and speed surveys are included in Appendix E.

The Existing Conditions scenario provides an evaluation of current operation based on existing traffic volumes during the weekday p.m. and weekend midday peak periods. This condition does not include project-generated traffic volumes.

Intersection Levels of Service

Under existing conditions without the project, there is no delay at the project access driveway. The existing traffic volumes are shown in Figure 3.13-1, as well as future and existing plus project and future plus project. A summary of the intersection LOS calculations is contained Table 3.13-2, and copies of the LOS calculations are provided in Appendix E.

Table 3.13-2
Existing Peak Hour Intersection Levels of Service

Study Intersection Approach	PM Peak		Midday Peak	
	Delay	*LOS*	*Delay*	*LOS*
1. SR 1/Project Access	0.00	A	0.00	A

Note: Delay is measured in average seconds per vehicle; LOS = Level of Service
Source: W-Trans 2018.

Existing Traffic Safety and Collision History

In response to safety concerns the existing traffic safety and collision history of SR 1 in the study area has been evaluated. The collision history for the section of SR 1 within 200 feet of the project access point was reviewed to determine any trends or patterns that may indicate a safety issue. The most current five-year period available is January 1, 2013 through December 31, 2017.

As presented in Table 3.13-3, the calculated collision rate for the study segment was compared to the average collision rate for similar facilities statewide, as indicated in *2014 Collision Data on California State Highways*, California Department of Transportation (Caltrans). For the segment within 200 feet in either direction of the project access, the calculated collisions rate for SR 1 is less than the Statewide Average for similar facilities.

Table 3.13-3
Collision Rates for the Study Segment

Study Roadway Segments	Number of Collisions (2013-2017)	Calculated Collision Rate (c/mvm)	Statewide Average Collision Rate (c/mvm)
1. SR1/Project Access	1	0.89	1.40

Note: c/mvm = collisions per million vehicles miles
Source: W-Trans 2018.

Sight Distance

Sight distance along SR 1 from the project access road was evaluated based on sight distance criteria contained in the *Highway Design Manual* published by Caltrans. Vehicle speeds on SR 1 were surveyed both during a site visit in May 2018 as well as collected by machine with the traffic counts in April 2018. These surveys were used to obtain the 85th percentile speed, which was used for sight distance standards. The 85th percentile speed was calculated at 59 miles per hour (mph); therefore, a speed of 60 mph was used to assess the sight distance. The recommended sight distance for minor street approaches, such as the project access road, are based on stopping sight distance, which uses approach travel speeds as the basis for determining the recommended sight distance. Additionally, the stopping sight distance needed for a driver to stop if there is a vehicle waiting to turn into the project site is evaluated based on stopping sight distance criterion and the approach speed on the major street (SR 1). Conclusions related to sight distance are provided in the Impacts discussion below.

Regulatory Setting

All roads within the project area are under the jurisdiction of state and local agencies. State jurisdiction includes permitting and regulation of the use of state roads, while local jurisdiction

includes implementation of state permitting, policies, and regulations, as well as management and regulation of local roads. Applicable laws and regulations related to traffic and transportation issues are discussed below.

Federal Regulations

There are no federal regulations applicable to the proposed project.

State Regulations

California Department of Transportation

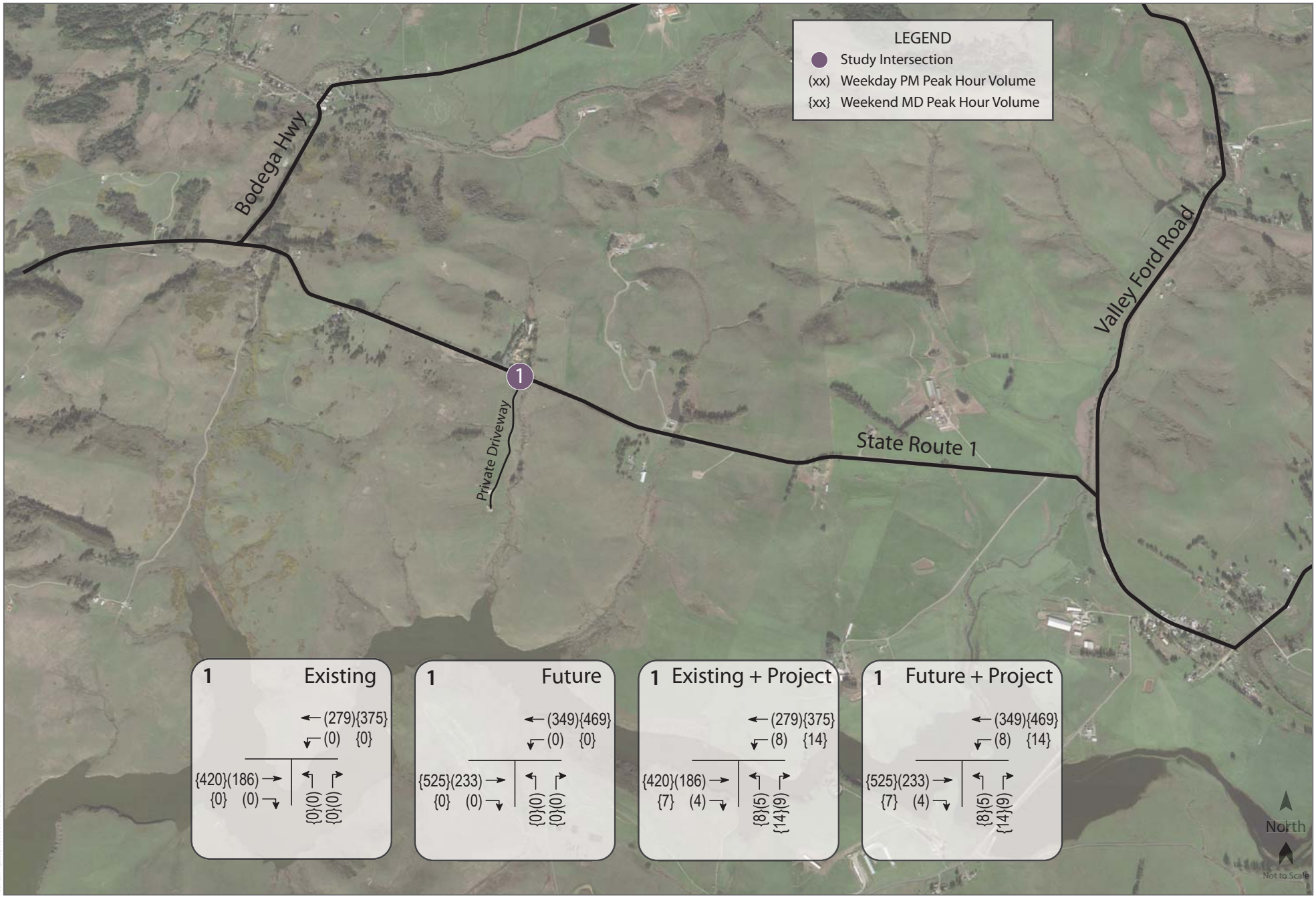
Caltrans manages interregional transportation, including management and construction of the California highway system. In addition, Caltrans is responsible for permitting and regulation of the use of state roadways. If construction of the project requires work within the Caltrans right-of-way, an encroachment permit from Caltrans would be required.

Local Regulations

Sonoma County General Plan 2020

Roads in the project study area are under the jurisdiction of Sonoma County. County policies and regulations regarding the design, use, or obstruction of roadways are detailed in the Sonoma County General Plan 2020 Circulation and Transit Element (Sonoma County 2016a). The Circulation and Transit Element provides goals and objectives regarding transportation and traffic, including the following that are most relevant to the study area:

> **Goal CT-1:** Provide a well-integrated and sustainable circulation and transit system that supports a city and community centered growth philosophy through a collaborative effort of all the Cities and the County.



SOURCE: W-Trans 2018

FIGURE 3.13-1

Existing, Future, Existing Plus Project and Future Plus Project Traffic Volumes

Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas Project

DUDEK

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Objective CT-1.6: Require that circulation and transit system improvements be done in a manner that, to the extent practical, is consistent with community and rural character, minimizes disturbance of the natural environment, minimizes air and noise pollution, and helps reduce greenhouse gas emissions.

Goal CT-2: Increase the opportunities, where appropriate, for transit systems, pedestrians, bicycling and other alternative modes to reduce the demand for automobile travel.

Objective CT-2.10: Utilize shoulders, paths, and bike lanes for other alternative transportation modes along existing streets, roads, and bicycle routes where consistent with public safety and the Vehicle Code.

Goal CT-3: Establish a viable transportation alternative to the automobile for residents of Sonoma County through a safe and convenient bicycle and pedestrian transportation network, well integrated with transit, that will reduce greenhouse gas emissions, increase outdoor recreational opportunities, and improve public health.

Objective CT-3.5: Provide incentives for business and government to increase the use of walking and bicycling by employees for both commuting and daily operations.

Objective CT-3.8: Increase the safety, convenience, and comfort of all pedestrians and bicyclists, by eliminating the potential obstacles to this mode choice that is associated with the lack of continuous and well-connected pedestrian walkways and bicycle facilities, and the lack of safe crossing facilities, especially focusing on short trips that could result in a decrease in automobile travel.

Policy CT-3a: Use the adopted Sonoma County Bicycle and Pedestrian Plan (Bikeways Plan) as the detailed planning document for existing and proposed bikeways and pedestrian facilities.

Policy CT-3h: Develop a Level of Service standard for identifying performance of the bicycle and pedestrian transportation network that takes into consideration travel distance, potential bicycle and pedestrian transportation needs, potential for improved mode split with improved facilities, and existing network deficiencies.

Policy CT-3i: Use the Level of Service standard developed by Policy CT-3h to evaluate impacts to bicycle and pedestrian facilities that may result from discretionary projects, and identify corrections and/or improvements necessary to mitigate those impacts.

Policy CT-3n: Use the following criteria to determine consistency of public and private projects with the Bikeways Plan: (1) Development of lands traversed or adjoined by an

existing or future Class I bikeway shall not preclude establishment of the bikeway, nor conflict with use and operation of the bikeway or adversely affect long term maintenance and safety of the facility. (2) Construction, widening, or maintenance of roads with designated bikeways meets the design and maintenance standards for the appropriate class of bikeway as specified by the Bikeways Plan.

Policy CT-3ff: Provide adequate bicycle parking as part of all new school, public transit stops, public facilities, and commercial, industrial, and retail development following standards established in adopted Bikeways Plan.

Goal CT-4: Provide and maintain a highway system capacity that serves projected highway travel demand at acceptable levels of service in keeping with the character of rural and urban communities.

Objective CT-4.1: Maintain LOS C or better on roadway segments unless a lower LOS has been adopted.

Objective CT-4.2: Maintain LOS D or better at roadway intersections.

Objective CT-4.3: Allow the above levels of service to be exceeded if it is determined to be acceptable due to environmental or community values, or if the project(s) has an overriding public benefit that outweighs lower levels of service and increased congestion.

Objective CT-4.4: Utilize the American Association of State Highway Transportation Officials (AASHTO) functional classification system and guidelines for geometric design for the highway network.

Policy CT-4b: Use area and/or project traffic analyses to determine if intersections meet the LOS standards of Objectives CT-4.2 and CT-4.3. Based on this analysis, identify and implement intersection improvements needed to achieve LOS D.

Sonoma County Bicycle and Pedestrian Plan

The Sonoma County Bicycle and Pedestrian Plan (SCBPP) establishes goals, objectives, policies and project priorities for the bicycle and pedestrian network in unincorporated areas of the County. The intent of the plan is to coordinate development of a seamless regional network that integrates with adjacent cities (Sonoma County 2010).

The SCBPP identifies a goal that encourages bicycle and pedestrian mobility throughout Sonoma County, and notes that people are most likely to choose walking in areas with high residential density and relatively short distances to schools, parks, shopping and jobs. With the unincorporated areas of Sonoma County, the SCBPP notes that these conditions are primarily found in Urban Service Areas. The project site is not located within an Urban Service Area.

Sonoma County Transportation Authority

The Sonoma County Transportation Authority (SCTA) was formed as a result of legislation passed in 1990 to serve as the coordinating and advocacy agency for transportation funding for Sonoma County, and, since 2004, administers Measure M funds generated within Sonoma County through a local sales tax for specific transportation projects in the County. The SCTA partners with other agencies to improve transportation in the County, for programmed projects including Highway 101 widening, local streets, transit, and bicycle and pedestrian facilities.

The *2009 Comprehensive Transportation Plan* for Sonoma County provides further guidance for transportation planning and associated goals and policies (SCTA 2009). This plan focuses on the design and implementation of improvements to the County circulation system, including roadways, bikeways, and rail service. It should be noted that the Transportation Plan is not directly applicable to the project, but is provided for informational purposes.

Impacts

Methods of Analysis

Trip Generation

The anticipated trip generation for a project is generally estimated using standard rates published by the Institute of Transportation Engineers (ITE) in the Trip Generation Manual, 10th Edition, 2017 (ITE 2017). This publication includes information for a Public Park (ITE LU # 411) which would be the closest land use category to the proposed project. However, that park use generally represents active park activities such as sports, developed picnic facilities, boating, multi-use trails, etc., some of which are more active than anticipated for the proposed project, which is pedestrian only use trails, no dogs allowed anywhere onsite, informal picnic facility, and hiker and boater access to the Estero. Due to limitations of this data, surveys were conducted in the summer of 2017 to establish vehicle trip rates for trailhead parking lots in Sonoma County. The surveys were conducted at three separate parks that have the most similar usage type as the proposed project and include Shell Beach, Laguna Wetlands Preserve, and Taylor Mountain Regional Park. A copy of the model output data is included in Appendix E.

Shell Beach, part of Sonoma Coast State Park, is off SR 1, south of SR 116, with a parking lot that serves as access to trailheads on both sides of SR 1 covering an estimated 500 acres. It should be noted that trip rates from data collection at Shell Beach in 2013 had been used for other open space/trailhead traffic studies in the area, such as the Calabasas Creek Open Space Preserve off SR 12 and Jenner Headlands Preserve between Jenner and Russian Gulch. These rates were updated in the 2017 surveys. Based on the new 2017 surveys, the Shell Beach parking lot generates traffic at a rate of 0.044 trips/acre of park during the weekday p.m. peak hour and 0.172 trips/acre of park during the Saturday midday peak hour.

Laguna De Santa Rosa Trail in the Laguna Wetlands Preserve has entrances on SR 12, east of SR 116 and on Occidental Road, east of SR 116 in the City of Sebastopol. This 400-acre area is owned, in part, by the City of Sebastopol and the City of Santa Rosa and includes a County Regional Parks (Regional Parks) Trail Easement. The trail area wraps around ponds, marshes and the largest freshwater complex on the Northern California Coast, the Laguna channel. The Laguna De Santa Rosa Trail parking lot generates traffic at a rate of 0.0675 trips/acre of park during the weekday p.m. peak hour and 0.060 trips/acre of park during the Saturday midday peak hour.

Taylor Mountain Regional Park is located on Kawana Terrace outside of the City of Santa Rosa and is owned by Regional Parks. This 1,100-acre park and open space preserve contains 5.5 miles of trails for hiking, biking and horseback riding with panoramic views of the City of Santa Rosa at the summit. Taylor Mountain Regional Park generates traffic at a rate of 0.044 trips/acre of park during the weekday p.m. peak hour and 0.025 trips/acre of park during the Saturday midday peak hour.

The proposed project is most similar to these three park projects as opposed to the land uses studied in the ITE Trip Generation Manual because all of these parks properties have a portion of the space dedicated to trail easement on a larger acreage of open space or privately-owned property. In other words, the majority of the land restricts public access, with only a portion dedicated to trails for public use. For the purposes of this study, the average of these three surveyed parks were used as a conservative estimate to identify the number of vehicle trips that would access the project site. Based on these surveyed rates, the proposed project would be expected to generate 26 weekday p.m. peak hour vehicle trips and 43 weekend midday peak hour trips.[2] These vehicle trip estimates are summarized in Table 3.13-4.

Table 3.13-4
Vehicle Trip Generation Summary

Land Use	Units/Acres	Weekday PM Peak Hour				Weekend MD* Peak Hour			
		Rate	*Trips*	*In*	*Out*	*Rate*	*Trips*	*In*	*Out*
Surveyed									
Taylor Mountain Regional Park	1,100 acres	0.044	48	26	22	0.025	28	14	14
Laguna Wetlands Preserve	400 acres	0.068	27	16	11	0.060	24	12	12
Shell Beach (2017)	500 acres	0.044	22	14	8	0.172	86	40	46
Proposed project	495 acres	0.052	26	12	14	0.086	43	21	22

Notes: Acres based on area of trails served.
*MD = Midday
Source: W-Trans 2018.

[2] It is anticipated this is a very conservative estimate of the project's trip generation and may only occur during holiday weekends, if at all.

Vehicle Trip Distribution

The trip distribution for the project was based on traffic counts taken at the nearby Sonoma Coast Villa Resort & Spa access driveway located on the opposite side of SR 1 approximately 350 feet north of the project's access road. Counts were taken in July of 2018, which identified that 35% of the traffic is oriented to/from the west and 65% is to/from the east. These percentages were applied to the estimated vehicle trips to determine vehicle turning movements at the project's access road.

Future Conditions

Historical traffic volume data available from Caltrans dating back 20 years indicates that traffic volumes on SR 1 in this area have decreased. However, in order to be conservative, a 20-year growth factor of 1.25 was assumed; this equates to an increase in traffic of 1.1% per year, which is typical for a number of roads in Sonoma County closer to urban areas. Under these conditions, SR 1 would be expected to carry 582 vehicles per hour during the p.m. peak hour, 994 vehicles per hour during the weekend midday peak hour and an average of 6,480 vehicles per day in the project area by the Year 2038.

Under the anticipated Future volumes without the project, the study intersection continues to have no traffic, therefore resulting in no delay. Future volumes are shown in Figure 3.13-1 and operating conditions are summarized in Table 3.13-5.

Table 3.13-5
Future Peak Hour Intersection Levels of Service – Without the Proposed Project

Study Intersection Approach	PM Peak		Midday Peak	
	Delay	*LOS*	*Delay*	*LOS*
1. SR 1/Project Access	0.00	A	0.00	A

Note: Delay is measured in average seconds per vehicle; LOS = Level of Service
Source: W-Trans 2018.

Thresholds of Significance

Consistent with Appendix G of the CEQA Guidelines and the County's General Plan and traffic guidelines, a significant impact would occur if development of the proposed project would do any of the following:

- Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.
- Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b).

- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- Result in inadequate emergency access.

Based on the most recent criteria published in the County of Sonoma's Guidelines for Traffic Impact Studies in May 2016 (Sonoma County 2016b), the project would have a significant traffic impact if it results in any of the following conditions:

- **On-site roads and frontage improvements:** Proposed on-site circulation and street frontage would not meet the County's minimum standards for roadway or driveway design, or potentially result in safety hazards, as determined by the County in consultation with a registered traffic engineer.
- **Parking**: Proposed on-site parking supply does not meet County standards and does not adequately accommodate parking demand.
- **Emergency Access**: The project site would have inadequate emergency access.
- **Alternative Transportation:** The project provides inadequate facilities for alternative transportation modes (e.g., bus turnouts, bicycle racks, pedestrian pathways) and/or the project creates potential conflicts with the County's Complete Streets Policy, or other adopted policies, plans, or programs supporting alternative transportation.
- **Road Safety**: Road design features that do not meet standards (e.g., sharp curves or skewed intersections) or any perceived incompatible uses (e.g., farm equipment, major bicycle route, rail or pedestrian crossings).
- **Vehicle Queues:** Project causes or exacerbates 95th percentile turning movement queues exceeding available turn pocket capacity.
- **Signal Warrants**: The addition of the project's vehicle or pedestrian traffic causes an intersection to meet or exceed current Caltrans and/or CA-MUTCD signal warrant criteria.
- **Turn Lanes:** The addition of project traffic causes an intersection to meet or exceed criteria for provision of a right or left turn lane on an intersection approach.
- **Sight Lines**: The project constructs an unsignalized intersection (including driveways) or adds traffic to an existing unsignalized intersection approach that does not have adequate sight lines based upon Caltrans criteria for state highway intersections and AASHTO criteria for County roadway intersections.
- **County Intersection Operations**: The County Level of Service standard for County intersection operations is to maintain a Level of Service D or better pursuant to General Plan Policy CT-4.2. The project would have a significant traffic impact if the project's

traffic would cause an intersection currently operating at an acceptable level of service (LOS D or better) to operate below the standard (LOS E or F).

If the intersection currently operates or is projected to operate below the County standard (at LOS E or F), the project's impact is significant and likely considerable if it causes the average delay to increase by five seconds or more. The delay will be determined by comparing intersection operation with and without the project's traffic for both the existing baseline and projected future conditions. These criteria apply to all controlled intersections except for driveways and minor side streets that have less than 30 vehicle trips per hour per approach or per exclusive left turn movement. As noted previously, the level of service results are presented, but do not apply in terms of significance.

- **County Roadway Operations**: The County Level of Service Standard for County roadway operations is to maintain a Level of Service C pursuant to General Plan Policy CT-4.1; or, for specific roadway segments, the level of service standard adopted, in General Plan Figure CT-3. The project would have a significant traffic impact if the project's traffic would cause a road currently operating at an acceptable level of service (LOS C or better) to operate at an unacceptable level (LOS D or worse).
- **State Highways**: Caltrans' general level of service policy on State highways is to maintain the level of service at the transition between LOS C and LOS D. However, level of service goals for specific Caltrans facilities should be taken from transportation planning documents for that facility. A project would have a significant impact if the project traffic would cause the operation of a State highway to operate below LOS C. If a State highway currently operates or is projected to operate below the standard, the project's impact is considered significant and cumulatively considerable if it does not maintain the existing "measure of effectiveness". Measures of effectiveness are: (a) control delay per vehicle for signalized intersections; (b) average control delay per vehicle for unsignalized intersections; (c) average speed for two lane highways, and (d) density for multi-lane highways.

Significance Criteria not Applicable to the Proposed Project

Due to the location and characteristics of the proposed project, certain significance thresholds are not applicable to the project and therefore, are not considered potential impacts and further evaluated. These thresholds are noted briefly below and are not discussed further in this document.

The proposed project is a recreational use in a rural area of the County and generates minimal trips; therefore, preparing a VMT analysis consistent with CEQA Guidelines section 15064.3 is not practical or necessary for the project. In addition, the County has yet to adopt VMT thresholds of significance and has until July 1, 2020, so this criteria is not further evaluated.

The project does not propose any new design features on SR 1 or any other maintained road system; therefore, the project would not substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses. This criteria is not applicable to the project and not further evaluated. In addition, the project's traffic volumes are very low, so the Signal Warrants criteria does not apply since the project does not trigger the need for a traffic signal. Thus, this criteria is not applicable to the project and not further evaluated.

The project is located on a state highway, SR 1; therefore, the Sonoma County Department of Transportation and Public Works has no jurisdiction over the highway and the level of service standard for County's Roadway Operations does not apply. Therefore, this criteria is not further evaluated.

Lastly, due to the type of project, the 30 parking spaces provided is generally consistent with other trail uses in the County and should serve the anticipated parking demand. As noted in Chapter 2, Project Description, if parking becomes an issue, County Regional Park Rangers would be on-site to regulate access and to turn away users if no parking is available. Therefore, this criteria is not further evaluated

Project Impacts and Mitigation Measures

3.13-1: Implementation of the proposed project under Existing Plus Project conditions could degrade intersection operations that exceed Caltrans' acceptable level of service D or better. This would be a short-term potentially significant construction impact.

With the addition of project-related traffic to the Existing traffic volumes, the study intersection is expected to continue to operate acceptably during p.m. peak hours under project operation. The results are summarized in Table 3.13-6 with project traffic volumes shown in Figure 3.13-1. This is a less-than-significant impact.

Table 3.13-6
Existing and Existing plus Project Peak Hour Intersection Levels of Service

Study Intersection Approach	Existing Conditions				Existing plus Project			
	PM Peak		*Midday Peak*		*PM Peak*		*Midday Peak*	
	Delay	*LOS*	*Delay*	*LOS*	*Delay*	*LOS*	*Delay*	*LOS*
1. SR 1/Project Access	0.00	A	0.00	A	0.4	A	0.5	A
Project Access Road	-	-	-	-	*10.5*	*B*	*13.7*	*B*

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics.*
Source: W-Trans 2018.

Project construction is anticipated to take 3 to 4 years to complete. With the exception of widening the main access road and constructing the staging/parking areas, only smaller equipment and

hand tools would be used to construct the trails. Because construction activities would only take place over the spring/summer months the amount of construction-related vehicle trips would be limited to only a few months. However, because this also coincides with when traffic is heavier along SR 1, construction activity, specifically larger trucks which may need more time to turn into and out of the site may generate short periods of delay to traffic on the highway. Flagging operations for larger trucks would address this concern and/or limiting construction access to off-peak periods. This may result in a short-term **potentially significant impact.**

Mitigation Measures

The following mitigation measure would ensure appropriate actions are taken by the County to ensure construction traffic would not create a hazardous condition, and the impact would be reduced to less than significant.

TRAF-1 **Construction Activities.** During project construction activities, the County shall obtain an encroachment permit from Caltrans, if required, and implement all measures in the permit. In addition, the County shall provide appropriate flagging operations for larger construction vehicles entering or exiting the project site, and/or limiting construction access to off-peak periods to the acceptance of Caltrans.

3.13-2: Implementation of the proposed project could add traffic (including construction traffic) to an existing unsignalized intersection approach that may not have adequate sight lines based upon Caltrans criteria for state highway intersections. This is less-than-significant impact.

Sight distance from the project access road at SR 1 was field measured and based on a design speed of 60 mph. The minimum stopping sight distance needed is 580 feet, based on sight distance criteria contained in the *Highway Design Manual* published by Caltrans. Field measurements indicate that the available sight distance to the south is greater than 700 feet, resulting in more than adequate sight distance for the outbound right-turn maneuver. Available sight distance to the north from the access road is greater than 1,000 feet, which is more than the necessary 500 feet. During project operation the stopping sight distance for a second vehicle behind a northbound vehicle turning left into the project site must also be greater than 660 feet and field measurements indicate there is adequate stopping sight distance. Therefore, during project operation this is considered a **less-than-significant impact**.

Mitigation Measures

No mitigation measures are required.

3.13-3: Implementation of the proposed project could result in the addition of project traffic that causes an intersection or driveway access to meet or exceed criteria for provision of a right or left turn lane on an intersection or driveway approach. This is considered a less-than-significant impact.

To address concerns raised in response to the NOP and using standard practice in evaluating similar projects, the need for a separate turn-lane was evaluated. The need for a left-turn and/or right-turn lane on SR 1 at the project access was evaluated based on criteria contained in Research Program (NCHRP) Report No. 279, Transportation Research Board, 1985 (TRB 1985). The NCHRP report references a methodology developed by M. D. Harmelink that includes equations that can be applied to expected or actual traffic volumes in order to determine the need for turn lanes due to safety concerns. Based on research conducted by W-Trans and discussions with Caltrans staff, this methodology is consistent with the Guidelines for Reconstruction of Intersections, August 1985, which was referenced in Section 405.2, Left-turn Channelization, of previous editions of the Caltrans Highway Design Manual, though this reference has been deleted from the most recent edition of this manual.

The need for left-turn channelization in the form of either a left-turn pocket or a two-way left-turn lane on SR 1 was evaluated based on the project's traffic volumes as well as safety criteria. The 85th percentile speed of 60 mph was used for the analysis. Under Existing plus Project conditions, a left-turn lane is not warranted on SR 1 at the project access point during both the weekday p.m. peak period and the weekend midday peak hour. However, another consideration in the analysis is the timing of the traffic counts, which were conducted in April 2018. If the counts were collected during the summer months, traffic volumes along SR 1 would likely be higher and may lead to conditions which would have warranted the left-turn lane. At this time based on the analysis the proposed project does not result in the need for a left turn at the project access. The turn lane warrants are provided in Appendix E.

The need for a right-turn lane or taper was also evaluated based on criteria contained in the NCHRP Report No. 279, Transportation Research Board, 1985. A right-turn lane would consist of a lane installed to the right of the travel lane and would be a minimum of ten feet wide, plus a shoulder where not adjacent to a curb. A right-turn taper is a shoulder area that gets progressively wider as the motorist drives toward the intersection. Both improvements are meant to provide an area for motorists turning right to move out of the traffic lane without impeding through traffic. The warrants were evaluated using existing and future volumes both with and without the project.

The need for a right-turn lane or taper was evaluated for SR 1 at the project access. Using the same criteria contained in the Intersection Channelization Design Guide, the warrants were evaluated using the above-described volume assumptions/scenarios. Based on these

assumptions, no additional facilities in the form of either a right-turn lane or right-turn taper would be warranted due to the limited number of vehicles making the right-turn into the project site. Even with increased traffic volumes within the expected variance, the right turn lane or taper would not be warranted. The results are included on the same spreadsheets as the left-turn warrants, and are provided in Appendix E.

Therefore, because the project's traffic volumes would not meet the turn lane warrants this is considered a **less-than-significant impact.**

Mitigation Measures

No mitigation measures are required.

3.13-4: Implementation of the proposed project could result in inadequate emergency access. This is considered a less-than-significant impact.

Access to the project site is via an existing access road off SR 1. As described in Chapter 2, Project Description, the access road, gate, and bridge would be improved or replaced in the same or similar locations. The access road would be widened to 12-feet wide, re-graded with a gravel base, turnouts may be provided, as necessary for two-way traffic. Two parking lots (or staging areas) would be provided. One parking area would be located to the north near SR 1 (north area), and the other would be located south of the existing barn, as shown in Figure 2-4. A total of 30 parking spaces would be available between the two staging areas (including one ADA space in each lot).

In the event of an emergency, police, fire or ambulance vehicles could access the site via the project's access road and park in one of the two parking areas. Because the project provides access for emergency vehicles this is considered a **less-than-significant impact**.

Mitigation Measures

No mitigation measures are required.

3.13-5: Implementation of the proposed project could conflict with a program, plan, ordinance or policy that addresses transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. This is considered a less-than-significant impact.

There are no public transit facilities within vicinity of the project site. Therefore, the project would not impact public transit facilities.

Currently there are no Class II bike lanes on SR 1 in the vicinity of the project site; however, Class II bike lanes are proposed for SR 1 based on the Countywide Bicycle and Pedestrian Plan. The

project would be expected to conservatively generate 26 weekday p.m. peak hour trips and 43 weekend midday peak hour trips for the purposes of the traffic analysis. However, since the project use is a pedestrian trail which would not allow off-road bikes, bicycle access to the site would be expected to be negligible. The project would not affect existing bicycle access along SR 1 and would not conflict with adopted County bicycle policies and standards.

There are no existing pedestrian facilities along SR 1 near the project site and with adequate on-site parking and circulation insuring vehicles do not park along the shoulder of SR 1, the impact to pedestrians is considered less than significant. Therefore, the project would not conflict with County policies or other programs or plans and the impact is **less than significant**.

Mitigation Measures

No mitigation measures are required.

Cumulative Impacts

As noted earlier, historical traffic volume data available from Caltrans dating back 20 years indicates that traffic volumes on SR 1 in this area have decreased. Therefore, the cumulative analysis conservatively assumed that traffic would grow based on a 20-year growth factor of 1.25; this equates to an increase in traffic of 1.1% per year which is typical for a number of roads in Sonoma County closer to urban areas.

3.13-6: Under Cumulative plus Project conditions the proposed project would not degrade intersection operations that exceed Caltrans' acceptable level of service C or better. This would be a less-than-significant cumulative impact.

Future plus Project Conditions

Under Future plus Project conditions with the addition of project-generated traffic to the anticipated future traffic volumes, the study intersection is expected to continue to operate acceptably, as shown in Table 3.13-7. This is a **less-than-significant impact.**

Table 3.13.7
Future and Future plus Project Peak Hour Levels of Service

Study Intersection Approach	Future Conditions				Future plus Project			
	PM Peak		*Midday Peak*		*PM Peak*		*Midday Peak*	
	Delay	*LOS*	*Delay*	*LOS*	*Delay*	*LOS*	*Delay*	*LOS*
1. SR 1/Project Access	0.00	A	0.00	A	0.4	A	0.5	A
Project Access Driveway	-	-	-	-	*11.3*	*B*	*16.1*	*C*

Note: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics.*
Source: W-Trans 2018.

Mitigation Measures

No mitigation measures are required.

3.13-7: Under Cumulative plus Project conditions the addition of project traffic could cause an intersection or driveway access to meet or exceed criteria for provision of a right or left turn lane on an intersection or driveway approach. This is considered a significant and unavoidable impact.

Future plus Project Conditions

Under Future plus Project conditions the need for a right-turn lane or taper was evaluated for SR 1 at the project access based on criteria contained in the NCHRP Report No. 279, Transportation Research Board (1985). It was determined a right turn lane or taper would not be warranted based on traffic volumes under Future plus Project conditions. The results are included on the same spreadsheets as the left-turn warrants, and are provided in Appendix E.

Under Future plus Project conditions, the need for a left-turn lane on SR 1 to allow vehicles to turn left into the project site was also evaluated. Based on the Caltrans criteria a left-turn lane is not warranted on SR 1 at the project access during both the weekday p.m. peak period and the weekend midday peak hour. However, under the Future plus Project midday peak hour scenario the left-turn lane warrant is just under the threshold of meeting warrants. Under this condition, 14 peak hour left-turns were estimated into the project site. If the left-turn volume was 17 peak hour vehicles, which is well within the standard deviation of the trip generation rates, the left-turn lane warrant would have been satisfied. Also, if the 95th percentile speed of 64 mph had been used, the warrant would have been also satisfied using the 14 peak hour left-turns (turn lane warrants are provided in Appendix E.) Because safety was a concern raised due to vehicles accessing the project site and because under Future plus Project conditions a left-turn lane is warranted due to project traffic, this is considered a potentially significant impact.

The County currently does not have an adopted plan or funding mechanism to widen SR 1 to include a left turn lane in this area as well as sufficient shoulder width to accommodate bike lane facilities that would be required by Caltrans. Therefore, because there is no funding available to construct this left-turn lane under Future plus Project conditions the impact is considered **significant and unavoidable**.

Mitigation Measures

No feasible mitigation measures are available.

References

TRB (Transportation Research Board). 2010. *Highway Capacity Manual*.

ITE (Institute of Transportation Engineers). 2017. *Trip Generation Manual,* 10th ed..

Sonoma County. 2016a. Sonoma County General Plan 2020 Circulation and Transit Element. Adopted September 23, 2008. Last amended August 2, 2016.

Sonoma County. 2016b. Sonoma County Guidelines for Traffic Impact Studies. May 2016.

Sonoma County. 2010. Bicycle and Pedestrian Plan. Accessed December 2, 2019. https://sonomacounty.ca.gov/PRMD/Long-Range-Plans/Bicycle-and-Pedestrian-Plan/.

CHAPTER 4
OTHER CEQA CONSIDERATIONS

Introduction

This chapter includes the following other considerations that are required to be discussed in an environmental impact report (EIR):

- Effects Not Found to be Significant
- Significant and Unavoidable Environmental Impacts
- Significant and Irreversible Environmental Effects
- Growth Inducement

Effects Found Not to Be Significant

Section 15128 of the California Environmental Quality Act (CEQA) guidelines requires that an EIR briefly describe potential environmental effects that were determined not to be significant and therefore were not discussed in detail in the EIR. Based on the analysis provided in this EIR, the Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas and Construction and Operation of Recreational Amenities project (proposed project) would not result in significant impacts related to the following topics, which are not further evaluated in the EIR:

- Forest Resources
- Energy
- Hazards and Hazardous Materials
- Mineral Resources
- Population and Housing

Additional information and discussion regarding the effects found not to be significant can be found below.

Forest Resources

The area proposed for development of future trails, staging/parking areas, and widening the access roadway would not require the removal of any trees. The project site is located within the larger Bordessa Ranch property that is currently, and has historically, been used for cattle grazing. There are no forest resources on the site and the site is not zoned for forest or timberland. The site does contain some stands of trees located near central creek that traverses the central portion of the site and in some of the valleys formed by the rolling hills. The trees on

the project site do not meet the definition of forestland[1], Timber, Timberland, or a Timberland Production Zone[2]. Therefore, the proposed project would not conflict with forestland zoning or result in the loss or conversion of forestland to non-forest uses. The trail corridors, staging/parking areas and access road widening are either located or have been designed to avoid removing any trees; thus, the project would have no impact to forest resources.

Energy

The proposed project includes developing trails, staging/parking areas and widening an existing access road. The trails would only be open to the public during daylight hours. The project does not include development of any uses that would require energy, including the provision of any type of lights. Construction would require the use of small equipment to create the trails, parking areas and to widen the access road. The project would not result in the unnecessary consumption of resources during construction activities. During project operation hikers accessing the trails would not consume energy in a wasteful manner nor would operation of the project conflict with plans designed to promote or encourage the use of renewable energy and energy efficiency. There would be no impact to energy associated with construction or operation of the project.

Hazards and Hazardous Materials

There are no existing contaminants or known hazardous sites on the project site or within one mile, based on a review of the Cortese database and the State Water Resources Control Board Geotracker database. During project construction, there exists a potential for the short-term use of hazardous materials/fuels associated with the use of construction equipment. However, the use, storage, transport, and disposal of these materials are required to comply with all existing local, state, and federal regulations. In addition, during project construction if any subsurface contamination is discovered that could adversely affect on-site construction personnel, the on-site contractor is required to stop work immediately and contact County staff. Because applicable hazardous materials laws and regulations would be implemented as standard procedure for construction of the proposed project through contractor specifications and monitored by the County, the impact would be less than significant.

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1 PRC Section 12220(g) defines “forest land” for the purposes of CEQA as land that can support 10% native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits.

2 California Government Code Section 51104(g) defines “Timber,” “Timberland,” and “Timberland Production Zone” for the purposes of CEQA as either trees of any species maintained for eventual harvest for forest production purposes (“Timber”); privately owned land, or land acquired for State forest purposes, used for growing and harvesting timber (“Timberland”); or “Timberland Production Zone” which means an area zoned and used for growing and harvesting timber.

Operation of the proposed project does not include any uses that would require the transport, handling, or disposal of hazardous materials, other than typical construction and landscaping materials. The types and quantities of these common chemicals would not be substantial and would not pose a health risk to people accessing the trails or any adjacent uses. Any impacts would be less than significant.

Mineral Resources

The project site does not contain any known mineral resources recognized by the state as being of value, nor is the site identified in the County's General Plan as a locally important mineral resource recovery site. The site has been used as a cattle ranch for many decades and development of a portion of the project site for passive recreation uses would not result in the loss of any known mineral resources. Therefore, no impacts would occur.

Population and Housing

The proposed project includes development of two trails and associated staging/parking areas and minor widening of the access road, pursuant to the terms of the Trail Easement that overlays a portion of the 495-acre ranch. There are no residences located on the project site that would be displaced by the project. The project does not include developing any new residences or any other uses that would generate an increase in either population or housing within the County. Therefore, no impacts associated with changes in population or housing would occur.

Significant and Unavoidable Environmental Impacts

The environmental effects of the proposed project are identified and discussed in detail in Chapter 3 and are summarized in the Executive Summary. Implementation of the project-specific mitigation measures identified throughout the Chapter 3 analysis would reduce all significant impacts to less-than-significant levels with the exception of one significant and unavoidable cumulative traffic impact.

Significant and Irreversible Environmental Effects

The CEQA Guidelines mandate that an EIR must address any significant irreversible environmental changes that would be involved in the proposed action should it be implemented (CEQA Guidelines, Section 15126(c)). An impact would fall into this category if:

- The project would involve a large commitment of nonrenewable resources;
- The primary and secondary impacts of the project would generally commit future generations to similar uses;

- The project involves uses in which irreversible damage could result from any potential environmental incidents associated with the project; and/or
- The proposed consumption of resources is not justified (e.g., the project results in wasteful use of energy).

Determining whether the proposed project may result in significant irreversible effects requires a determination of whether key resources would be degraded or destroyed in such a way that there would be little possibility of restoring them.

Implementation of the proposed project would involve constructing two trails and two staging/parking areas within an existing Trail Easement. Operation of the proposed project would not require the use of energy; with the exception of occasional maintenance work. However, due to the nature of the project it would not be considered resource-intensive or involve a large commitment of nonrenewable resources. Construction of the proposed project would include use of natural resources in the form of construction supplies including lumber and other forest products and fossil fuels such as gasoline and oil. These resources are frequently used in most general construction projects and are potentially nonrenewable.

Implementation of the proposed project would commit future generations to use of this site for passive recreational activities for the foreseeable future. The project site has historically supported agricultural uses, which are consistent with the land use and zoning designations, and implementation of the proposed project would not result in rezoning or changing land use designations. Development would occur with the designated Trail Easement would retain its agricultural character.

The project is not expected to result in the wasteful use of energy or other nonrenewable resources. Proposed infrastructure improvements would be minimal, discussed in detail in Chapter 2, Project Description, and would not to result in the wasteful use of energy or other nonrenewable resources. Overall, the proposed project would not result in significant and irreversible effects on the environment.

Growth Inducement

CEQA requires a discussion of ways in which the proposed project could induce growth. The CEQA Guidelines identify a project as growth inducing if it fosters economic or population growth, or the construction of additional housing, either directly or indirectly in the surrounding environment (CEQA Guidelines, Section 15126.2[d]). New employees from commercial or industrial development and new population from residential development represent direct forms of growth. These direct forms of growth have a secondary effect of expanding the size of local markets and inducing additional economic activity in the area. A project could indirectly induce

growth by reducing or removing barriers to growth or by creating a condition that attracts additional population or new economic activity. However, a project's potential to induce growth does not automatically result in growth. Growth can only happen through capital investment in new economic opportunities by the private or public sectors. Under CEQA, growth inducement is not considered necessarily detrimental, beneficial, or of little significance to the environment.

As discussed in Chapter 2, Project Description, the project would not include the extension of any infrastructure improvements to the site or require new water, sewer or storm drain infrastructure. The project does not include the creation of housing or commercial uses that would generate new residents or employees to Sonoma County. The project would not require the creation of any permanent new jobs. Development of the proposed project would generate construction-related employment during the 3-4 year construction period. Construction workers would be on site daily for the duration of the multi-year construction period and are expected to be primarily local. Given the nature of the project only a small number of workers are required, and it is not likely that a substantial number of workers would relocate to the County to work on constructing the proposed project. Due to the short duration and temporary nature of construction jobs, the increase in jobs during the construction period is not expected to be growth inducing.

Operation of the project would not require any new employees and due to the nature of the project would not be a driver to induce growth in the region.

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CHAPTER 5
ALTERNATIVES

Introduction

Pursuant to the California Environmental Quality Act (CEQA) Guidelines, environmental impact reports (EIRs) are required to "describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives" (14 CCR 15126.6(a)). An EIR "must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation" (14 CCR 15126.6(a)). The alternatives discussion is required even if these alternatives "would impede to some degree the attainment of the project objectives, or would be more costly" (14 CCR 15126.6(b)).

Consistent with the CEQA Guidelines, the EIR does not consider every conceivable alternative to the project or multiple variations on the alternative that it does consider. Rather, the EIR considers a reasonable range of potentially feasible alternatives that would mitigate or avoid potentially significant impacts of the proposed project in order to foster informed decision making and public participation.

The inclusion of an alternative in an EIR does not constitute definitive evidence that the alternative is in fact "feasible." The final decision regarding the feasibility of alternatives lies with the decision maker for a given project who must make the necessary findings addressing the feasibility of alternatives for avoiding or substantially reducing a project's significant environmental effects (California Public Resources Code Section 21081; see also 14 CCR 15091).

This chapter identifies the proposed project objectives, describes the project alternatives, and evaluates the comparative effects of the alternatives relative to the proposed project. As required under Section 15126.6(e)(2) of the CEQA Guidelines, the environmentally superior alternative is identified and included at the end of this chapter.

Project Objectives

The primary objectives of the Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas and Construction and Operation of Recreational Amenities project (proposed project) are set forth in Chapter 2, Project Description, of this EIR and consist of the following:

- Provide public access to the Trail Corridors and Staging Areas in perpetuity for low-intensity public outdoor recreational and educational purposes in accordance with the District's Grant Agreement with the California Coastal Conservancy, dated May 3, 2012 (Agreement No. 11-063).

- Provide public access within the Trail Easement area consistent with the preservation of natural resources and habitat connectivity, open space and scenic views, and existing agricultural resources.
- Create public access pedestrian-only trails that provide a broad public benefit for all ages and cultures and users of varying abilities.
- Provide pedestrian-only trails to support interactive educational experiences.
- Provide pedestrian-only trails that balance resource protection with high quality public access and maximize sensitive resource protection.
- Design pedestrian-only trails in accordance with appropriate trail standards, including the California Department of Parks and Recreation's Trails Handbook (1991, updated 2019) and Accessibility Guidelines (2015) and the California Department of Conservation and Recreation Trails Guidelines and Best Practices Manual (2010).
- Provide pedestrian-only trails to a unique and inspiring landscape that promote and enhance public enjoyment and appreciation of the natural, cultural and scenic resources on the property.

Significant and Unavoidable Impacts

The proposed project would result in the following significant and unavoidable transportation impact on a cumulative level. There is no feasible mitigation available to reduce this impact to less than significant.

- Under Future plus Project conditions, construction of a left-turn lane to allow vehicles to safely turn into the project site would be required, per Caltrans guidance for determining when a left-turn lane is warranted.

Alternatives Considered But Dismissed from Further Consideration

An EIR must briefly describe the rationale for selection and rejection of alternatives. The lead agency may make an initial determination as to which alternatives are potentially feasible, and therefore merit in-depth consideration, and which are not feasible. Alternatives whose implementation is remote or speculative, or the effects of which cannot be reasonably predicted, need not be considered (CEQA Guidelines, Section 15126.6(f)(3)). Factors that may be considered when addressing the feasibility of an alternative include site suitability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries, economic viability, and whether the proponent can reasonably acquire, control, or otherwise have access to the alternative site. Alternative selection should focus on alternatives that would avoid or substantially lessen any of the significant effects of the project (14 CCR 15126.6(a)).

Alternate Site

Analysis of alternative locations is generally most appropriate in the land use context where changes in zones or planning documents are contemplated. The proposed use is consistent with the underlying land use designation, zoning and Trail Easement and is not proposing to make any changes to the existing land use or zoning. The County or the District does not have a Trail Easement on any other property in the area that would be suitable for the proposed project. It is not feasible for the County or District to reasonably acquire another Trail Easement for the proposed project within the area; therefore, an off-site or alternate site alternative is not evaluated further in this EIR.

Alternatives to the Proposed Project Considered in this EIR

This section provides a description of the alternatives to the proposed project analyzed in this Draft EIR and evaluates how specific impacts differ in severity from those associated with the project. For purposes of this analysis, the potentially significant impacts identified under the alternatives analysis are assumed to be fully mitigated through compliance with mitigation measures identified in Sections 1.1 through 3.13 included in Chapter 3, which contains the environmental analysis of the proposed project.

The project alternatives identified herein address the significant impacts (before mitigation) identified for the project including biological resources, cultural resources, and traffic. Thus, the alternatives developed for the project contemplate a change in land uses that includes a reduction in development to address these impacts. In many instances, the impacts are virtually identical to the proposed project and are described as such.

This Draft EIR has incorporated a reasonable range of project alternatives that, collectively, attain a majority of the project objectives in a reasonable manner while reducing the severity of the significant impacts (before mitigation) identified under the proposed project. The No Project Alternative is a required element of an EIR pursuant to Section 15126.6(e) of the CEQA Guidelines that examines the environmental effects if the project were not to proceed.

The alternatives to the proposed project analyzed in this Draft EIR are:

- **Alternative 1: No Project** (no development), assumes the project site would remain in its current condition.
- **Alternative 2: Docent Only Alternative** assumes the proposed East and West trails, staging areas, and improvements to the access road would still be constructed. However, only the northern staging would be constructed and public access would only be permitted with a docent present and access to the Estero would be limited to pedestrians only; no boat access would be permitted under this alternative.

- **Alternative 3: Eliminate Estero Access Alternative** entails removing the portion of the East Trail that heads directly south to the Estero, south of the existing barn. All other components of the project would not change under this alternative, including the eastern portion of the East Trail and the southern staging area. Pedestrian and boat access to the Estero would be eliminated under this alternative.
- **Alternative 4: Eliminate East Trail Alternative** includes eliminating the East Trail corridor alignment entirely, including the south staging area. The north staging area and the West Trail would still be constructed along with improvements to the access road. Under this alternative there would be no pedestrian or boat access to the Estero.

These alternatives are discussed as part of the "range of reasonable alternatives" as other meaningful alternatives to the proposed project, which could result in a reduction in project impacts while achieving most of the basic objectives of the project. Each of these project alternatives is described below.

Alternative 1 - No Project Alternative

The No Project Alternative considers the effects of foregoing the project entirely and leaving the project site in its current condition. Under the No Project Alternative, the trails, staging areas, and improvements to the access road would not occur on the project site. The project site would remain unchanged and continue to operate in its existing capacity as a cattle ranch with no change to any aspect of the site.

Under the No Project Alternative, the site would remain in its existing condition, and there would be no ground disturbance, construction, or outside visitors on the project site. There would be no impacts to cultural resources, biological resources, or transportation. There would be no potential to impact special-status species or unknown cultural resources or contribute to a cumulative traffic impact.

The No Project Alternative would produce no visual change in the project area and, thus, would have no aesthetic impacts. Although the proposed project would have less-than-significant impacts to agricultural resources, this alternative would have no activities that would affect livestock, agricultural properties, or grazing land. This alternative would eliminate construction and all traffic associated with construction activities, equipment, and staging areas. There would be no greenhouse gas (GHG) emissions associated with construction or emissions associated with operation including vehicle emissions, grid electricity usage, and solid waste. This alternative would result in no impacts to either air quality or GHG. The exclusion of construction would also avoid any potential groundborne vibration and short-term intermittent noise associated with construction activities. More intensive land uses or noise-generating sources would not be introduced. In addition to construction trips, this alternative would not result in an increase in vehicle and truck trips

associated with visitors and maintenance. This alternative would also eliminate an increase of trips generated on State Route 1 (SR 1), thereby avoiding any increase in turning hazards under cumulative conditions. Overall, this alternative would result in reduced biological and cultural resource and transportation impacts compared to the proposed project.

Relationship to the Proposed Project Objectives

This alternative would not meet any of the project objectives because it would not provide public access to the project site for low-intensity public outdoor recreational and educational purposes, consistent with the District's Grant Agreement with the California Coastal Conservancy. In addition, trails would not be developed that provide a broad public benefit for all ages and cultures and users of varying abilities, as well as balance resource protection with high quality public access and maximize sensitive resource protection. The No Project Alternative would not allow for the creation of pedestrian-only trails that would provide a broad public benefit by supporting interactive educational experiences and public enjoyment and appreciation of the natural, cultural, and scenic resources.

Alternative 2, Docent Only Alternative

Under the Docent Only Alternative, the proposed trails, staging areas, and improvements to the access road would still be constructed. However, only one staging area near the main access gate (northern staging area) would be constructed because the number of people accessing the site would be limited. Both the East and West Trails would be constructed and access to the Estero would be allowed for pedestrians only; no boat access would be permitted under this alternative. Public access on the trails and to the Estero would only be allowed accompanied by a docent approved by County Regional Parks. The access gate would remain locked at all times and would only be opened by the docent. County Regional Parks would provide information and oversee the days/times docent-led tours would occur. The public would be required to pre-arrange a day and time to meet the docent to access the trails.

A comparison of impacts under the Docent Only Alternative and the proposed project is provided below.

Aesthetics

Under the Docent Only Alternative, the project site would be developed in a similar way as the proposed project. The elimination of the southern staging area would reduce land disturbance and the visual impacts of an impervious surface area; however, the southern staging area is less visible than the northern staging that would remain under this alternative. This alternative would reduce the extent of visual changes to the project site, although the same as the proposed project impacts to aesthetics would be less than significant.

Agricultural Resources

Impacts under the Docent Only Alternative would be similar to the proposed project. The proposed project would have less-than-significant impacts regarding the loss or conversion of existing grazing land to accommodate the project. The variation of public access under the Docent Only Alternative would also be consistent with the proposed project and impacts would not change and be less than significant.

Air Quality

Under the Docent Only Alternative, there would be a slight reduction in construction-related and operational emissions than the proposed project because only one staging area would be constructed. However, any heavy construction equipment operation would primarily be used for constructing the access road and staging areas. The elimination of the southern staging area would slightly reduce the amount of heavy equipment required, lowering the potential for construction-related emissions. This alternative would also limit public access, generating fewer vehicle trips associated with site visitors and maintenance. Relative to the proposed project, the Docent Only Alternative would result in a slight reduction in construction and operational criteria pollutant emissions, although impacts would be less than significant the same as the project.

Biological Resources

Under the Docent Only Alternative, the project site would undergo similar construction as proposed under the project with the exception of the southern staging area and pedestrian-only access to the Estero (no boat access would be allowed). This alternative would decrease the number of people using the project site for low-intensity recreational and environmental education uses and require all visitors to be with a docent approved by County Regional Parks. The presence of a docent would prohibit off-trail use of the property, which could result in trampling and/or destruction of special-status plant populations.

This alternative would not include the southern staging area, which is proposed approximately 120 feet south of the existing barn. The barn holds the most potential to host special-status bats. While the barn would not be directly affected by trail construction, bats using the barn could be adversely affected by short-term construction noise and human activities and disturbance. Removal of the southern staging area would further avoid any possible disturbance to bat species and would result in a reducing the severity of the direct and indirect impacts to any protected bat species, as compared to the project.

Recreational use of the Estero for boaters would be eliminated under this alternative. The exclusion of access for boaters to the Estero would ensure that any direct and indirect impacts to the vegetation associated with kayaks or canoes accessing the Estero would be avoided.

Construction activities and operation of the trails would generally still require the implementation of mitigation measures BIO-1 through BIO-13, to avoid/minimize direct and indirect impacts to biological resources. However, mitigation measure BIO-4 Special-Status Bats, may not be required if the southern staging area is not constructed. Potential biological impacts associated with a smaller development footprint and fewer people accessing the trails and the Estero would be similar to those that would occur under the proposed project, although impacts would be slightly less compared to the project and mitigation would still be required.

Cultural Resources

Impacts under the Docent Only Alternative would be similar as under the proposed project. Although the Docent Only Alternative would result in less soil disturbance due to the removal of a staging area. The mitigation measures (CUL-1 through CUL-3), best management practices (BMPs), and regulatory requirements under the proposed project would still apply under the Docent Only Alternative. Therefore, impacts on cultural resources, although slightly less would still require the same mitigation measures and impacts would be less-than-significant with mitigation, the same as the proposed project.

Geology and Soils

The Docent Only Alternative would slightly reduce soil disturbance and the overall project footprint compared to the proposed project due to the removal of the southern staging area. Removal of the staging area would not change the probability or severity of ground shaking, seismic-related ground failure, or landslides. Impacts under this alternative would be minimally reduced compared to the proposed project, although in both cases, impacts would be less than significant.

Greenhouse Gas Emissions

Under the Docent Only Alternative, construction on the site would be similar to the proposed project although the southern staging area would be removed, resulting in a slight reduction in construction-related GHG emissions. Once operational, this alternative would result in a slight reduction in GHG emissions associated with fewer visitor vehicle trips, as public access would be limited. Compared to the proposed project, this alternative would likely result in a reduction in GHG emissions, although in both cases impacts would be less than significant.

Hydrology and Water Quality

Under the Docent Only Alternative, there would be a slight reduction in the amount of construction compared to the proposed project. Construction activities may degrade surface water quality due to stormwater runoff, sedimentation, and potential erosion on hillsides.

Impacts under this alternative would be minimally reduced compared to the proposed project, although in both cases impacts would be less than significant.

Land Use and Planning

Under the Docent Only Alternative, impacts to land use and planning would not differ from the proposed project. This alternative would not create a division within an established community and would be consistent with policies adopted for the purposes of avoiding or minimizing impacts on environmental resources. Impacts would be less than significant, the same as the proposed project.

Noise

Under the Docent Only Alternative, noise impacts would be similar to the proposed project. No substantial periodic increases in noise are expected due to project operation, as neither periodic trail use nor parking lot activities have been shown to generate noise levels at sensitive receptors above existing ambient levels. Construction noise is the only temporary increase in ambient noise that the project could produce. Construction activities would still generate temporary, intermittent noise and limited groundborne vibration that could expose nearby receptors to elevated noise levels. Noise associated with construction would be slightly reduced because construction of the southern staging area would not occur. However, because of the distance between construction and the nearest sensitive receptors, impacts under this alternative would be less than significant, the same as the project.

Public Services and Safety

Under the Docent Only Alternative, public services and safety impacts would be reduced compared to the proposed project. This alternative would decrease the number of people using the project site and require them to be with a docent approved by County Regional Parks. The decrease in the number of people accessing the trails could limit the number of emergency response calls and the potential for illegal activities to occur. Impacts under this alternative would be slightly reduced compared to the proposed project, although in both cases impacts would be less than significant.

Recreation

Under the Docent Only Alternative, recreation impacts would be similar to the proposed project; however, access to the Estero would be limited to hikers. This alternative would provide for low-intensity public outdoor recreational and educational uses on the property consistent with the Trail Easement. Public access to the trails would be more limited than the proposed project and no boat access to the Estero would be permitted. However, this alternative would provide new recreational facilities that would help relieve demand on existing County parks and recreation facilities, the same as the project. Impacts would be less than significant.

Transportation and Traffic

Under the Docent Only Alternative, vehicle trips associated with visitors would be reduced along with a slight reduction in the number of construction-related vehicle trips. However, as safety was a concern for vehicles accessing the project site, the County would still need to take appropriate actions to ensure traffic turning left into the project site would not create a hazardous condition. Reducing the amount of on-site parking and requiring a docent to lead public tours of the trails would limit the number of vehicles accessing the site under Future plus Project conditions and would potentially eliminate the significant and unavoidable impact because it is doubtful the need to construct a left-turn lane would be warranted. Limiting public access would not change impacts related to emergency access or public transit and pedestrian facilities and these impacts would remain less than significant, the same as the project. Impacts to traffic and transportation under this alternative would be reduced compared to the proposed project because there would be fewer vehicles accessing the site and the significant and unavoidable impact would be avoided.

Relationship to the Proposed Project Objectives

This alternative would provide public access from SR 1 to the Estero, consistent with the preservation of natural resources and habitat connectivity; open space and scenic views; and existing agricultural resources. The Docent Only Alternative would still allow for the creation of pedestrian-only trails that would provide a broad public benefit by supporting interactive educational experiences and public enjoyment and appreciation of the natural, cultural, and scenic resources. This alternative would balance sensitive resource protection with high quality public access by providing public enjoyment under docent supervision. However, it would limit public access to docent-led tours, lessening the public enjoyment and appreciation of the natural, cultural and scenic resources of the area because it is anticipated fewer people would be interested in contacting a docent for a tour. In addition, prohibiting boat access to the Estero would not meet the activities permitted in the agreement with the California Coastal Conservancy set forth in the first objective. Overall, this alternative meets a majority of the project objectives but not to the same degree as the project.

Alternative 3, Eliminate Estero Access Alternative

The Eliminate Estero Access Alternative would entail removing the portion of the East Trail that heads directly south to the Estero, as shown on Figure 5-1. All other components of the project would not change under this alternative, including the eastern portion of the East Trail. Removal of the portion of the trail that provides access to the Estero would eliminate boat and pedestrian access to the Estero so no temporary surface protection mat system would be required.

A comparison of impacts under the Eliminate Estero Access Alternative and the proposed project is further discussed below.

Aesthetics

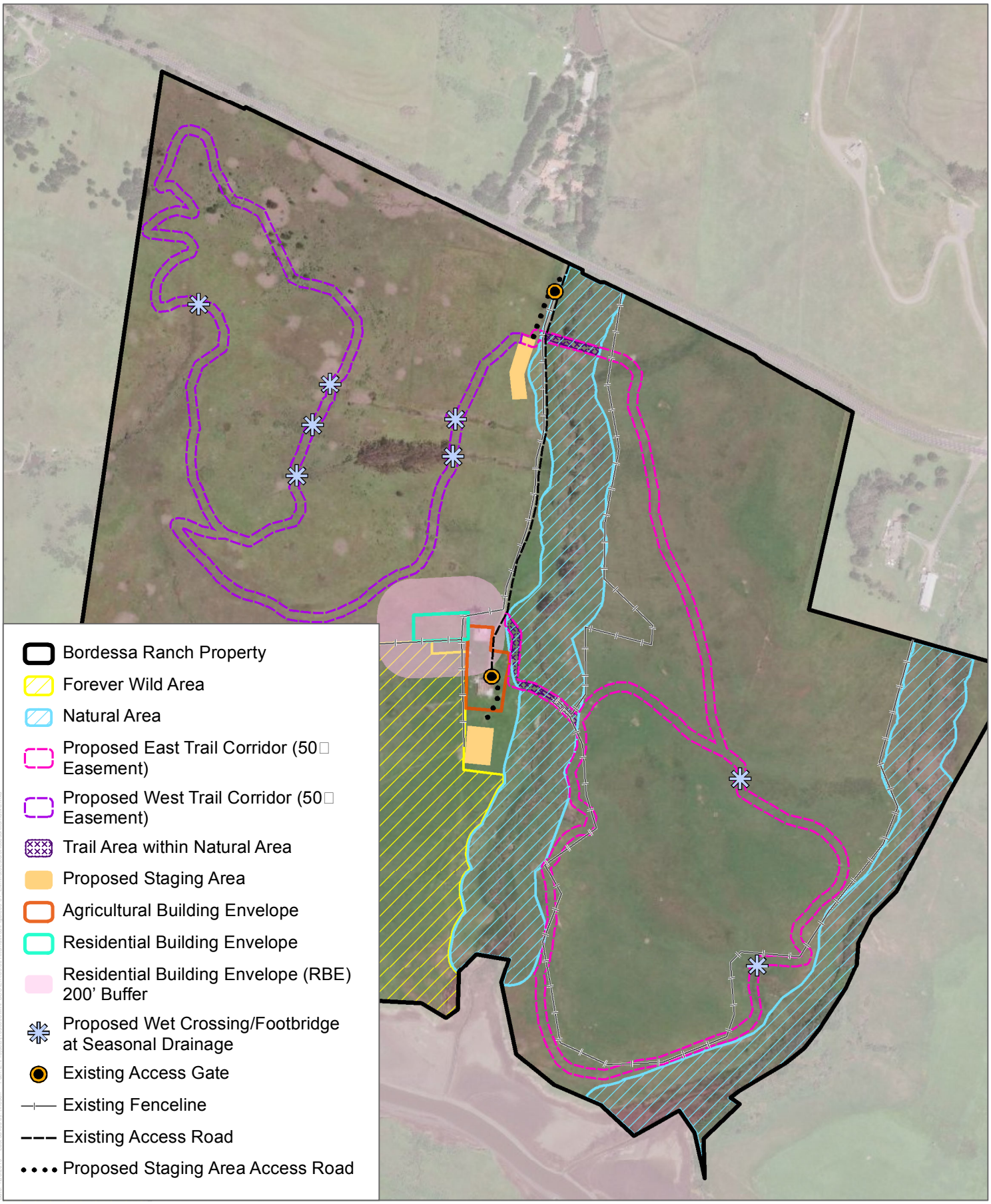
Under the Eliminate Estero Access Alternative, the portion of the East Trail that provides access to the Estero, including the surface protection mat system, and trail signage would not be constructed. This alternative would result in a slightly smaller land disturbance area and less construction-related removal of vegetation to construct this portion of the East Trail than the proposed project. There would be no public access to the Estero under this alternative. Removing the surface protection mat system would maintain the visual consistency of the estuary when viewed from the top of the bluff along the East Trail. This alternative would slightly reduce the extent of visual changes to the project site, although in both cases impacts to aesthetics would be less than significant.

Agricultural Resources

Impacts under the Eliminate Estero Access Alternative would be similar as under the proposed project. The proposed project would have less-than-significant impacts regarding the loss or conversion of existing agricultural resources. The removal of this portion of the East Trail would slightly reduce the amount of land accessible to the public, but in both cases impacts to agricultural resources would be less than significant.

Air Quality

Under the Eliminate Estero Access Alternative, there would be a slight reduction in construction-related emissions than under the proposed project. However, construction equipment would still be required to improve the access road and construct the trails and staging areas; all of these components remain in this alternative. This alternative eliminates a portion of the East Trail and public access to the Estero; which may result in a small reduction in the number of visitors using the trails. Relative to the proposed project, the Eliminate Estero Access Alternative would result in generally the same impacts as under the proposed project, less than significant.



SOURCE: Bing Maps 2018; Sonoma County 2015

DUDEK

0 355 710 Feet

FIGURE 5-1

Eliminate Estero Access Alternative

Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas Project

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Biological Resources

Under the Eliminate Estero Access Alternative, the project site would undergo similar construction as the project with the exception of allowing public access to the Estero and not constructing a portion of the East Trail. The removal of this portion of the East Trail would avoid direct and indirect impacts to vegetation and habitats.

Construction activities and operation of the trails would still require the implementation of mitigation measures BIO-1 through BIO-13, to avoid/minimize direct and indirect impacts to biological resources. Potential biological impacts associated with an incrementally smaller development footprint would be similar to those that would occur under the proposed project, although in both cases impacts would be less than significant with mitigation.

Cultural Resources

Impacts under the Eliminate Estero Access Alternative would be similar as under the proposed project. Although there would be a small reduction in soil disturbance due to the removal of a portion of the East Trail that provides public access to the Estero, this area is not considered sensitive for archaeological or paleontological resources. The mitigation measures (CUL-1 through CUL-3), and regulatory requirements identified under the proposed project would also apply to this alternative. Therefore, impacts on cultural resources would be less than significant with mitigation, the same as the project.

Geology and Soils

Under the Eliminate Estero Access Alternative, soil disturbance and the overall project footprint would be reduced compared to the proposed project due to the removal of the portion of the East Trail that provides public access to the Estero. Removal of this portion of the trail would not change the probability or severity of ground shaking, seismic-related ground failure, or landslides. However, it would slightly decrease the potential for impacts to result from soil erosion, as soils with high erosion hazards are primarily located in the southern portion of the site, near the Estero. Impacts under this alternative would be slightly reduced compared to the proposed project, although in both cases, impacts would be less than significant.

Greenhouse Gas Emissions

Under the Eliminate Estero Access Alternative, construction on the site would be similar to the proposed project although the portion of the East Trail that provides access to the Estero would be removed, resulting in a slight reduction in construction-related GHG emissions. This alternative would likely result in a slight reduction in GHG emissions compared to the proposed project, although in both cases impacts would be less than significant.

Hydrology and Water Quality

Under the Eliminate Estero Access Alternative, the portion of the East Trail that heads directly south to the Estero would be removed, reducing the area of disturbance. Construction activities may degrade surface water quality due to stormwater runoff, sedimentation, and potential erosion on hillsides. Impacts under this alternative would be minimally reduced compared to the proposed project, although in both cases impacts would be less than significant.

Land Use and Planning

Under the Eliminate Estero Access Alternative, impacts to land use and planning would not differ from the proposed project. This alternative would not create a division within an established community and would be consistent with policies adopted for the purposes of avoiding or minimizing impacts on environmental resources. Impacts would be less than significant.

Noise

Under the Eliminate Estero Access Alternative, noise impacts would be similar to the proposed project. Construction noise is the only temporary increase in ambient noise that the project could produce. No substantial periodic increases in noise are expected due to project operation, as neither periodic trail use nor parking lot activities have been shown to generate noise levels above existing ambient levels at any nearby sensitive receptors. Construction activities would still occur on the project site, although the duration of these activities may be slightly shorter without the construction of the East Trail access to the Estero. Construction activities would still generate temporary, intermittent noise and limited groundborne vibration that could expose nearby receptors to elevated noise levels. However, because of the distance between construction and the nearest sensitive receptors, impacts under this alternative would be less than significant the same as the project.

Public Services and Safety

Under the Eliminate Estero Access Alternative, public services and safety impacts would be similar to the proposed project. This alternative would decrease the number of people using the Estero for boating activities. The removal of public access to the Estero could potentially limit the number of emergency response calls to the project site because fewer people may access the trails. However, impacts under this alternative would be the same as the project, less than significant.

Recreation

Under the Eliminate Estero Access Alternative, recreation impacts would be similar to the proposed project. The alternative would still provide for low-intensity public outdoor recreational

and educational uses on the property consistent with the underlying Trail Easement. Although public access to the Estero would be permitted, this alternative would still provide new recreational facilities that would help relieve demand on existing County parks and recreation facilities. Impacts would be less than significant, the same as the project.

Transportation and Traffic

Under this alternative, only those vehicle trips associated with visitors solely intending to access the Estero would be eliminated. This alternative would not significantly change the number of vehicle trips associated with construction and maintenance activities. Eliminating access to the Estero may slightly reduce the number of vehicle trips to the site, but it is anticipated it would not change impacts related to emergency access, or public transit and pedestrian facilities; these impacts would remain less than significant the same as the project. Under Future plus Project conditions the slight reduction in vehicle trips could eliminate the need for a left-turn lane on SR 1 to access the project site. However, because it is not known what the reduction in vehicle trips would be and because both staging areas would still be constructed under this alternative there is the potential under Future plus Project conditions the need for a left-turn would be warranted. Therefore, the significant and unavoidable impact under Future plus Project conditions is anticipated to remain under this alternative the same as the project.

Relationship to the Proposed Project Objectives

This alternative would provide public access consistent with the preservation of natural resources and habitat connectivity; open space and scenic views; and existing agricultural resources. The Eliminate Estero Access would allow for the creation of pedestrian-only trails that would provide a broad public benefit by supporting interactive educational experiences and public enjoyment and appreciation of the natural, cultural, and scenic resources. However, this alternative would not allow pedestrian or boat access to the Estero which would not meet the first objective that would provide access pursuant to the agreement with the Coastal Conservancy that permits access to the Estero. Overall, this alternative meets a majority of the project objectives but not to the same degree as the project.

Alternative 4, Eliminate East Trail Alternative

Alternative 4 includes eliminating the East Trail corridor alignment entirely, including the staging area located in the central portion of the site near the existing barn (south staging area). The staging area located near the main gate/access road into the site would provide the only vehicle parking. The West Trail would still be constructed along with the staging area near the access road as well as improvements to the access road. Under this alternative there would be no access to the Estero allowed and the public would only have access to the West Trail and the northwestern portion of the project site.

A comparison of impacts under the Eliminate East Trail Alternative and the proposed project is provided below.

Aesthetics

This Eliminate East Trail Alternative would not develop the East Trail alignment, including the southern staging area, associated signage, trail markers, posts, benches, fences, gates and bridges. The permanent disturbance area would be less than the proposed project as a decreased amount of vegetation would be cleared to create the approximately 2.75-mile long, trail. The proposed northern staging area, West trailhead, and access road improvements would still be visible from the portion of SR 1 to the north of the site. Although under this alternative the East Trail would not be developed, the change in visual character would not be noticeable to people traveling along SR 1 or any other nearby uses. Impacts to aesthetics would be less than significant under this alternative, the same as the project.

Agricultural Resources

Impacts under the Eliminate East Trail Alternative would be slightly reduced compared to the proposed project because the entire approximately 2.75-mile long East Trail would not be constructed. This alternative would decrease the overall project footprint by not developing the East Trail or the southern staging area. The removal of the East Trail corridor and southern staging area under the Eliminate Estero Access Alternative would reduce the amount of land developed for trails; however, impacts to agricultural resources would be less than significant, the same as the project.

Air Quality

Under the Eliminate East Trail Alternative, there would be a reduction in construction-related and operational emissions than the proposed project. Construction equipment would be used for improvements to the access road, constructing the northern staging area, and the West Trail. The elimination of the south staging area and the East Trail would reduce the amount of construction equipment, lowering the amount of construction-related emissions. This alternative would also decrease the amount of available public access trails and parking, which would result in fewer vehicle trips associated with visitors and maintenance. Relative to the proposed project, the Eliminate East Trail Alternative would result in a reduction in construction and operational criteria pollutant emissions as compared to the project, although impacts would remain less than significant the same as the project.

Biological Resources

Under the Eliminate East Trail Alternative, trail users would be limited to the West Trail. This alternative would decrease the number of people using the project site, as there are less trails available, but may increase use of the West Trail. However, this alternative is not likely to induce greater total numbers of visitors. However, the potential for off-trail use can result in trampling and/or destruction of special-status plant and wildlife populations. Notably, the potential for off-trail use of the East Trail could disturb and/or destroy the pickleweed and other vegetation adjacent to the trail as well as sensitive areas adjacent to the Estero. The elimination of this trail alignment would ensure that any direct and indirect impacts to the vegetation would be avoided as well as sensitive areas near the Estero.

This alternative would not include the southern staging area, which is proposed approximately 120 feet south of the barn. The barn holds the most potential to host special-status bats. While the barn would not be directly affected by trail construction, bats using the barn could be adversely affected by construction noise and human activities and disturbance. Removal of the East Trail would further avoid any possible disturbance to bat species.

The elimination of the East Trail corridor would also reduce the amount of ground disturbance and construction activities, which could result in the disruption and/or destruction of vegetation and wildlife habitat within sensitive natural communities. Mitigation measures BIO-1 through BIO-13 would still be implemented to avoid/minimize direct and indirect impacts to biological resources. However, mitigation measure BIO-4 Special-Status Bats, may not be required if the southern staging area is not constructed. Potential biological impacts associated with a smaller development footprint would be similar to those that would occur under the proposed project; however, removal of the East Trail would result in a reduction in impacts to biological resources as compared to the project. Impacts would remain less than significant with mitigation.

Cultural Resources

Impacts under the Eliminate East Trail Alternative would be similar as under the proposed project. Although the Eliminate East Trail Alternative would result in less soil disturbance due to the removal of the East Trail Corridor and southern staging area, this area is not considered sensitive for archaeological or paleontological resources. However, because there would be less area disturbed under this alternative the potential to unearth subsurface resources would be reduced, as compared to the project. The mitigation measures (CUL-1 through CUL-3) and regulatory requirements under the proposed project would still apply under this alternative. Therefore, impacts on cultural resources would be less than the project, but would still require the same mitigation as the project.

Geology and Soils

Under the Eliminate East Trail Alternative, soil disturbance and the overall project footprint would be significantly reduced compared to the proposed project. Removal of the East Trail corridor and access to the Estero would not change the probability or severity of ground shaking, seismic-related ground failure, or landslides. However, it would decrease the potential impacts from soil erosion as soils with high erosion hazards are primarily located in the southern portion of the site, near the Estero. The removal of the southern staging area and entire East Trail corridor would approximately halve the amount of soil disturbance from the proposed project. Impacts under this alternative would be reduced compared to the proposed project, although in both cases, impacts would be less than significant.

Greenhouse Gas Emissions

Under the Eliminate East Trail Alternative, soil disturbance and the overall project footprint would be significantly reduced compared to the proposed project. The reduction in construction activities would decrease GHG emissions associated with construction equipment and vehicle usage. Emissions associated with vehicle trips would also be reduced due to the potential for a reduction in total visitors. This alternative would result in reduced construction and operational GHG emissions compared to the proposed project, although, impacts would be less than significant in both cases.

Hydrology and Water Quality

Under the Eliminate East Trail Alternative, the removal of the East Trail corridor and southern staging area would significantly reduce the project footprint. This would represent a reduction in temporary soil disturbance associated with construction equipment accessing the area to construct the trails and staging areas. Construction activities may degrade surface water quality due to stormwater runoff, sedimentation, and potential erosion on hillsides. The elimination of the East Trail corridor and southern staging area would decrease both the semi-pervious and impervious surface area; this would lessen stormwater runoff associated with the project. Impacts under this alternative would be reduced compared to the proposed project, although in both cases, impacts would be less than significant.

Land Use and Planning

Under the Eliminate East Trail Alternative, impacts to land use and planning would not differ from the proposed project. This alternative would not create a division within an established community and would be consistent with policies adopted for the purposes of avoiding or minimizing impacts on environmental resources. Impacts would be less than significant.

Noise

Under the Eliminate East Trail Alternative, noise impacts would be marginally reduced compared to the proposed project. Construction noise is the only temporary increase in ambient noise that the project could produce. No substantial periodic increases in noise are expected due to project operation, as neither periodic trail use nor parking lot activities have been shown to generate noise levels above existing ambient levels. Construction noise is expected to be highest during development of the staging areas; therefore, the elimination of the East Trail corridor and southern staging area would reduce the amount of construction-related noise. Construction activities would still generate temporary, intermittent noise and limited groundborne vibration that could expose nearby receptors to elevated noise levels. However, because of the distance between construction activities and the nearest sensitive receptors, impacts under this alternative would be less than significant and similar to the proposed project.

Public Services and Safety

Under the Eliminate East Trail Alternative, public services and safety impacts would be reduced compared to the proposed project. This alternative would potentially decrease the total number of people using the project site for low-intensity recreational and environmental education uses. This decrease would also potentially limit the number of emergency response calls and the potential for illegal activities. Impacts under this alternative would be reduced compared to the proposed project, although in both cases impacts would be less than significant.

Recreation

Under the Eliminate East Trail Alternative, recreation impacts would be similar to the proposed project. This alternative would provide for low-intensity public outdoor recreational and educational uses on the property consistent with the underlying Trail Easement. Although this alternative would provide fewer trail options it would still provide new recreational facilities that would help relieve demand on existing County parks and recreation facilities. Impacts would be less than significant, the same as the project.

Transportation and Traffic

Under the Eliminate East Trail Alternative, vehicle trips associated with visitors and construction activities would be reduced. Less overall construction would be required, lowering the number of construction-related vehicle trips during the spring/summer months. Eliminating the East Trail corridor, southern staging area and access to the Estero would not change impacts related to emergency access or public transit and pedestrian facilities and these impacts would remain less than significant, the same as the project. Impacts under Future plus Project conditions associated with the need to construct a left-turn lane for vehicles to access the site would not occur under this

alternative. Specifically because with the removal of the East Trail and the southern staging area the number of vehicles that could access the site would be substantially reduced as compared to the project. This alternative would eliminate the significant and unavoidable impacts associated with the need to construct a left-turn lane. Overall, traffic impacts would be less than under the proposed project and would be less than significant with mitigation.

Relationship to the Proposed Project Objectives

This alternative would be consistent with the objectives of preserving natural resources and habitat connectivity; open space and scenic views; and existing agricultural resources. This alternative would balance sensitive resource protection with high quality public access within the project site. However, it would limit public access to a smaller area, lessening the public enjoyment and appreciation of the natural, cultural and scenic resources of the area and would not meet the intent of the first objective because it would limit public access as set forth in the agreement with the California Coastal Conservancy.

Summary Matrix

Table 5-1 provides a summary comparison of each alternative with the proposed project. The table also indicates whether the alternative meets the project objectives as defined in Chapter 2, Project Description.

Table 5-1
Summary of Impacts from Alternatives

Environmental Issue	Proposed Project Impacts Prior to Mitigation	Proposed Project Impacts with Mitigation	No Project Alternative	Docent Only Alternative	Eliminate Estero Access Alternative	Eliminate East Trail Alternative
Aesthetics	LTS	LTS	▼	▼	▼	▼
Agricultural Resources	LTS	LTS	▼	—	—	—
Air Quality	LTS	LTS	▼	▼	▼	▼
Biological Resources	S	LTS	▼	▼	▼	▼
Cultural Resources	S	LTS	▼	—	—	—
Geology and Soils	LTS	LTS	▼	—	▼	▼
Greenhouse Gas Emissions	LTS	LTS	▼	—	▼	▼
Hydrology and Water Quality	LTS	LTS	▼	▼	▼	▼
Land Use and Planning	LTS	LTS	▼	—	—	—

Table 5-1
Summary of Impacts from Alternatives

Environmental Issue	Proposed Project Impacts Prior to Mitigation	Proposed Project Impacts with Mitigation	No Project Alternative	Docent Only Alternative	Eliminate Estero Access Alternative	Eliminate East Trail Alternative
Noise	LTS	LTS	▼	—	—	▼
Public Services and Safety	LTS	LTS	▼	▼	▼	▼
Recreation	LTS	LTS	▼	—	—	—
Transportation and Traffic	S	SU	▼	▼	▼	▼
Meets Most Project Objectives?			No	Yes	Yes	Yes

▲ Alternative is likely to result in greater impacts to issue when compared to proposed project.
— Alternative is likely to result in similar impacts to issue when compared to proposed project.
▼ Alternative is likely to result in reduced impacts to issue when compared to proposed project.
LTS = Less-than-significant impact.
S = Significant impact.
SU = Significant and unavoidable impact.

Environmentally Superior Alternative

As indicated in Table 5-1, the No Project Alternative would result in the least environmental impacts and would be the environmentally superior alternative. However, Section 15126.6(e)(2) of the CEQA Guidelines states that if the environmentally superior alternative is the No Project Alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives. In this case, the environmentally superior alternative is the Eliminate East Trail Alternative, since it would reduce impacts to aesthetics, air quality, geology and soils, GHG emissions, hydrology and water quality, noise, and transportation and traffic when compared to the proposed project. However, it should be noted that the proposed project would not result in any significant impacts after implementation of the required mitigation measures.

The Eliminate East Trail Alternative would be the environmentally superior alternative because it would require the least amount of site disturbance and construction-related emissions and would eliminate the significant and unavoidable traffic impact under Future plus Project conditions. Impacts to biological resources, including the Estero, would also be reduced because no portion of the East Trail would be constructed nor would the southern staging area be constructed. However, this alternative would meet some, but not all of the project objectives.

References

14 CCR 15000–15387 and Appendices A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

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CHAPTER 6
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Dylan Duvergé, PG, Hydrogeologist
Jonathan Leech, AICP, INCE, Acoustician
Chris Barnobi, INCE Bd. Cert., Acoustician

Transportation Subconsultant - W-Trans

Steve Weinberger, Principal

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APPENDIX A

Notice of Preparation and Comments Received

County of Sonoma
Permit & Resource Management Department

November 20, 2017

NOTICE OF PREPARATION OF DRAFT ENVIRONMENTAL IMPACT REPORT

NOTICE OF PUBLIC SCOPING MEETING

AB 52 PROJECT NOTIFICATION

Project Title: Estero Trail Plan and Designation of Estero Trail Corridors and Associated Staging Areas project

Project Proponent: Sonoma County Regional Parks Department and Sonoma County Agricultural Preservation and Open Space District

Project Location: 17000 Valley Ford Cutoff/Highway 1, Valley Ford, Sonoma County

Environmental Impact Report: The Sonoma County Permit and Resource Management Department (PRMD) previously prepared and circulated an initial study and a draft Mitigated Negative Declaration (MND) for the Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas project (proposed project). After reviewing the information disclosed by the draft Mitigated Negative Declaration document, the Board of Directors of the Sonoma County Agricultural Preservation and Open Space District (District) and the Board of Supervisors of the County of Sonoma directed staff to prepare an Environmental Impact Report for the development of the proposed project. Transfer of the trail easement from the District to the County is pending. The County will be the lead agency under the California Environmental Quality Act (CEQA) to prepare an Environmental Impact Report (EIR) for the project. The District will be a Responsible Agency as it holds a Conservation Easement over the Bordessa property, and is the current holder of the Trail Easement for the purposes of designating the Trail Corridors. This Notice of Preparation (NOP) describes the proposed project that will be analyzed in the EIR and identifies areas of probable environmental effects of the project.

Agencies and interested members of the public are invited to provide input on the scope of the environmental analysis. If you are a responsible or trustee agency, we need to know the views of your agency as to the scope and content of the environmental information which is germane to your agency's statutory responsibilities in connection with the proposed project. Due to the time limits mandated by state law, your response must be sent at the earliest possible date, but no later than 30 days after the receipt of this notice.

This NOP also serves as notification to California Native American tribes that are traditionally and culturally affiliated with the geographic area of the proposed project, pursuant to Public Resources Code 21080.3.1 (Assembly Bill 52). If your tribe wishes to consult on this project, please note you have 30 days to request consultation.

Written Comments:

Please submit written comments to any of the below:

Email: Rich.Stabler@sonoma-county.org Fax: (707) 565-1103
Regular Mail: PRMD, Attn: Rich Stabler, 2550 Ventura Avenue, Santa Rosa, CA 95403

Public Scoping Meeting: The County will hold a scoping meeting to provide an opportunity for agency staff and interested members of the public to submit comments, either written or verbal, on the scope of the environmental issues to be addressed in the EIR. The scoping meeting will be held on Wednesday**, December 13, 2017 from 6:00 p.m. to 8:00 p.m.** at the Valley Ford School House located at 14355 School Rd, Valley Ford, CA. The scoping meeting will have an "open house" format, so participants can attend at any point during this two-hour window. Participants arriving after 6:00 p.m. will not miss any meeting content. Written comments regarding relevant issues may be submitted at the meeting.

For questions regarding this notice, please contact Rich Stabler, Senior Environmental Specialist, at (707) 565-8352 or the email address above.

Project Background:

In 2012, the District purchased a conservation easement (Conservation Easement) and trail easement (Trail Easement) over property owned by Alfred and Joseph Bordessa (Bordessa Ranch) located on Valley Ford Cutoff, west of the town of Valley Ford (see Figure 1, Regional Map). The purpose of the Conservation Easement is to preserve and protect the conservation values of the property, including natural resources, habitat connectivity, open space and scenic views, agricultural resources, and recreation and education. The purpose of the Trail Easement is to ensure that trail corridors and associated staging areas are established and made available to the public in perpetuity for low-intensity public outdoor recreational and educational purposes consistent with the Conservation Easement. The goals of the Conservation Easement take precedence over the Trail Easement.

The District is proposing to designate trail corridors and associated staging areas pursuant to the Trail Easement and consistent with the Conservation Easement. Under the terms of the Trail Easement, the District must designate and survey the precise locations of two 50-foot-wide pedestrian-only trail corridors, cumulatively not to exceed 5 miles in length, and two staging areas, not to exceed 1.5 acres in total combined area. The District will subsequently transfer the Trail Easement to the County, who is developing the Estero Trail Plan. The County, acting through Regional Parks, is acting as the lead agency for purposes of environmental review under CEQA. The District has contracted with PRMD to assist in the environmental review process and PRMD prepared and circulated an initial study and MND in October 2016. Based on information disclosed in the MND, District and County staff have determined that an EIR is now necessary to more fully characterize and evaluate potential impacts of the complete Project, including both District designation of the trail corridor and County approval of the Estero Trail Plan.

Project Location:

The proposed project is located on the 495-acre Bordessa Ranch property, at 17000 Valley Ford Cutoff, in unincorporated Sonoma County, west of the town of Valley Ford (Highway 1) (Figure 1). The Bordessa Ranch is bordered by State Highway 1 on the north and extends to the Estero Americano on its south, encompassing rolling hills and two prominent knolls (see Figure 2, Site Location). Existing adjacent land uses are mostly rural agricultural. Site elevations range from sea level at the Estero to about 400 feet at the highest knoll on the northwestern corner of the site.

Proposed Project:

The Trail Easement held by the District commits the District to designate two 50-feet-wide pedestrian-only trail corridors, up to a cumulative maximum of 5 miles in length, and two associated staging areas, not to exceed 1.5 acres in size in total combined area, to provide for low-intensity public outdoor recreational and educational uses on the property consistent with the underlying Conservation Easement. The trail corridors are intended to provide public access from Highway 1 to scenic vista points and possible limited public access to the Estero Americano. The purpose of this project is to designate the two trail corridors: West Trail Corridor – 2.01 miles and East Trail Corridor – not exceeding 2.75 miles and two associated staging areas (Figure 3, Proposed Trail Locations). The EIR will evaluate the construction, operation and future maintenance of the trails and staging areas, as well as the access road, access bridge(s), and access gate.

The proposed project would establish two pedestrian-only trail corridors with associated staging areas (trailheads/parking lots) that would allow for low-intensity public access to pursue outdoor, recreational, and educational uses. As outlined in the Trail Easement, future uses may include hiking, nature study, bird watching, sightseeing, picnicking, outdoor education, docent-led tours, scientific research and observation, and other similar uses. Future uses may also include limited, seasonal walk-in access to the Estero for pedestrians and hand-carried, non-motorized boats, such as kayaks and canoes, if and to the extent the District determines that such access is compatible with sensitive resources associated with the Estero and the property. The District may place limitations on the nature, hours, and season of public access to the access road, bridge, and access gate, as well as the staging areas and trail corridors, as it deems appropriate for natural resources protection.

The anticipated trail system would be the principal means for providing public access to the property and the Estero. Within the two trail corridors, the trails would be constructed for pedestrian use only (no dogs, bikes, or equestrians would be allowed) and are anticipated to be approximately 5-feet wide; constructed of compacted native material or other permeable surface; and include wet crossings or footbridges at ephemeral stream crossings. Trail markers, posts, signs, and benches, would be placed along the trail to assist users. The existing main access road, access gate, and access bridge may be improved or replaced in the same or similar locations. Two staging areas of 1.5 acres in total combined area would be designated to accommodate parking for trail users. One staging area would be located to the north near Highway 1, and the other would be located south of the existing barn and Agricultural Building. The future development of the staging areas would likely include relocation and extension of the existing access road to both staging areas. The access road to the staging areas would provide operations, maintenance, emergency, and public access to the trail system. Staging area development would include a permeable surface, with accessible parking, and may also include the following features: portable restroom facilities, bicycle parking, picnic tables, benches, trash

& recycle containers, and operations signage. Potable water would not be provided. It is assumed that normal trail operating hours for public use would be sunrise to sunset seven days a week, and that access to the Estero for pedestrians, kayaks, and canoes would be allowed.

The District proposes to transfer the Trail Easement to the County for construction, future operation, and maintenance of the trail and staging areas. The County's Regional Parks Department has received grant funds from the Coastal Conservancy and additional funding from the District towards completion of the Estero Trail Plan.

Requested Entitlements:

The County is exempt from the Sonoma County Zoning Code, so no local entitlements are necessary to construct the trail. However, the following Responsible Agencies may be required to use this EIR to authorize construction or to issue permits for the project.

- California Coastal Commission – construction of improvements in the coastal zone
- U.S. Fish and Wildlife Service – Take of any federally listed species
- California Department of Fish and Wildlife – Take of any state-listed species

Project Alternatives:

The EIR will evaluate a reasonable range of project alternatives including the required No Project Alternative and could include the following project alternatives:

- Shorter trail corridors/or elimination of one of the trails
- Different trail management (i.e., only docent led tours)
- Elimination of specific recreation activities

Potential Environmental Effect Areas:

The EIR will describe the reasonably foreseeable and potentially significant adverse effects of the proposed project (both direct and indirect). The EIR also will evaluate the cumulative impacts of the project when considered in conjunction with other related past, present, and reasonably foreseeable future projects. The County anticipates that the proposed project could result in potentially significant environmental impacts in the following topic areas, which will be further evaluated in the EIR.

Aesthetics/Visual
Agriculture Resources
Air Quality
Biological Resources
Cultural Resources
Geology and Soils
Greenhouse Gas Emissions
Hydrology and Water Quality
Land Use and Planning
Noise
Transportation and Traffic
Public Services and Safety
Cumulative Effects
Growth Inducing Effects

As environmental documentation for this project is completed, it will be available for review at the County's PRMD offices located at 2550 Ventura Avenue, Santa Rosa, and online at: http://sonomacounty.ca.gov/Permit-and-Resource-Management/.



SOURCE: ArcGIS Online Basemap USGS (National Map)

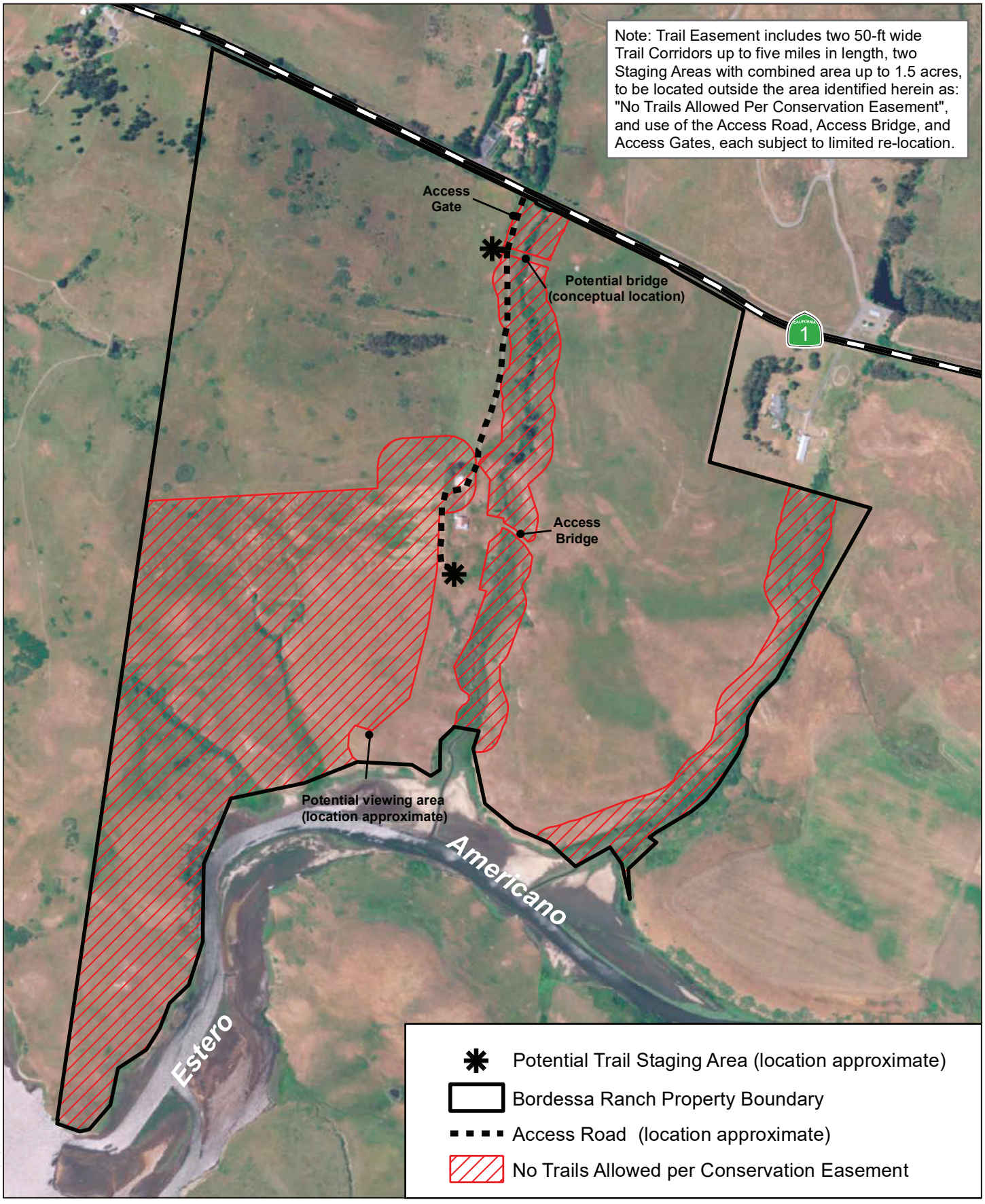
DUDEK

0 1.5 3 Miles

FIGURE 1

Regional Map

Bordessa Ranch - Estero Trail



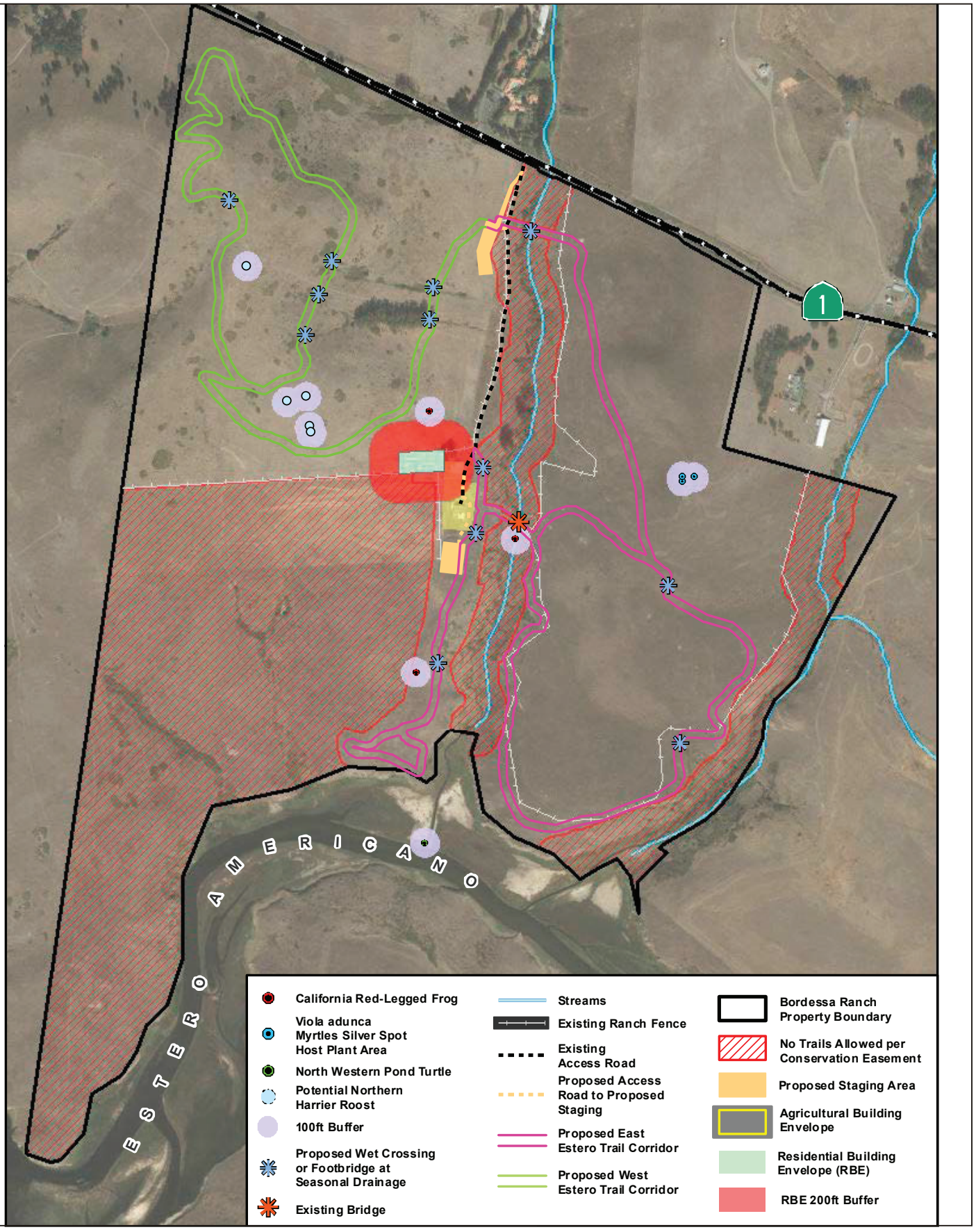
SOURCE: Sonoma County (2017)

FIGURE 2

Site Location

Bordessa Ranch - Estero Trail

DUDEK



SOURCE: Sonoma County (2017)

FIGURE 3

Proposed Trail Locations

Bordessa Ranch - Estero Trail

DUDEK

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE

Greater Farallones National Marine Sanctuary
991 Marine Dr., The Presidio
San Francisco, CA 94129

January 12, 2018

Rich Stabler, Senior Environmental Specialist
County of Sonoma
2550 Ventura Avenue
Santa Rosa, CA 95403
Email: Rich.Stabler@sonoma-county.org

Sent Via Email

RE: Comments on Estero Trail Easement: Notice of Preparation of Draft Environmental Impact Report

Dear Mr. Rich Stabler:

Greater Farallones National Marine Sanctuary (GFNMS) reviewed the Initial Study and mitigations constituting the Mitigated Negative Declaration for Estero Trail Easement: Designation of Trail Corridors and Staging Areas Project in November 2016 and provided comments to the Sonoma County Agricultural Preservation and Open Space District. The letter is enclosed, and we request that our previous comments be considered as staff prepare an Environmental Impact Report for the development of the proposed project.

GFNMS manages the waters and submerged lands off the coast of Sonoma County including Estero Americano. The upstream boundary of Estero Americano ends at the bridge at Valley Ford Estero Road (approximately 7 statute miles from the mouth). It is important that all identified trustee agencies, including Sonoma County, consider and prevent negative impacts to Estero Americano and the GFNMS. As such, all comments provided herein discuss GFNMS' jurisdiction and current regulations.

GFNMS appreciates being informed about this project and this opportunity to comment on the Notice of Preparation of Draft Environmental Impact Report. I encourage you to contact us as you develop your preferred alternatives for this project to ensure they are consistent with GFNMS permit issuance criteria related to construction of the trails. Please contact Karen Reyna at 415-970-5247 if you have any questions. Thank you.

Sincerely,

Maria Brown

Maria Brown, Sanctuary Superintendent

Enclosure

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE

Greater Farallones National Marine Sanctuary
991 Marine Dr., The Presidio
San Francisco, CA 94129

November 14, 2016

Sheri J. Emerson, Stewardship Program Manager
Sonoma County Agricultural Preservation and Open Space District
747 Mendocino Avenue, Suite 100
Santa Rosa, CA 95401
Email: Sheri.Emerson@sonoma-county.org

Sent Via Email

RE: Comments on Estero Trail Easement: Designation of Trail Corridors and Staging Areas Project

Dear Ms. Emerson:

Greater Farallones National Marine Sanctuary (GFNMS) has reviewed the Initial Study and mitigations constituting the Mitigated Negative Declaration for Estero Trail Easement: Designation of Trail Corridors and Staging Areas Project. We appreciate that the Sonoma County Agricultural Preservation and Open Space District provided this informational document to identify the potential environmental impacts of a pedestrian-use-only trail system at the site and we understand that subsequent, specific actions have not been identified by project decision-makers and may be taken at a later date.

GFNMS manages the waters and submerged lands off the coast of Sonoma County including Estero Americano. The upstream boundary of Estero Americano ends at the bridge at Valley Ford Estero Road (approximately 7 statute miles from the mouth). It is important that all identified trustee agencies, including Sonoma County, consider and prevent negative impacts to Estero Americano and the GFNMS. As such, all comments provided herein discuss GFNMS' jurisdiction and current regulations.

Although it is understood that the sole action to be taken at this time is the District's designation and recordation of the trail corridors and associated staging areas pursuant to the Trail Easement (the Project), GFNMS has regulations to protect water quality within the Sanctuary and should be consider a "trustee agency" as part of the list on Pages 11 and 12. Specifically, GFNMS may prohibit any staging or construction that can result in a discharge into adjacent Estero Americano and prohibits altering the submerged lands of Estero Americano.

With few exceptions, discharging or depositing any material or other matter is prohibited and thus is unlawful for any person to conduct or to cause to be conducted within the Sanctuary. Discharging or depositing, from beyond the boundary of the Sanctuary, any material or other matter that subsequently enters the Sanctuary and injures a Sanctuary resource or quality is also prohibited [15 CFR Part 922, § 922.82 (a)].

The National Marine Sanctuaries Act defines "injure" as "to change adversely, either in the short or long term, a chemical, biological or physical attribute of, or the viability of. This includes but is not limited to, to cause the loss of or destroy." "Sanctuary quality" is defined as "any of those ambient conditions, physical-chemical characteristics and natural processes, the maintenance of which is essential to the ecological health of the Sanctuary, including, but not limited to, water quality, sediment quality and air quality" (15 CFR § 922.3).

These prohibitions in combination would apply to activities beyond the Sanctuary, in which matter could be discharged and ultimately enter the Sanctuary and cause injury, even in the short term. Such activities could include staging and construction that occur outside Sanctuary boundaries. It is therefore critical that any and all future proposed construction include measures to prevent discharges into Estero Americano.

Constructing any structure other than a navigation aid on or in the submerged lands of the Sanctuary; placing or abandoning any structure on or in the submerged lands of the Sanctuary; or drilling into, dredging, or otherwise altering the submerged lands of the Sanctuary in any way is also prohibited [15 CFR Part 922, § 922.82 (a)]. Although the maps provided seem to suggest that all signage, trail markers and pathways are planned for outside the boundaries of the Sanctuary/Estero, we suggest a statement regarding the fact that any and all trail routing and subsequent signage will be placed on the lands adjacent to Estero Americano, not in the Estero itself, even when "tidal influence is not present". In particular, it may be helpful to have an acknowledgement of this in the mitigation measures where appropriate, such as Mitigation Measure BIO-4: Trail Routing

> 1. Route the trail to use the open, less vegetated area of the tidal flat and avoid dense marsh vegetation. Place signage at the end of the upland terminus of the access to the Estero directing people to stay out of sensitive marsh vegetation. During the summer months when tidal influence is not present and the marsh is dry and more easily accessible, place temporary directional markers to mark the portage route [*while ensuring these markers are not placed within the boundaries of Estero Americano*].

GFNMS appreciates this opportunity to comment on the Mitigated Negative Declaration. We would like to be included in all design and construction of the staging areas and the future trail alignment within the trail corridors that will occur at a later date to the extent that your agency is the lead for any proposed projects. Please contact Karen Reyna at 415-970-5247 if you have any questions. Thank you.

Sincerely,



Maria Brown
Sanctuary Superintendent

DEPARTMENT OF TRANSPORTATION
DISTRICT 4
P.O. BOX 23660
OAKLAND, CA 94623-0660
PHONE (510) 286-5528
FAX (510) 286-5559
TTY 711
www.dot.ca.gov

Making Conservation a California Way of Life!

December 15, 2017

SCH# 2017112054
04-SON-2017-00211
SON – 1 –4.005/4.970
GTS ID 8766

Mr. Rich Stabler
County of Sonoma
Permit and Resource Management Department
2550 Ventura Avenue
Santa Rosa, CA 95403

Estero Trail Plan and Designation of Estero Trail Corridors and Associated Staging Area Project – Notice of Preparation (NOP)

Dear Mr. Rich Stabler:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the above-referenced project. In tandem with the Metropolitan Transportation Commission's (MTC) Sustainable Communities Strategy (SCS), Caltrans mission signals a modernization of our approach to evaluating and mitigating impacts to the State Transportation Network (STN). Caltrans' *Strategic Management Plan 2015-2020* aims to reduce Vehicle Miles Travelled (VMT) by tripling bicycle and doubling both pedestrian and transit travel by 2020. Our comments are based on the NOP.

Project Understanding

The applicant proposes to construct two pedestrian-only trail corridors with associated staging areas such as trailheads and parking lots that would allow for low-intensity public access to pursue outdoor, recreational, and educational uses. The two pedestrian-only trail corridors will be 50-feet wide with a cumulative maximum length of five miles, and the two associated staging areas will not exceed 1.5 acres in total combined area. The trails would be constructed of compacted native material or other permeable surface; and include wet crossing or foot bridges at ephemeral stream crossings. Trail markers, post, signs, and benches, would be placed along the trail to assist users. The trail corridors are intended to provide public access from State Route (SR) 1 to scenic vista points and possibly public access to the Estero Americano. The purpose of this project is to designate the two trail corridors as the West Trail Corridor – 2.01 miles and East Trail Corridor – not exceeding 2.75 miles.

The existing main access road, access gate, and access-bridge may be improved or replaced in the same or similar location. Two staging areas of 1.5 acres in total combined area would be designated to accommodate parking for trail users. One staging area would be located in the northern portion of site near SR 1, and the other staging area would be located in the approximate center of the

project site, south of the existing barn and agricultural building. The future development of the staging areas would likely include relocation and extension of the existing access road to both staging areas. The access road to the staging areas would provide operations, maintenance, emergency, and public access to the trail system. Staging area development would include a permeable surface, with accessible parking, as well as the following features; portable restroom facilities, bicycle parking, picnic tables, benches, trash and recycling containers, and operations signage. It is assumed that normal trail operating hours for public use would be from sunrise to sunset, seven days a week.

Future uses of the Trail Easement may include the following: seasonal walk-in access to the Estero for pedestrians and hand-carried non-motorized boats such as kayaks and canoes. Such access will be assessed for compatibility with sensitive resources associated with the Estero and the property by the Board of Directors of the Sonoma County Agricultural Preservation and Open Space District (District). The District may consider placing limitations on the nature, hours, and season of public access to the access road, bridge, and access gates, as well as the staging areas and trail corridors, as it deems appropriate for natural resources protection.

The project site is adjacent to SR 1 and access to the site is provided via an existing access road on SR 1. Please identify all access points in graphics and text, and clarify the width of proposed trails and the access road.

Operations Analysis

Please analyze project related trip generation, distribution, turning movements, and storage capacity within the project vicinity. The applicant should also analyze the existing project's driveway capacity and the staging area in relation to SR 1. Such analysis is necessary to determine the scope and significance of issues that may arise from the project's potential conflicts. The California Environmental Quality Act (CEQA) does not exempt these types of operational concerns from evaluation.

Right-turn acceleration taper/lane and left turn pocket may be needed. Caltrans will consider conditioning the applicant to improve the existing project driveway to current standards, as shown in Appendix J of the Encroachment Permit Manual.

Vehicle Trip Reduction

With the enactment of Senate Bill (SB) 743, Caltrans is focusing on transportation infrastructure that supports smart growth and efficient development. Recently approved guidance for incorporating SB 743 (*Local Development-Intergovernmental Review Program Interim Guidance, November 2016*) intends to ensure that development projects align with State policies through the use of efficient development patterns, innovative travel demand reduction strategies, necessary multimodal roadway improvements, and VMT as the primary transportation impact metric.

In Caltrans' *Smart Mobility 2010: A Call to Action for the New Decade*, this project falls under **Place Type 5 Rural and Agricultural Lands – Rural Towns**, which includes settlement patterns with widely-spaced towns separated by farms, vineyards, orchard, or grazing lands, which can significantly affect land uses, character and mobility needs. This place type has a mix of housing, services and public institutions in compact form to serve surrounding rural areas. Vehicle-oriented uses, common in this place type, result in high levels of VMT. Hence, electrical vehicle charging stations and designated EV and clean fuel parking are recommended Transportation Demand Management measures for the project.

Multimodal Planning
The project should be conditioned to pay fair share fees for the planned Class II bike lanes on SR 1, as shown in the *2010 Sonoma County Bicycle and Pedestrian Plan* along the project frontage. The fair share information should also be presented in the Mitigation Monitoring and Reporting Plan of the environmental document. By providing these connections and configuring streets for alternative transportation modes, the County will reduce VMT.

Riparian Environments
Some project level activities may affect riparian flow patterns upstream of bridges, trestles, culverts or other structures for which Caltrans holds responsibility. Please ensure your project level environmental documents include hydrological studies to determine whether such impacts will occur, and to identify appropriate mitigation measures.

Habitat Restoration and Management
Project level activities related to habitat restoration and management should be done in coordination with local and regional Habitat Conservation Plans, and with Caltrans where our programs share stewardship responsibilities for habitats, species and/or migration routes.

Lead Agency
As the Lead Agency, Sonoma County is responsible for all project mitigation, including any needed improvements to the STN. The project's financing, scheduling, implementation responsibilities and monitoring should be fully discussed for all proposed mitigation measures, prior to the submittal of an encroachment permit.

Encroachment Permit
The applicant will be required to apply for and obtain an encroachment permit for any work within Caltrans right-of-way (ROW) prior to construction. As part of the encroachment permit process, the applicant must provide appropriate CEQA environmental approval, where applicable, for potential environmental impacts within the ROW. The applicant is responsible for quantifying the environmental impacts of the improvements within Caltrans ROW (project-level analysis) and completing appropriate avoidance, minimization and mitigation measures. Any improvements/mitigation measure affecting the operations of SR 12 requires Caltrans review and approval.

To apply for an encroachment permit, please complete an encroachment permit application, environmental documentation, and five (5) sets of plans clearly indicating State ROW, and submit to the following address: David Salladay, District Office Chief, Office of Permits, California Department of Transportation, District 4, P.O. Box 23660, Oakland, CA 94623-0660. Traffic-related mitigation measures should be incorporated into the construction plans prior to the encroachment permit process. See the website linked below for more information: http://www.dot.ca.gov/hq/traffops/developserv/permits.

Should you have any questions regarding this letter, please contact Stephen Conteh at 510-286-5534 or stephen.conteh@dot.ca.gov.

Sincerely,

PATRICIA MAURICE
District Branch Chief
Local Development - Intergovernmental Review

c: State Clearinghouse

Coastal Conservancy

December 20, 2017 Sent by e-mail

Rich Stabler
Sr. Environmental Specialist
Sonoma County Permit and Resource Management Department
2550 Ventura Avenue
Santa Rosa, CA 95403

RE: Notice of Preparation of a Draft Environmental Impact Report for Estero Trail Easement (SCH # 2017112054)

Dear Mr. Stabler:

The Coastal Conservancy supports the County's preparation of a DEIR for the Estero Trail Easement. We continue to support the vision of public access to this unique property, compatible with other uses of the property.

The CEQA process will allow for a thorough analysis of the proposed trail project, alternatives, and any mitigation measures necessary to protect the conservation values of the property. In particular, we are pleased to see the NOP include several alternatives, and we believe a robust exploration of alternatives could be a productive way to address the concerns of the owners of the underlying fee.

Sincerely,

/s/
Lisa Ames
Coastal Conservancy Analyst

1515 Clay Street, 10th Floor
Oakland, California 94612-1401
510•286•1015

SONOMA COUNTY FARM BUREAU
Affiliated with California Farm Bureau Federation and American Farm Bureau Federation

Celebrating 100 Years of Advocacy in Sonoma County

January 9, 2018

Rich Stabler
Permit & Resource Management Department
2550 Ventura Avenue
Santa Rosa, CA 95403

RE: SCFB Comments on Environmental Impact Report for the Estero Plan and Designation of Estero Trail Corridors and Associated Staging Areas project

Dear Mr. Stabler,

The Sonoma County Farm Bureau (SCFB) has expressed previously concerns with this Trail Plan and supports the County's effort as the lead agency under CEQA to prepare an Environmental Impact Report for this project.
The land governed by this Trail Easement and related Conservation Easement is rich in agricultural resources and native habitats, and effort must be made to sustain the natural characteristics of this property and neighboring properties. In addition, public safety should be foremost, and with sparse medical emergency services available in this part of the County, a comprehensive study must be completed to ensure that park goers are not at risk.

Thus we request that the following comments be reviewed and further research be done to address these concerns as part of the EIR process:

Unsafe Conditions for Vehicle Access from Highway 1:
Public safety is of great concern and without a dedicated turn lane into the property from Highway 1 there is potential for major traffic accidents and serious injury or death.
This specific stretch of highway offers the first straightaway for several miles from either direction and drivers (especially tourists unfamiliar with the road) tend to use this short stretch of road to pass slow-moving vehicles such as recreational vehicles and livestock trailers. Without a turn lane, unsuspecting park goers will meet head on with fast moving vehicles that are using the opposite lane to rapidly pass slower moving vehicles. As mentioned, the medical emergency services are limited in this area and an accident could result in serious injuries or fatalities.

Private Land Encroachment via the Waterway:
The notice mentions several times that the trails will allow for hand-carried, non-motorized board access to the Estero. It can only be assumed that a park goer launching from this trail would navigate along this waterway to gain access to the bay. From this launch point, a boater passes along the shorelines of many privately-owned properties. What is going to prevent a public member from trespassing onto these properties that are not part of the conservation easement? And, who is responsible if a sightseer injures themselves on private property that they accessed via this trail easement? Further, what if a person need to

relieve themselves while boating along the waterway? Is it realistic to expect them to dock their boat and hike the long distance to the staging areas versus relieving themselves on private property bordering the Estero? Haven't we learned our lesson from the human coliform contamination in the lower Russian River?

Private Land Encroachment via the Trail:
Although the initial project description suggests two delineated pedestrian trail ways, without hard boundaries the public will undoubtedly stray from the narrow trails and trespass onto privately-owned rangeland. This puts the public and livestock at risk in this uncontrolled environment.
Further, though the plan suggests portable restroom facilities will be available at the staging areas, people will most likely need a restroom along the trail closer to the shore. Without facilities readily available, the land along the trails will be used as a restroom, negatively affecting the environment and putting native species at risk.

Public Education:
The general public is not accustomed to the hazards associated with animal agriculture and an unknowing individual could find themselves in a dangerous situation very quickly if they strayed from the trail. SCFB is willing to work with any agency who would like to partner on a project to keep people safe while recreating on agriculture lands.
We had previously recommended that if this public trail comes to fruition, that a Code of Conduct agreement and educational signage be established for any member of the public who wishes to access property where an active agricultural business is operating. This suggestion does not appear to be detailed in the Notice of Preparation related to this project and we ask that it be clearly spelled out as part of the EIR process.

Should you need further explanation of our concerns and comments, do not hesitate to contact me.

Thank you for your consideration.

Sincerely,

Steve Dutton
President, Sonoma County Farm Bureau

CC:
Sonoma County Board of Supervisors
Sonoma County Farm Bureau Board of Directors
Tennis Wick, Sonoma County Permit & Resource Management Department
Sam Dolcini, Marin County Farm Bureau

Sonoma County Farm Bureau, a general farm organization representing nearly 3,000 family farmers, ranchers, rural landowners and agricultural businesses in Sonoma County works to promote and protect policies that provide for a prosperous local economy while preserving natural resources and a long standing county agricultural heritage.

-----Original Message-----
From: Cindy Eggen [mailto:cindyeggen@me.com]
Sent: December 20, 2017 10:18 AM
To: Rich Stabler <Rich.Stabler@sonoma-county.org>; Lynda Hopkins <Lynda.Hopkins@sonoma-county.org>
Subject: Bordessa Trails

Dear Rich Stabler and Lynda Hopkins

Please reconsider the approving of the proposed trails from Bordessa ranch to the Estero Americano.
My family and I are neighbors to the project and I can tell you from personal experience the area is a fragile ecosystem that is home to many animals, fish and birds, it is one of the last wild life corridors in the area, that has very little contact with humans.
The animals that live there are elusive and shy from humans .... Deer , badgers, mountain lions , coyotes and more, please take them into consideration.
The added burden to land owners, fire departments and first responders is tremendous, most are volunteer, it is a remote location, with very little access and very limited cell reception. The location is windy, making it a dangerous place for rescues and for the general public.
Please keep trails to a minimum, and guided docent tours only.
A suggestion for funds, could be used on our existing regional parks that where destroyed by the Tubbs fire.
Our regional parks are already burdened.
Sincerely Cindy Eggen and family

Sent from my iPhone

THIS EMAIL ORIGINATED OUTSIDE OF THE SONOMA COUNTY EMAIL SYSTEM.
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From: Susan Kirks [mailto:susankirks@sbcglobal.net]
Sent: January 22, 2018 11:16 AM
To: Rich Stabler <Rich.Stabler@sonoma-county.org>
Subject: Estero Trail Plan - preparation of DEIR

Hello Rich,

On Dec. 13th, I understand a scoping meeting was held to discuss input for the DEIR process.

Unfortunately, although I believe we were on the distribution list, we did not receive that notice and were thus not able to attend and participate.

Madrone Audubon as well as I (Naturalist with American Badger expertise) are interested in this process, and particularly in the impacts to the highly sensitive biological resources on this property - in relationship to any plans for public access as well as the possibility of educational opportunities as an appropriate managed public access activity.

Could you update me on the current process and how we might provide input into your process?

Of particular concern to me is the clear lack of experience as well as any knowledge of the actual American Badger population on the property and how the property is used in terms of habitat and foraging. I would be willing to assist in the year-long survey that is needed to make this determination, as an expert in American Badger, in the effort to ensure the avoidance of the most sensitive habitat areas and appropriate plans to ensure minimizing impacts.

Will look forward to your response. Please be sure I am on the email distribution list for any updates on the environmental review process, and also please mail a notice to Madrone Audubon, PO Box 1911, Santa Rosa, CA 95402, Attn: Susan Kirks, President.

Thank you,
Susan Kirks
707-241-5548
(President, Madrone Audubon; Naturalist, American Badger expertise)

RMM

REMY | MOOSE | MANLEY
LLP

Andrea K. Leisy
aleisy@rmmenvirolaw.com

December 20, 2017

VIA REGULAR & ELECTRONIC MAIL
rich.stabler@sonoma-county.org

Rich Stabler
Sr. Environmental Specialist
Sonoma County Permit & Resource Management Department
2550 Ventura Avenue
Santa Rosa, California 95403

Re: Notice of Preparation of a Draft Environmental Impact Report for Estero Trail Easement (SCH No. 2017112054)

Dear Mr. Stabler:

On behalf of our clients, Joe and Al Bordessa, trustees of the Bordessa Trust ("Trustees"), we have reviewed the Notice of Preparation ("NOP") of a Draft Environmental Impact Report ("DEIR") for the "Estero Trail Plan and Designation of Estero Trail Corridors and Associated Staging Areas project" (the "Project") circulated by the Sonoma County Regional Parks Department and the Sonoma County Agricultural Preservation and Open Space District (collectively the "County" or "District") pursuant to the California Environmental Quality Act (Pub. Resources Code, §§ 2100 et seq.) ("CEQA") and the CEQA Guidelines (Cal. Code Regs., tit. 14, § 15000 et seq.).[1]

The comments provided in this letter regarding the scope of the DEIR being prepared pursuant to CEQA should not be interpreted by the County as acquiescence to the Project or to the County's interpretation of the terms of the Trail or Conservation Easement which are currently being litigated, in addition to the claims of breach, among others, alleged by our clients (among other things, the validity, scope, and terms of the Trail Easement are in issue). (See *Alfred Bordessa et al. v. The Sonoma County Agricultural Preservation and Open Space Dist. et al.* (Sonoma County Superior Court Case No. SCV-256943).)

As explained in the NOP, "[t]he goals of the Conservation Easement take precedence over the Trail Easement." The District proposes in the NOP to designate two trail corridors and two staging areas on the Bordessa Ranch property "pursuant to the

[1] / We have also provided comments in response to the Initial Study/Mitigated Negative Declaration for this Project, which are attached to in this correspondence, and incorporated herein by reference. (See Attachment A.)

Trail Easement and consistent with the Conservation Easement." (NOP, p. 2.) In addition, the County intends to develop the Estero Trail Plan, and to acquire the Trail Easement from the District.

For the reasons enumerated below, it would be a waste of resources for the County to move forward with preparation of an EIR until the terms of the Trail Easement are fully litigated and decided by a court. If the County continues to move forward with preparation of the EIR without regard to the pending litigation, the EIR must include a reasonable range of alternatives that avoid or substantially lessen the significant impacts of the Project, and must mitigate for significant impacts to the extent feasible. The DEIR must also discuss inconsistencies of the Project with relevant plans, including the local coastal plan, as described herein. The EIR must address how to accomplish the Project within the limited range of Project-related rights under the Trail Easement.

I. The District cannot construct the Project, and therefore the County and the District should cease preparation of the DEIR.

As proposed at this time, the District does not have the legal authority or right to construct the Project and, therefore, the County should cease preparation of the DEIR until a final ruling has been reached in the ongoing litigation. The District, for example, was required to record the Bordessa Trail Easement: Designation of Trail Corridors and Staging Areas, within two years of entering into the May, 2012 trail easement agreement with the Trustees. (Attachment B, Trail Easement, § 3.)

Now, *over four years later*, the District still has not recorded designation of trail corridors and staging areas, and the time for such designation has passed. The District is therefore barred from designating the trail corridors under the terms of the Trail Easement. In addition, the District's bundle of property rights under the Trail Easement do not include "buffer areas" (see NOP, Figure 3) or areas for on-site mitigation of significant environmental impacts. Nor are deed restrictions that would apply to monitoring or enforcing such elements provided for or permissible under the Trail Easement.

Although the County may process paper and consider impacts of any proposed project, the immediate Project is legally infeasible because the County lacks authority to implement the Project. We therefore respectfully request that the County first resolve the ongoing litigation before moving forward with the DEIR, lest it be a waste of economic resources or grant money that may be better used elsewhere on a Project with less uncertainty. (See *Save Tara v. City of West Hollywood* (2008) 45 Cal.4th 116, 130, quoting *Laurel Heights Improvement Assn. v. Regents of Univ. of California* (1988) 47 Cal.3d 376, 253 ["environmental resources and the public fisc may be ill served if the environmental review is too early"]; see also *Citizens for a Sustainable Treasure Island v. City and County of San Francisco* (2014) 227 Cal.App.4th 1036, 1061, quoting *Environmental Council of Sacramento v. City of Sacramento* (2006) 142 Cal.App.4th

1018, 1031 ["It has long been recognized that premature attempts to evaluate effects that are uncertain to occur or whose severity cannot reliably be measured is 'a needlessly wasteful drain of the public fisc. (Citation.)'"].)

Conversely, CEQA review should be conducted only once a "project is well enough defined to allow for meaningful environmental evaluation." (*Save Tara, supra,* 45 Cal.4th at p. 130.) Courts will consider as a question of law whether an agency has properly timed its CEQA review of a project. (*Id.* at p. 131.) Here, the Project cannot be defined at all, as the County and the District do not have the legal right to do what is proposed in the NOP. The Estero Trail Plan must also be prepared and completed for its potentially significant adverse effects to be included in the DEIR as part of the "whole of the project." Thus, it is unwise for the County to engage in preparation of a DEIR at this juncture.

II. The Project description is inaccurate.

The NOP states that the Trail Easement "commits the District to designate two 50-feet-wide pedestrian-only trail corridors." (NOP, p. 3.) This is not correct. The easement does not *require* that trails be located on the Bordessa Ranch. Rather, the District's rights under the Trail Easement are secondary to the purpose of the Conservation Easement, which identifies the protection of natural resources on the Bordessa Ranch in perpetuity over and above any other potential use. (Attachment B, Trail Easement, § 2.) Recreational use, such as the proposed trails, is the lowest priority. (See Attachment C, Conservation Easement, § 2.) To the extent trails cannot be sited appropriately to protect the sensitive natural resources present on the property, public access is prohibited.

Additionally, the figures provided in the NOP are inconsistent and misleading. Figures 2 and 3 indicate different locations of the access road. Figure 3 shows a trail component within 200 feet of the residential building envelope, which is impermissible. Based on comments on the Initial Study/Mitigated Negative Declaration, the buffers shown in Figure 3 are much smaller than what would be needed to fully mitigate potential impacts. Furthermore, as stated above, the District does not have property rights to additional property beyond the trails 50-feet in width. Any mitigation or buffers would need to be included within that 50 feet, if at all. Depending on the burdens within the 50 foot corridor, the planned burdens may be impermissible under the Trail Easement.

The EIR's Project Description should be written to accurately and neutrally reflect the terms of both the Trail Easement and the underlying Conservation Easement—including but not limited to accounting for resources that take priority over the Project, such as agriculture and biological resources.

III. The NOP does not recognize all potential agencies with which it must consult.

Under CEQA, the County must consult with and request comments on the EIR from responsible agencies, trustee agencies, and any other state, federal and local agencies which have jurisdiction over development of the Project. (CEQA Guidelines, § 15086.) The NOP fails to recognize several additional potential responsible and trustee agencies—the California Department of Transportation, the U.S. Army Corps of Engineers, the Sonoma County Air Pollution Control District, and the North Coast Regional Water Quality Control Board. Additionally, the County should consult with the National Oceanic Atmospheric Administration, as the Estero is part of the Greater Farallones National Marine Sanctuary. The DEIR must adequately disclose the roles of each of these agencies and the permits which may be required.

IV. In the event that the County moves forward with preparation of the EIR, the County must consider all of the Project's potentially significant impacts.

If the County moves forward with the DEIR, it must consider the following potentially significant environmental effects, many of which were previously identified in our comment letter on the IS/MND.

A. Biological Resources

A large number of sensitive biological resources have been preliminarily identified at Bordessa Ranch. Preliminary studies recommend that additional surveys be conducted to determine the presence of certain special-status plant and animal species.

For example, the Initial Study/Mitigated Negative Declaration ("IS/MND") initially prepared for the Project identifies special-status plant species within identified trail corridors. The IS/MND further acknowledges the existence of potential habitat for a number of special-status wildlife species (including the American badger); special-status bird species, including the short-eared and burrowing owl; state fully protected White-tailed kite; state fully protected and state listed endangered species Ridgeway's rail (formerly California clapper rail); federally listed-threatened California Red-Legged Frog; California species of special concern Western Pond Turtle; special-status fish (especially federally listed-endangered species Tidewater Goby and federally and state listed-threatened species Steelhead); federally listed-endangered species Myrtle's Silverspot Butterfly; and many more.

Surveys must be conducted to support the presence or absence of all special-status plant and animal species. Alternatively, the County should presume presence. The Draft EIR should also discuss the potential impacts of the Project on special-status plant and wildlife species, including habitat for all of these species. Given the extent of sensitive

biological resources on Bordessa Ranch, the District should consider that the Project cannot be developed consistent with the purpose of the Conservation Easement.

B. Traffic

Valley Ford Road, which intersects Highway 1 near the Bordessa Ranch, experiences significant motor vehicle and bicycle traffic, particularly on weekends and holidays with people traveling to Bodega Bay. The Project will provide the only authorized public access to the Estero, which has been heralded as a hidden treasure of Sonoma County. The Draft EIR should analyze the impacts of induced traffic demand that would result due to the creation of access to such a highlight coveted natural resource.

Additionally, access to the Bordessa Ranch when traveling westbound on Highway 1 involves turning left into a driveway after descending a steep hill, coming off of a curve where cars drive through this area at speeds of over 60 mph. The Sonoma Coast Villa and Spa, located just north of the Bordessa Ranch, has cautioned its patrons to put their blinkers on early due to traffic speeds and the existing roadway geometry. It is also common on weekends to have 10 or more cars backed up behind a vehicle waiting to make a left turn onto the property. The Bordessas have had near accidents turning into and out of the property due to speeding or inattentive drivers; in fact, the Bordessas' grandparents were in a serious collision while entering their property as a result of an inattentive driver. The Draft EIR should analyze the Project's impact on traffic safety and mitigate the significant impacts thereof; the Draft EIR should ensure that information and data on all pertinent accidents in the area has been obtained and evaluated.

C. Agricultural Resources

The Conservation Easement prioritizes agricultural resources over recreational uses, like the Project. (See Attachment C, Conservation Easement, § 2.) The Bordessa Ranch is an active cattle ranch with breeding livestock. It has large bulls that can be aggressive during breeding season and cows who are very protective of their calves. The EIR must fully describe these existing conditions and analyze the Project's conversion of agricultural land to a non-agricultural use. The DEIR must also address how recreational use will be kept separate from the livestock to ensure the safety of both humans and cattle. Clearly, "normal trail operating hours" for public use - identified as being from sunrise to sunset seven days a week (NOP, p. 4) - is infeasible given the existing setting and ongoing cattle ranch operations. The County would render itself vulnerable to liability should the Project allow unfettered access and a visitor or livestock gets hurt. The trail also must not interfere with agricultural operations (such as corrals) or with agricultural structures (such as the horse arena, development of which is guaranteed to the owners within the existing agricultural envelope, and the location of which has been provided to the County).

D. Consistency with Relevant Plans

Bordessa Ranch is located in the coastal zone. The Sonoma County Local Coastal Plan ("LCP") provides for the location, type densities, and other ground rules for future development in the coastal zone. In particular, it identifies natural resources of the Estero as well as areas within the Estero dedicated as sanctuary-preservation and conservation areas. The Draft EIR must adequately identify and quantify impacts to these resources that are designated for conservation or preservation under the LCP. (See *Banning Ranch Conservancy v. City of Newport Beach* (2017) 2 Cal. 5th 918, 936, [CEQA sets out a fundamental policy requiring local agencies to "integrate the requirements of this division with planning and environmental review procedures otherwise required by law or by local practice so that all those procedures, to the maximum feasible extent, run concurrently, rather than consecutively . . . ."[t]o the extent possible, the EIR process should be combined with the existing planning, review, and project approval process used by each public agency"].)

The Estero is also part of the Greater Farallones National Marine Sanctuary ("GFNMS") under the control of the National Oceanic and Atmospheric Administration. The GFNMS Management Plan includes a resource protection action plan, the goal of which is to "maintain and, where necessary, restore the natural biological and ecological processes in the GFNMS. Additionally, the goal of the wildlife disturbance action plan is to "[l]essen or eliminate future impacts, and remedy existing impacts on sanctuary marine wildlife and their habitats by encouraging responsible human behavior. The Draft EIR must adequately address how the Project, specifically walk-in access to the Estero (and the boat/canoe launch and landing area that has been discussed by the County), will be consistent with the goals identified in the GFNMS Management Plan.

V. Project Alternatives

The EIR must "describe a range of reasonable alternatives to the project ... which would feasibly attain must of the basic objectives of the project but would avoid or substantially lessen any of the significant effects ... and evaluate the comparative merits of the alternatives." (CEQA Guidelines, §§ 15126.6, subd. (a), 15002, subd. (a)(3).) Subject to, and without waiving any other legal or other restrictions on the Project, the Bordessas have proposed such Project alternatives.

For example, in September, 2016 the Bordessas provided the District with the proposed location for the Project (without conceding any issues). Similarly, the Bordessas suggested that the Project be limited to portions of the east corridor that would not require buffer zones or on-site mitigation property and could be directly accessed from Valley Ford Road via an existing cut-out.

The Project, and alternatives to the Project, should also consider limitations on operations, including limiting public access to a specified number of seasonal docent-led

tours within specific hours of operation such that conflicting land uses, including grazing cattle, can be moved if needed to ensure the safety of visitors. Such limitations and alternatives would also potentially avoid and reduce significant impacts to sensitive biological resources and traffic, ensure the safety of recreationalists and livestock, as well as avoid impacts due to construction of an access road. Again, these suggestions are subject to legal restrictions, some of which remain to be determined.

VI. Assignment

The NOP indicates that the Trail Easement will be assigned to the County. (NOP, p. 1.) To do so, the County must have written consent of the State of California through the Executive Officer of the Coastal Conservancy. At this time, it is not clear that the County is an appropriate assignee under the terms of the Trail Easement and state law. (See Civil Code, § 815.3; Internal Revenue Code, § 170, subd. (h).) Assignment therefore is premature. Please include legal authority supporting assignment.

VII. Request for Notice

It is our understanding that at least two parties that specifically requested notice in response to the issuance of the Initial Study/Mitigated Negative Declaration for the Project were not provided adequate notice.

Pursuant to Public Resources Code section 21092.2, subdivision (a), please provide me with a copy of all future notices issued in connection with the proposed Project, including notices of any public hearings and any notices issued under CEQA.

Thank you in advance for your consideration of our comments.

Very truly yours,

Andrea K. Leisy

Enclosures:
Attachment A – IS/MND Comment Letter
Attachment B – Trail Easement
Attachment C – Conservation Easement

Cc (w/o enclosures):
Al and Joe Bordessa
Chris Mazzia, Esq.
Jeannette MacMillan, Coastal Conservancy
Stephanie Rexing, Coastal Commission
Scott Wilson, DFW (Bay Delta Region)

12-20-2017 NOP Comment Letter -

Attachment A

RMM

REMY | MOOSE | MANLEY
LLP

Howard "Chip" Wilkins III
cwilkins@rmmenvirolaw.com

November 18, 2016

VIA FEDERAL EXPRESS & E-MAIL
sheri.emerson@sonoma-county.org

Sheri Emerson, Stewardship Program Manager
Sonoma County Agricultural and Open Space District
747 Mendocino Ave., Suite 100
Santa Rosa, California 95404

Re: Comments on Estero Trail Easement Initial Study and Mitigated Negative Declaration

Dear Ms. Emerson:

We submit this letter and related attachments on behalf of our clients, Joe and Al Bordessa, as successor trustees, regarding the Initial Study and Mitigated Negative Declaration ("IS/MND") for the Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas Project (the "Project"). The Bordessas (as Trustees) are the owners of the Bordessa Ranch. The Bordessa Ranch possesses an abundance of biological resources including providing habitat for a number of special-status plant and wildlife species. The property is protected by a conservation easement the purpose of which is to "preserve and protect forever the conservation values of the [p]roperty." (See Attachment A, Conservation Easement, § 3.)

Our clients have substantial concerns relating to the Project's potentially significant adverse impacts on the environment, particularly impacts to biological resources, agricultural resources, and traffic safety. As discussed in more detail below, the Project's potential adverse environmental impacts have not been adequately considered, evaluated, or mitigated in the IS/MND. Most glaringly, the proposed trail corridors have been established with incomplete information regarding the presence, location and extent of sensitive biological resources, including wetlands and habitat for special species, with no effort to explore possible alternatives to avoid these sensitive resource areas. Critically, the IS/MND fails to satisfy CEQA as an informational document by inadequately describing the environmental setting and the Project and neglecting to quantify impacts that could result from the Project—consequently, making it impossible for decisionmakers and the public to evaluate whether those impacts are truly less-than-significant. Because substantial evidence supports a "fair argument" that the Project may have significant adverse environmental impacts, the Sonoma County Agricultural

Preservation and Open Space District (the "District") cannot make the required findings to certify the IS/MND under the California Environmental Quality Act ("CEQA") (Pub. Resources Code, §§ 21000 et seq.).

To comply with CEQA and the CEQA Guidelines (Cal. Code Regs., tit. 14, § 15000 et seq.), the District must prepare an environmental impact report ("EIR") that fully analyzes the Project's potential adverse environmental impacts and evaluates alternatives. The discussion contained in this letter demonstrates that the IS/MND fails to comply with CEQA and the CEQA Guidelines. This letter was prepared with input from professional biologist, Ted P. Winfield, Ph.D. A Memorandum from Ted P. Winfield, Ph.D. (hereafter "Winfield Mem."), upon which our comments are based is attached as Attachment B. For each of the reasons discussed below, CEQA requires the District to prepare an EIR before the District considers approving the Project. [1]

I. CEQA requires an EIR whenever a "fair argument" can be made that a significant impact will occur because of a project.

If there is substantial evidence supporting a "fair argument" that a project may have a significant adverse effect on the environment, the lead agency must prepare an EIR, even though there may be other substantial evidence that the project will not have a significant effect. (Pub. Resources Code, § 21151, subd. (a); Cal. Code Regs., tit. 14, § 15064, subd. (f)(1), (2); *No Oil, Inc. v. City of Los Angeles* (1974) 13 Cal.3d 68, 75 (*No Oil*); *Sierra Club v. California Dept. of Forestry and Fire Protection* (2007) 150 Cal.App.4th 370, 381; *Communities for a Better Environment v. California Resources Agency* (2002) 103 Cal.App.4th 98, 111-112.) "May" means a reasonable possibility. (Pub. Resources Code, §§ 21082.2, subd. (a), 21100, subd. (a), 21151, subd. (a); *League for Protection of Oakland's Architectural and Historic Resources v. City of Oakland* (1997) 52 Cal.App.4th 896, 904-905.) Because a negative declaration ends environmental review, the fair argument test provides a low threshold for requiring an EIR. (*Citizens Action to Serve All Students v. Thornley* (1990) 222 Cal.App.3d 748, 754.) Lead agencies must therefore interpret CEQA "in such manner as to afford the fullest possible protection to the environment within the reasonable scope of the statutory language." (*Friends of Mammoth v. Board of Supervisors* (1972) 8 Cal.3d 247, 259.)

The "fair argument" test requires the preparation of an EIR whenever "there is substantial evidence that any aspect of the project, *either individually or cumulatively*, may cause a significant effect on the environment, *regardless of whether the overall effect of the project is adverse or beneficial* ...." (CEQA Guidelines, § 15063, subd. (b)(1), emphasis added.) Furthermore, as the California Supreme Court explained, a project

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[1] At a minimum, the IS/MND should be revised and recirculated to include a quantification of impacts on sensitive biological resources and recirculated such that decisionmakers and the public may evaluate the true impacts of the Project on the environment.

need not have an "important or momentous effect of semi-permanent duration" to require an EIR. (*No Oil, supra,* 13 Cal.3d at pp. 75, 87.) Rather, an agency must prepare an EIR "whenever it perceives some substantial evidence that [a] project may have a significant effect environmentally." (*Id.* at p 85.) An EIR is required even if substantial evidence in the record supports a conclusion that significant impacts will not occur, if a "fair argument" supports the opposite conclusion. (*Id.* at p. 75.)

Where experts have presented conflicting evidence on the extent of the environmental effects of a project the lead agency must consider the effects to be significant and prepare an EIR. (*Pocket Protectors v. City of Sacramento* (2004) 124 Cal.App.4th 903, 935 (*Pocket Protectors*); *Sierra Club v. County of Sonoma* (1992) 6 Cal.App.4th 1307, 1317-1318; CEQA Guidelines, § 15064, subd. (g).) "It is the function of an EIR, not a negative declaration, to resolve conflicting claims, based on substantial evidence, as to the environmental effects of a project." (*Pocket Protectors, supra,* 25 Cal.App.4th at p. 935.) In the context of reviewing a negative declaration, "neither the lead agency nor a court may 'weigh' conflicting substantial evidence to determine whether an EIR must be prepared in the first instance" (*Ibid.*) Where such substantial evidence is presented, "evidence to the contrary is not sufficient to support a decision to dispense with preparation of an EIR and adopt a negative declaration, because it could be 'fairly argued' that the project might have a significant environmental impact." (*Sundstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296, 310 (*Sundstrom*).)

As discussed in sections IV, *infra*, expert testimony and additional substantial evidence in the record—as well as the IS/MND itself—establish much more than the required "fair argument" necessitating an EIR.

II. The IS/MND's programmatic analysis does not comply with CEQA and improperly segments the Project.

The IS/MND states "the analysis of potential impacts associated with future construction, operation and maintenance of the proposed trail is necessarily programmatic in nature based on the information available at this time." (IS/MND, p. 2.) There is no authority in CEQA, however, to use an MND as a first tier environmental review document. Public Resources Code section 21068.5 defines "tiering" as "the coverage of general matters and environmental effects ***in an environmental impact report*** prepared for a policy, plan, program or ordinance followed by narrower or more site-specific environmental impact reports[.]" (Emphasis added.) This definition suggests that tiering must commence with the preparation of an EIR, not a negative declaration, as was the case here. Similarly, CEQA Guidelines section 15152, subdivision (a), suggests that negative declarations may be second tier documents, but provides no authority for use of MND's as a first tier document. What CEQA authority the District is relying on to perform a programmatic MND?

The County's acknowledgement that it lacks sufficient information to fully analyze potential impacts from the operation and maintenance of the Project further demonstrates why the use of a programmatic MND does not comply with CEQA here. As explained in *Stanislaus Natural Heritage Project v. County of Stanislaus* (1996) 48 Cal.App.4th 182, 197-199, the decision to prepare a programmatic document and "tier" environmental review "does not excuse a governmental entity from complying with CEQA's mandate to prepare, or cause to be prepared, an environmental impact report on any project that may have a significant effect on the environment, with that report to include a detailed statement setting forth '[a]ll significant effects on the environment of the proposed project.'" (Cal.App.4th at p. 197, citing Pub. Resources Code, § 21100.) In fact, the CEQA Guidelines expressly state: "[t]iering does not excuse the lead agency from adequately analyzing reasonably foreseeable significant environmental effects of the project and does not justify deferring such analysis to a later tier EIR or negative declaration." (CEQA Guidelines, § 15152, subd. (b).) The IS/MND continuously violates this rule by deferring analysis as explained in Sections IV below.

Rather than fully analyzing the reasonably foreseeable significant environmental effects of construction and operation of the trails as required by CEQA, the District has impermissibly piecemealed its environmental review by only fully analyzing the identification of trail corridors—which the District treats as largely a paper exercise. CEQA mandates that an agency must review the full environmental consequences of a project prior to taking a necessary first step toward that project. (See, e.g., *Bozung v. Local Agency Formation Com.* (1975) 13 Cal.3d 263, 279, 282 (*Bozung*); *City of Carmel-by-the-Sea v. Board of Supervisors of Monterey County* (1986) 183 Cal.App.3d 229, 243-244 [rezone that "was a necessary first step to approval of a specific development project" triggered environmental review for that yet-to-be considered project].) This is true regardless of whether further approvals are necessary, and even if the full development never actually occurs. (*Bozung, supra,* 13 Cal.3d at pp. 279, 282-284.) Piecemealing occurs "when the purpose of the reviewed project is to be the first step toward future development" or "when the reviewed project legally compels or practically presumes completion of another action." (*Banning Ranch Conservancy v. City of Newport Beach* (2012) 211 Cal.App.4th 1209, 1223.)

As the Supreme Court explained in *Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376 (*Laurel Heights*), an agency must analyze the effects of potential future development in its EIR if such development is: (1) "a reasonably foreseeable consequence of the initial project," and (2) "will likely change the scope or nature of the initial project or its environmental effects." (47 Cal.3d at p. 396.) In that case, the University of California San Francisco ("UCSF") had purchased a 354,000 square foot building, but prepared an EIR only for the initial occupation of 100,000 square feet—arguing that its future plans to occupy the remainder of the building were speculative. (*Id.* at pp. 393-394.) Like here, UCSF claimed that, because these plans required further approvals that would be evaluated in their own right, the agency could evaluate the impacts of a potential expansion at a later time. (*Id.* at p. 394.)

The Supreme Court rejected this argument, finding that deferring environmental review to a later point violated CEQA. (*Id.* at pp. 395-396.)

Here, the identification of trail corridors is clearly the first substantial step toward the larger project, which is the construction and operation of trails on the Bordessa Ranch. There is no reason why the impacts resulting from the whole of the action cannot be evaluated at this time—rather than deferring the full analysis until a later date. (See also Winfield Mem., p. 2.) Due to the terms and conditions of the trail easement, the location of the trail corridors once identified and recorded is final. The District is not entitled to modify locations, in the event it is ultimately determined that trails cannot be constructed within the 50 foot corridor without significant and unavoidable environmental impacts. The fact that this initial identification so clearly entrenches the District into a trail location is even more reason that the impacts associated with the construction and use of the trail should be fully analyzed in the IS/MND. There is no question that the District is proposing to construct trails. Thus, such use is "reasonably foreseeable" under *Laurel Heights* and the District must consider the environmental impacts of the entire action in an EIR. Again, there is no authority in CEQA to defer this analysis by preparing a programmatic MND for later phases of the Project.

III. The District improperly predetermined the location of trail corridors.

Predetermining the location of the trail corridors without first identifying sensitive habitats and special-status species and habitats present on the Bordessa Ranch is contrary to the responsible management of the conservation values the conservation easement is designed to protect, and a violation of CEQA. The IS/MND concludes that the Project would have direct impacts to special-status plant and wildlife species yet fails to consider whether alternative trail corridor locations would be less environmentally damaging. The location of sensitive resources, such as wetlands and special-status plant and wildlife species should dictate the corridor alignment that can best avoid such resources. Rather than survey and map the environmental constraints located on the Bordessa Ranch, the District has committed to corridor locations without considering whether alternative locations would be less environmentally damaging. An agency cannot "commit[] itself to the project as a whole or to any particular features, so as to effectively preclude any alternatives ... that CEQA would otherwise require to be considered, including the alternative of not going forward with the project." (*Save Tara v. City of West Hollywood* (2008) 45 Cal.4th 116, 138.)

A later CEQA document evaluating the potential effects from construction, operation and maintenance of proposed trails would treat the trail corridors as a *fait accompli* and could not consider alternative trail alignments outside the corridors because the trail corridors would be locked in at the time. Therefore, unless the impacts from the entire Project are evaluated now, alternative trail alignments outside the proposed corridors that could avoid or substantially lessen the Project's potentially significant adverse effects would be effectively precluded in future environmental review.

Consequently, CEQA requires the MND disclose and analyze the potential impacts that could result from the construction, operation and maintenance of proposed trails now. (See e.g., *Nelson v. County of Kern* (2010) 190 Cal.App.4th 252, 267 [EIR must examine future mining activities at same time as the initial mining reclamation plan].) The IS/ND's failure in this regard is fatal. (*San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713, 730 [even if an environmental document is "adequate in all other respects, the … use of a 'truncated project concept' violate[s] CEQA and mandates the conclusion that the [lead agency] did not proceed 'in a manner required by law'"].) These impacts must be discussed in an EIR, or possibly focused EIR, that considers a reasonable range of alternatives.

CEQA requires a lead agency to consider a reasonable range of alternatives in an EIR "which would feasibly attain most of the basic objectives" to "foster informed decisionmaking and public participation." (CEQA Guidelines, § 15126.6, subd. (a).) In *Laurel Heights, supra,* 47 Cal.3d 376, the Supreme Court emphasized that "[o]ne of [an EIR's] major functions … is to ensure that all reasonable alternatives to proposed projects are thoroughly assessed by the responsible official." (*Id.* at p. 400.) "Without meaningful analysis of alternatives in the EIR, neither the courts nor the public can fulfill their proper roles in the CEQA process." (*Id.* at p. 404.)The IS/MND does not evaluate any alternatives to the Project—instead, it assumes all of the Project's adverse environmental impacts can be mitigated to a less-than-significant level. As there is substantial evidence of a "fair argument" that the Project may result in one or more significant impacts on the environment as described below, at a minimum, the District must evaluate alternatives to the proposed trail corridors.

IV. Substantial evidence supports a "fair argument" that the Project may have significant adverse impacts on the environment.

A. The IS/MND description of the Project is incomplete and misleading.

An accurate, stable and finite project description is necessary for an intelligent evaluation of the potential environmental effects of a proposed activity. (See *San Joaquin Raptor Rescue Center v. County of Merced* (2007) 149 Cal.App.4th 645, 655; *County of Inyo v. City of Los Angeles* (1977) (*County of Inyo*) 71 Cal.App.3d 185, 193 ["(a)n accurate, stable and finite project description is the sine qua non of an informative and legally sufficient" CEQA document].) The court in *County of Inyo* explained why a thorough project description is necessary:

> A curtailed or distorted project description may stultify the objectives of the reporting process. Only through an accurate view of the project may affected outsiders and public decision-makers balance the proposal's benefit against its environmental cost, consider mitigation measures, assess the advantage of terminating the proposal (i.e., the 'no project' alternative) and weigh other alternatives in the balance.

(71 Cal.App.3d at pp. 192-193.) The IS/MND's Project description fails to comply with this mandate.

The IS/MND relies on the unsupported assumption that the proposed trail corridor locations are the least environmentally damaging alternative. The IS/MND fails to quantify the impacts it purports to mitigate—making it impossible to evaluate whether those impacts are being mitigated to a less-than-significant level, let alone whether those impacts could be avoided altogether by choosing an alternative location. (See Winfield Mem., p. 2-3.) Without a thorough understanding of the existing environmental setting and a quantification of potential impacts resulting from trail use on the Bordessa Ranch, decisionmakers are left unable to weigh the Project's benefits against its environmental costs. Given the abundance of sensitive resources that were identified by even the limited surveys that were prepared, coupled with the potentially significant impacts disclosed in the IS/MND, the District should prepare an EIR analyzing alternative locations to ensure that the least environmentally damaging trail corridor locations are selected.

The IS/MND fails to provide any description of the length of time it will take to complete the Project or when the Project would be constructed. This information is critical to evaluating the Project's potentially significant environmental impacts. Moreover, the IS/MND appears to suggest there will be very limited construction windows, which could result in the Project's construction spanning many years. For example, the Project includes mitigation stating: "If feasible, remove vegetation and conduct ground-disturbing activities only between September 1 and February 15 to avoid bird-nesting season." (IS/MND, p. 34.) Implementing this mitigation, however, would require that most construction occur during the rainy season, when construction is often impossible and would result in potentially significant erosion and water quality impacts, which in turn could impact other sensitive species and their habitat. The IS/MND's failure to describe when construction would be allowed makes it impossible to comment on the efficacy of the Project's mitigation for biological resources and water quality impacts. A description of whether construction is anticipated to take 1,2, 5, 10 or 20 years is also critical to commenting on the Project's potential impacts.

The IS/MND also fails to include a discussion of when the Project will operate or be restricted from operation. Information regarding whether the Project's trails would be open during nesting season for endangered species is critical to commenting on the Project. (See Winfield Mem., p. 6.) A discussion of whether pets will be allowed on the trials is also critical to evaluating the Project's potential impacts. (*Ibid.*)

Further, the Project Description fails to disclose the host of restrictions and limitations that may be involved with seasonal walk-in access to the Estero. For example, the IS/MND does not acknowledge that the Estero is part of the Greater Farallones National Marine Sanctuary ("GFMNS") under the control of the National Oceanic and Atmospheric Administration ("NOAA"). The lateral extent of the GFMNS along the

Estero is the mean high water line. The use of the shoreline as a staging area/access to the Estero may be prohibited due to the sensitive nature of the intertidal marsh and mudflats. Even if the District determines that seasonal walk-in access to the Estero is compatible with the sensitive resources associated with the Estero, NOAA will determine whether it is a compatible use—not the District. Because the Estero is a federally regulated resources, changes in access permitted by NOAA would be subject to the National Environmental Policy Act ("NEPA"). For projects also subject to NEPA, CEQA requires the local agency to cooperate with the relevant federal agency to the fullest extent possible to reduce duplication between CEQA and NEPA. (CEQA Guidelines, § 15226 [such cooperation includes joint environmental documents to the fullest extent possible."].) The District must consult the Office of National Marine Sanctuaries and other Federal Agencies that may be required to issue permits for the Project, to determine if a joint CEQA/NEPA document is possible. Has the District attempted to coordinate its environmental review with the Office of National Marine Sanctuaries, U. S. Army Corps of Engineers, NOAA Fisheries (or "NMFS"), or the U.S. Fish and Wildlife Service (USFWS), which are listed as permitting agencies for the Project (see IS/MND pp. 11-12)? What coordination or consultation efforts did the District make prior to circulating the IS/MND?

The District's rights under the existing trail easement are secondary to the purpose of the conservation easement—which identifies the protection of natural resources on the Bordessa Ranch in perpetuity over and above any other potential use. (See Attachment A, Trail Easement, § 2.) To the extent the trail corridors and future trails cannot be sited appropriately to protect the sensitive natural resources present on the property, public access is prohibited. (See Attachment A, Conservation Easement, § 3 [any activity that would "materially impair or interfere with the [c]onservation [v]alues of the [p]roperty will be prohibited"].) Importantly, the IS/MND states the Project's purpose is "to provide for low-intensity public outdoor recreational and educational uses on the property ***consistent with the Conservation Easement.***" (IS/MND, p. 4, emphasis added.) However, the IS/MND does not provide any discussion of the Project's consistency with the Conservation Easement.

The Project Description also incorrectly describes the existing land use on the property. The Bordessa Ranch is currently used for livestock breeding, not just livestock grazing. (See IS/MND, p. 3.)

Furthermore, in accordance with the trail easement, the District was obligated to identify trail locations in consultation with the Bordessas within two years of the effective date of the trail easement (May 8, 2012). (See Attachment A, Trail Easement, § 3.) By deferring identification until late 2016, the District has failed to meet this obligation by more than two years—potentially affecting its right to even complete the Project.

In summary, the IS/MND's project description fails to provide sufficient information to allow the District or the public to meaningfully evaluate the Project's

potential impacts. The District must fully analyze and map the existing environmental constraints and analyze alternatives to the proposed trail corridors prior to circulating its environmental document. A lead agency cannot "be allowed to hide behind its own failure to gather relevant data." (*Sundstrom, supra,* 202 Cal.App.3d at p. 311.)

B. The IS/MND's description of the environmental setting / baseline is incomplete and inadequate to assess the Project's impacts.

Before the impacts of a project can be assessed and mitigation measures considered, an initial study must describe the existing environment. (CEQA Guidelines, § 15063, subd. (d)(2).) It is only against this baseline that any significant environmental effects can be determined. (CEQA Guidelines, §§ 15125, 15126.2, subd. (a); see also *County of Amador v. El Dorado County Water Agency* (1999) 76 Cal.App.4th 931, 952.) According to CEQA Guidelines section 15125, subdivision (a): "An EIR must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published." The same requirement applies to a Negative Declaration. (*Communities for a Better Environment v. South Coast Air Quality Management District* (2010) 48 Cal.4th 310, 319.) As the Supreme Court explained, a comparison must be made between "existing physical conditions without the [project] and the conditions expected to be produced by the project." (*Id.* at p. 328.) "Without such a comparison, the EIR will not inform decisionmakers and the public of the Project's significant environmental impacts, as CEQA mandates." (*Ibid.*)

The IS/MND fails to describe the baseline environmental setting relevant to the analysis of significant effects. Most markedly, with respect to biological resources, the District has not surveyed the entire property for the presence of special-status plant and wildlife species and their habitats or other sensitive habitats, including wetlands. The agricultural use of the property has a higher priority than a recreational use. At a minimum, the areas required to maintain/sustain viable agricultural activity should be identified, and the remaining areas surveyed prior to identifying trail corridor locations. Even within the proposed 50-foot trail corridors, the analysis lacks identification of biological resources. For example, the IS/MND neglects to identify where breeding habitat exists for the California Red-Legged Frog ("CRLF"), a federally-listed species. (See Winfield Mem., p. 6-7; see also IS/MND, pp. 35-37.) The IS/MND identifies "coastal prairie" as present on the Project site, but fails to provide a description or identify where it is located. (See IS/MND, pp. 21-23.) Coastal prairie may be an identified Environmentally Sensitive Habitat Area ("ESHA") regulated by the California Coastal Commission. Without a full accounting of the potential protected habits, such as coastal prairie and wetland habitat, and special-status species and their habitat that may be affected by the trail corridors, the IS/MND's conclusion that impacts to protected habitat and special-status species would be less than significant with mitigation is unsupported by evidence—substantial or otherwise. (See Winfield Mem., p. 3.) Furthermore, despite acknowledging that direct impacts will occur as a result of the

construction and operation of the trails, the IS/MND fails to quantify those impacts. For example, the IS/MND states that there would be potential impacts to riparian habitat or wetlands as a result of the future development of trails—yet neglects to inform the reader the extent of those impacts. (See IS/MND, pp. 47-48.) How many acres of riparian habitat would be impacted? Without complete information as to the existing environment or the quantification of impacts to that environment, it is impossible for the District or the public to meaningfully evaluate the Project's potential impacts.

C. The IS/MND fails to adequately evaluate the Project's significant and unmitigated impacts to agricultural resources.

The Project will result in the conversion of agricultural land to a non-agricultural use. The IS/MND states that the proposed outdoor recreational use is compatible with livestock grazing (without factual support, given the use of the property for breeding, including bulls and calves) which are not consistent with trail use in grazing areas by the public—but that does not support the conclusion that the Project would not result in conversion of farmland to a non-agricultural use, therefore resulting in no impact. (See IS/MND, p. 16.) The use by the Bordessa Ranch for agriculture and ancillary agricultural improvements is jeopardized by the Project. For example, trail corridors have been proposed with no mapping or description of existing pastures and grazing/breeding use. Proposed public access goes directly through the existing agricultural building envelope. The use of the agricultural building envelope for a specifically-approved horse arena, and for ancillary agricultural improvements (such as corrals) is inconsistent with the proposed trail locations and use. Furthermore, as set forth above, the Bordessa Ranch is used for breeding not simply grazing. This distinction is relevant when considering the potential interaction between humans and cattle. The Bordessa Ranch has large bulls that can be aggressive during breeding season and cows who are very protective of their calves. The IS/MND does not adequately address how this recreational use will be kept separate from the livestock. Further consideration should be given to the potential interactions between humans and livestock and mitigation measures should be adopted to protect both the public and the cattle.

D. Substantial evidence supports the conclusion that the Project may have significant and unmitigated impacts to biological resources.

Given the abundance of sensitive biological resources that have been even preliminarily identified on the Bordessa Ranch, the IS/MND does not include enough information to support the selection of the proposed trail corridors as the least environmentally damaging alternative. (See Winfield Mem., pp. 2-9.) For example, the trail corridor alignment surveyed in 2014 differs from what is now proposed in the IS/MND, but no additional studies were completed to address the new trail corridor locations. (Cf. IS/MND, Appendix A, Figure 2, p. 4 and IS/MND, Figure 2, p. 9.) Additionally, this Project is meant to be a component of a much larger regional trail system, as identified in the Sonoma County Integrated Parks Plan, Appendix A and

Appendix B—the cumulative impacts of this Project have not been addressed in terms of the impacts of the larger regional trail system.

1. Special-Status Plant Species

The Project may have significant and unmitigated impacts to special-status plant species. The IS/MND acknowledges the existence of rare plant species within the identified trail corridors. (See IS/MND, pp. 23-24.) The proposed mitigation defers the performance of plant surveys until after identification of the trail alignment within the corridor—and then only requires surveys to be conducted within the final trail alignment. This is another example of the District putting the cart before the horse. It is not possible to conclude that a trail alignment is the least environmentally damaging alternative within the corridor without first determining the possible presence and extent of special-status plants within the entire 50-foot corridor. The IS/MND lacks information to support a conclusion that impacts to rare plant species can be reduced to a less-than-significant level. (See Winfield Mem., p. 3.)

2. Special-Status Bat Species

The IS/MND assumes that Townsend's big-eared bat and pallid bats do not occupy the existing barn and storage structure located on the Bordessa Ranch. The Townsend's big-eared bat is a candidate for listing under the California Endangered Species Act ("CESA") and until such the determination is made as to whether to list the species as threatened or endangered, it is afforded the protections of CESA. The increase in human activity in the vicinity of these structures due to construction and operation of the trails may result in a potentially significant impact to the Townsend's big-eared bat. Surveys by a biologist specializing in bat species should be conducted to determine the presence of special-status bat species, rather than simply assuming their absence. (See Winfield Mem., pp. 3-4.)

3. Special-Status Bird Species

The District has not conducted surveys of the Forever Wild Area (see Attachment A, Trail Easement, Exhibit B [location of Forever Wild Area]) adjacent to the west side of the southern extension of the eastern trail corridor since the surveys conducted by Emily Heaton in 2012—specifically for protected species such as short-eared owl, California black rail and possibly Ridgeway's rail (formerly California clapper rail) along the shoreline of the Estero. The lack of observations based on a record search of the California Natural Diversity Database should not be relied on to assume a lack of presence. If habitat for special-status bird species is present, the potential presence should be assumed, especially for secretive birds such as the California black rail. It is unlikely that surveys for this bird have been previously conducted along this area of the Estero.

With respect to short-eared owls, the Heaton report states that "nesting [for short-eared owls] remains a definite possibility." However, the District has not conducted

further study to confirm possible nesting by short-eared owls on the Bordessa Ranch, particularly in the vicinity of the trail corridors where those locations pass near areas were short-eared owl have been observed and possible nesting could occur. According to the Estero Trail Wildlife Resources Evaluation (October 2014), which was included as Appendix A to the IS/MND, the surveys completed by County staff did not include the pond in the Forever Wild Area where the Heaton report had identified evidence of possible breeding. If short-eared owls are found to be breeding within or near any of the trail corridors, any disturbance, direct or indirect, would be considered significant. The District's own study, concluded that "[c]onfirmation of breeding would be a significant find as there is only one recorded breeding occurrence in Sonoma County." (IS/MND Appendix A, p. 28.) Without further information concerning the possible presence of nesting by short-eared owls, the finding of less than significant impact with mitigation is unsupported by the record. (See Winfield Mem., pp. 4-5.)

The Heaton report also identified evidence of activity by burrowing owls primarily along the eastern side of the Forever Wild Area. The proposed location for the southern extension of the east trail corridor includes areas where burrowing owl activity has been observed in the past and nearby areas with identified evidence of burring owl use. Mitigation Measure BIO-4 does not include any measures to avoid potential or indirect impacts to areas used by the burrowing owl. The designation of the proposed southern extension of the eastern trail corridor should be re-evaluated in light of the presence of special-status birds nesting activity and possibly other species along and within close proximity to the proposed trail corridor. (See Winfield Mem., p. 5.)

The proposed mitigation is inadequate in that it does not include any consideration of limiting seasonal use of trails due to the presence of nesting or roosting birds adjacent to the trail. Allowing trail use when birds are actively nesting may result in nest abandonment—a significant environmental impact—especially if it involves special-status species such as the burrowing owl, grasshopper sparrow, or short-eared owl. Further, any mitigation should be explicit in prohibiting dogs on future trails. Even restricting use to on-leash dogs would be inadequate to protect these bird species because many owners will ignore such a requirement and allow their dogs to wander off-leash. Nest abandonment or physical harm to special-status bird species due to wandering dogs would be a significant impact. (See Winfield Mem., p. 6.) In fact, the IS/MND's failure to address the potential impacts of dogs on sensitive birds and other sensitive biological resources renders it inadequate. (*Lighthouse Field Beach Rescue v. City of Santa Cruz* (2005) 131 Cal.App.4th 1170, 1200 (*Lighthouse Field Beach*) [initial study inadequate because it failed to consider or assess effect of off-leash dog policy].)

Finally, with respect to the mitigation proposed for operations (IS/MND, p. 35), is the vegetation clearing related to maintenance of the trails, access roads, staging areas, etc.? The IS/MND fails to address potential impacts resulting from maintenance activities, along with identifying mitigation measures proposed if such activities would have a potential impact to environmental resources. (See Winfield Mem., p. 6.)

4. California Red-Legged Frog

CRLF is federally listed as threatened. The surveys that were conducted for the CRLF were limited to selected areas that do not appear to include a number of potential areas where this species could be present, including areas along the access road, the staging area, particularly the staging area near the entrance to the Bordessa Ranch, the entire length of the central drainage, and the pond located along the loop of the eastern trail corridor. Because the surveys necessary to support an evaluation of the significance of impacts to the CRLF have not been conducted, it is impossible to conclude that the Project would result in less than significant impacts to this special-status species. (See Winfield Mem., pp. 6-7.)

For example, upgrading the access road and construction of the staging areas have the greatest potential to result in construction-related impacts to the CRLF. Without information regarding the presence of the CRLF in the wetlands associated with the existing access road and proposed location of the staging/parking area near the entrance of the Bordessa Ranch, it is impossible to determine the significance of impact to CRLF habitat resulting from the Project. (See Winfield Mem., p. 7.)

Additionally, the IS/MND does not identify potential breeding or non-breeding season habitat for the CRLF, particularly aquatic features that could support breeding. Such surveys should have been completed prior to identifying the trail corridor locations to avoid the habitat of this special-status species. Given the distance that migrating CRLF have been shown to move and the proposed location of the trail corridors, it is possible that migrating adult and juvenile CRLF could be encountered along much of the proposed trail corridors and the final trail alignment. (See Winfield Mem., p. 7.)

The IS/MND fails to include any measures to be implemented during trail maintenance activities. Areas likely to require maintenance include areas where the trail crosses seeps and drainages or near these features, which also provide potential habitat for CRLF. Without mitigation for maintenance activities, there is the potential for significant impacts to this special-status species. (See Winfield Mem., p. 7.)

Finally, any interpretative signage placed on the Bordessa Ranch should include a statement about the penalties for handling CRLF or collecting its tadpoles from breeding sites. (See Winfield Mem., p. 7.)

5. Myrtle's Silverspot Butterfly

The Myrtle's Silverspot Butterfly is federally listed as endangered. Rather than waiting until the trail alignment is selected and only surveying the 5-foot trail, the survey for Western dog violet should be conducted prior to selection of the trail alignment. This information along with information gathered from other surveys that still need to be conducted on the property would provide a basis for selecting alternative trail corridors to reduce impacts to sensitive resources—including informing decisions to avoid impacts

altogether. By not identifying the location and quantifying the amount of Western dog violet that exists on the Bordessa Ranch, the IS/MND fails to adequately analyze potentially significant impacts to the Myrtle's Silverspot Butterfly. (See Winfield Mem., pp. 8-9.)

6. Federally-Listed Species under the Endangered Species Act

As noted herein and the Winfield Memorandum, the IS/MND acknowledges but improperly defers analysis of the Project's potential adverse impacts on several federally listed species, including the Ridgeway's rail, CRLF, tidewater goby and Steelhead. The Federal Endangered Species Act ("ESA") requires that each federal agency ("action agency") insure that any action authorized, funded, or carried out by such agency does not jeopardize the continued existence of a threatened or endangered species or result in the destruction or adverse modification of habitat determined to be critical for such species. (16 U.S.C. § 1536(a)(2).) To assist federal agencies in complying with their substantive duty to avoid jeopardizing listed species, ESA section 7(a)(2) establishes an interagency consultation requirement. (16 U.S.C. § 1536(a)(2).) The threshold for triggering consultation under the ESA is similar to the threshold for requiring an EIR; the ESA requires federal agencies to consult with the appropriate wildlife service ("service") whenever their actions "may affect" a listed species or its critical habitat. (16 U.S.C. § 1536(a)(2).) The IS/MND states that NMFS may draft a Biological Opinion and an Incidental Take Permit for listed fish species listed under the ESA. (IS/MND, p. 12.) It further states that the USFWS may draft a Biological Opinion and an Incidental Take Permit/Statement for species listed under the ESA, which are under their jurisdiction. (IS/MND, p. 12.) Thus, the IS/MND on its face acknowledges the Project "may affect" listed species and their critical habitat. This acknowledgement itself would appear to require the preparation of an EIR. At a minimum, consultation between NMFS and the USFWS should be completed before the District considers approval of the IS/MND. As noted above, CEQA requires the joint preparation of CEQA/NEPA documents to the fullest extent possible.

7. Fully Protected Species Cannot Be Mitigated Under CEQA

The IS/MND appears to propose mitigation for the potential "take" of fully protected species (i.e., White-tailed kite, California black rail, and California clapper rail) Mitigation Measure BIO-4. (IS/MND, pp. 33-35.) Take of these species, however, cannot be mitigated to a less-than-significant level under CEQA—it must be "fully" avoided. (Fish and G. Code, § 3511; see also *Center for Biological Diversity v. California Dept. of Fish and Wildlife* (2015) 62 Cal.4th 204, 233, as modified on denial of reh'g (Feb. 17, 2016) [addressing identical prohibition for fully protected fish species].) As the California Supreme Court recently explained an agency cannot propose mitigation that would authorize the take of fully protected species:

> We must reject the claim DFW may authorize, as CEQA mitigation, actions to protect a fully protected species from harm when, as here, those

> actions are otherwise prohibited as takings. The Legislature has expressly precluded this interpretation of the statutes by providing, in Fish and Game Code section 5515, subdivision (a), that permitted taking of a fully protected species for "scientific research" may include "efforts to recover" the species but that such "scientific research" does not include "any actions taken as part of specified mitigation for a project" as defined in CEQA.

The District must clarify in an EIR how any "take" of fully protected will be avoided.

8. Riparian Habitat or Other Sensitive Natural Community

The IS/MND acknowledges that the proposed trails and associated elements (e.g., staging areas, parking lot, access roads) will affect freshwater seeps and wetland habitats. It also acknowledges that these habitats are considered ESHA under the California Coastal Act. However, the IS/MND fails to discuss what steps have been taken to avoid these features. For example, the proposed western trail corridor could be routed to avoid multiple crossings of the two drainage features occurring west of the access road. (See Winfield Mem., p. 8.) The IS/MND purports to authorize impacts, conditioned on mitigation. Not only is this inconsistent with the County's Local Coastal Plan ("LCP"), it violates the Coastal Act. (*Bolsa Chica Land Trust v. Super. Ct.* (1999) 71 Cal.App.4th 493, 506-507 [the only permissible mitigation of project impacts to ESHA, even if degraded, is preservation and complete avoidance].)

The IS/MND provides no compelling reason to support a decision of the proposed western trail corridor alignment. (See Winfield Mem., pp. 8-9.)The conservation easement prioritizes the conservation values of the Bordessa Ranch in the following order: (1) natural resources; (2) habitat connectivity; (3) open space and scenic views; (4) agricultural resources; and (5) recreation and education. While the Project is consistent with the recreation and education element of the conservation values, it is the use that receives the lowest priority. (Exhibit A, Conservation Easement, § 3.) Pursuant to the conservation easement, in the event of conflict between the prescribed uses of the Bordessa Ranch, preservation and protection of natural resources prevails over recreation and education uses. (*Ibid.*) In other words, if there is an alternative that avoids impacting natural resources, those alternatives need to be identified and fully evaluated under CEQA.

9. Wetlands

The proposed trail corridors cross wetland features that are likely to be subject to the jurisdictional authority of the U.S. Army Corps of Engineers pursuant to Section 404 of the Clean Water Act, the State Water Resources Control Board pursuant to the Porter-Cologne Water Quality Act as waters of the State, as implemented by the Regional Water Quality Control Board, North Coast Region, and as wetlands and ESHAs pursuant to the California Coastal Act. Avoidance of impacts to such jurisdictional

features is the first step in mitigating impacts to these resources, but as explained above, the IS/MND fails to seriously evaluate alternative alignments of the proposed trail corridors to avoid such features. No formal wetland delineation has been completed. Impact analyses do not quantify the number of acres of jurisdictional waters that will be impacted. The lack of information makes it impossible for a decisionmaker or the public to evaluate the potential wetland impacts of the Project and whether there are feasible alternatives. (See Winfield Mem., pp. 8-9.)

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In summary, there is insufficient information to fully evaluate the Project's potential impacts on biological resources. *California Native Plant Soc. v. City of Santa Cruz* (2009) 177 Cal.App.4th 957, 971–72, which also involved a proposed trail-construction project, provides an example that trails like those at issue here can result in significant impacts to biological resources, and is instructive here. The EIR in that case included a chapter that described the Project sites biological resources (including the Santa Cruz tarplant), summarized the anticipated biological impact of the project on the tarplant habitat, along with proposed mitigation measures.

> In terms of impacts, the DEIR notes that some of the trails proposed in the master plan "would pass through, or near the boundary of" four areas of Arana Gulch identified as historic tarplant habitat (Areas A, B, C, and D). The DEIR states: "**Any routing of trail segments through historic Santa Cruz tarplant habitat would represent a direct loss of habitat for the species.**" In recent years, only small numbers of plants were observed in Areas B, C, and D. "It is assumed, however, that a seed bank may still be present throughout these historic areas of tarplant occurrence. Thus, with appropriate management measures, the species could potentially be restored to those areas from the dormant seed bank." The DEIR continues: "Loss of tarplant habitat would be relatively greater with the multi-use trails ... because these trails would be 8 feet wide, as compared to the pedestrian-only trails which would be 18 to 24 inches wide. **To the extent that these trails cannot be routed to avoid the tarplant habitat ..., this would be an impact that cannot be fully mitigated.**"
>
> To lessen these impacts, the DEIR identifies five mitigation measures, including these two: (a) "To the maximum extent feasible, all trail segments shall be aligned to avoid the mapped historic extent of the four Santa Cruz tarplant areas." (b) "The Santa Cruz Tarplant Management Program ... shall be fully implemented." But the report nevertheless observes: "**The combination of the above measures would reduce this impact, but the impact would remain significant and unavoidable because it cannot be fully ensured that all tarplant habitat would be protected.**"

CNPS v. City of Santa Cruz (2009) 177 Cal.App.4th 957, 971–72. Given the EIR's conclusion in that case as to the habitat for one rare plant, it is remarkable that the IS/MND here concludes the Project's impacts to special-status plant species, American badger, special-status bird species (particularly the short-eared and burrowing owls, State Fully Protected Species White-tailed kite, State Fully Protected and State Listed-Threatened Species California black rail, and State Fully Protected and Federally and State Listed-Endangered Species Ridgeway's rail [formerly California clapper rail]), Federally Listed-Threatened Species California Red-Legged Frog, California Species of Special Concern Western Pond Turtle, Special Status Fishes (especially Federally Listed-Endangered Species Tidewater Goby and Federally and State Listed-Threatened Species Steelhead), Federally Listed-Endangered Species Myrtle's Silverspot Butterfly — and the habitat for all of these species as well as impacts to wetlands—are less than significant. In fact, this conclusion is not supported by substantial evidence as addressed herein.

E. Substantial evidence supports the conclusion that the Project may have significant and unmitigated traffic impacts, including traffic safety.

The IS/MND underestimated the traffic volumes that would be expected to be generated by the Project, due to the high demand of users wishing to access the Estero for recreational purposes. As an aggressively promoted tourist destination, the Sonoma Coast is heavily traveled with millions of visitors per year. (See Sonoma Land Trust estimate; the Sonoma Coast State Beach, Preliminary General Plan and Draft EIR [provides a historical figure of two million].) Valley Ford Road, which intersects Highway 1 near the Bordessa Ranch, experiences significant motor vehicle and bicycle traffic, particularly on weekends, holidays, and special events. The Project will provide the only authorized public access to the Estero, which has been heralded as a hidden treasure of Sonoma County (http://www.pressdemocrat.com/csp/mediapool/sites/PressDemocrat/News/story.csp?cid=2270964&sid=555&fid=181). Additional studies need to be completed to adequately analyze the demand for access to such a highly coveted natural resource and the resulting traffic volumes. Because the IS/MND omits information relevant to traffic assumptions, it inadequately considers the potential significant adverse impacts of the Project on traffic. If adopted, the District will have abused its discretion as a decisionmaker under CEQA. (See *Taxpayers for Accountable School Bond Spending v. San Diego Unified School Dist.* (2013) 215 Cal.App.4th 1013, 1054-55 [citing Pub. Resources Code, § 21168.5].)

In addition to the inadequate analysis of the number of trips that will be generated by the Project, the District underestimated the safety dangers of the Project given the steep hill, likelihood of bicyclists, and the speed of traffic in this area. Access to the Bordessa Ranch in driving westbound on Highway 1 involves turning left into the driveway after descending from a steep hill, coming off a curve where cars drive though this area at speeds of over 60 mph. The Sonoma Coast Villa and Spa, located just north

of the Bordessa Ranch, cautions its patrons to put their blinkers on early due to traffic speeds and the existing roadway geometry. (See Attachment C, except from Sonoma Coast Villa and Spa website.) It is also common on weekends to have 10 or more cars backed up behind a vehicle waiting to make a left-turn onto the property. In a letter submitted to the County by Mr. Al Bordessa (dated November 21, 2014) in response to the Notice of Preparation of an Initial Study, Mr. Bordessa stated that on the weekend of November 15, 2014, there were 14 cars backed up behind him while he waited to turn left onto his property. The Bordessas have had near accidents turning into and out of the property due to speeding or inattentive drivers—and their grandparents were in a serious collision entering their property as a result of an inattentive driver.

Relevant personal observations such as these constitute substantial evidence in support of a fair argument. (*Keep Our Mountains Quiet v. County of Santa Clara* (2015) 236 Cal.App.4th 714, 735 (*Keep Our Mountains Quiet*); *Oro Fino Gold Mining Corp. v. County of El Dorado* (1990) 225 Cal.App.3d 872, 882; *Citizens Assn. for Sensible Development of Bishop Area v. County of Inyo* (1985) 172 Cal.App.3d 151, 173.) In *Keep Our Mountains Quiet*, the court found that lay testimony citing facts relating to road conditions (such as blind curves and presence of bicyclists) based upon personal knowledge was substantial evidence to support a fair argument that a project may have a significant impact on the environment—even where the California Department of Transportation had expressed no concerns about traffic safety. (*Keep Our Mountains Quiet, supra,* 236 Cal.App.4th at p. 735.)

The use of a 55 mph speed limit to determine sight distance and the need for turn-lanes does not accurately reflect the existing conditions and understates the potentially significant traffic safety impacts that may result from the Project. Due to the short timeframe given for commenting on the IS/MND, our clients have not had the opportunity to have a radar speed survey completed. They are currently in the process of retaining a firm to conduct such a survey to provide substantial evidence of the existing traffic speeds and will supplement their comments to the IS/MND accordingly.

F. The Project is inconsistent with the Local Coastal Plan and the Greater Farallones National Marine Sanctuary Management Plan.

The Sonoma County LCP identifies natural resources of the Estero to include "mud flats, tidal marsh, freshwater marshes, ponds and seeps, vernal pools riparian drainage and the adjacent upland grasslands." (Environment Element, Sonoma County Local Coastal Plan, p. 27.) Sanctuary-Preservation Areas include "marsh, riparian and open water areas of [the Estero] … [and] rare and/or endangered plant site[s]." (*Ibid.*) Conservation Areas include "grassland northward of [the Estero] from the coast to Estero Lane." (*Ibid.*) The IS/MND does not adequately identify any of these resources that are designated for conservation or preservation under the LCP, nor does it quantify the impacts to these resources. Without doing so, it is impossible to conclude that the Project is consistent with the LCP.

Furthermore, this Project is inconsistent with the management recommendations identified in the LCP. For riparian areas, the LCP recommends that "[t]rails and access may be permitted if studies determine no long-term adverse impacts would result from their construction, maintenance, and public use." (*Id.* at p. 28.) In this case, there is evidence of significant environmental impacts that could result from the Project, and the District should prepare an EIR to ensure, among other things, that the Project is consistent with the LCP. With respect to rare or endangered plants and wildlife species, the LCP recommends protection of designated sites of rare or endangered plants, stating that "[p]rior to any development in or adjacent to designated sites, conduct precise botanical surveys to determine the distribution of any rare or endangered plants." (*Id.* at p. 32.) "Development should be sited and designed and constructed to prevent impacts of grading, paving, construction of roads or structures, runoff, and erosion from significantly degrading rare and endangered plant habitats, and shall be compatible with the continuance of such habitat areas." (*Ibid.*) In order to adequately protect these resources, precise surveys need to be completed to identify where such rare or endangered plants exist. The limited scope of the surveys conducted makes it impossible to know whether the Project and the proposed mitigation are sufficient to protect rare and endangered plants, consistent with the LCP recommendations.

The IS/MND neglects to even mention the GFMNS, let alone the GFMNS Management Plan. The GFMNS Management Plan includes a Resource Protection Action Plan, the goal of which is to "maintain and, where necessary, restore the natural biological and ecological processes in the GFMNS." (GFMNS Management Plan, p. 186.) The goal of the Wildlife Disturbance Action Plan is to "[l]essen or eliminate future impacts, and remedy existing impacts on sanctuary marine wildlife and their habitats by encouraging responsible human behavior." (GFMNS Management Plan, p. 74.) The IS/MND fails to address how the Project, specifically walk-in access to the Estero, will be consistent with the goals identified in the GFMNS Management Plan.

G. The proposed mitigation is inadequate to reduce impacts to a less-than-significant level.

The IS/MND improperly defers identifying mitigation for potential biological impacts to a later date, without determining that the mitigation is feasible to reduce the Project's impacts to a less-than-significant level. This approach has been soundly rejected by the courts. CEQA permits deferral of mitigation only when: (1) an EIR contains criteria or performance standards to govern future actions; (2) practical considerations preclude the development of earlier measures; and (3) the lead agency has assurances that the future mitigation will be both "feasible and efficacious." (*Communities for a Better Environment v. City of Richmond* (2010) 184 Cal.App.4th 70, 95 (*CBE v. City of Richmond*); see also *Raptor, supra,* 149 Cal.App.4th at pp. 669-71 [county improperly deferred mitigation when it allowed a land management plan for special status vernal pool species to be developed with the California Department of Fish and Game

("CDFG") and USFWS after certification of EIR]; *Gentry v. City of Murrieta* (1995) 36 Cal.App.4th 1359, 1396 [conditioning a permit on "recommendations of a report that had yet to be performed" constituted improper deferral of mitigation].)

The proposed mitigation in the IS/MND particularly for the mitigation of biological impacts does not meet these requirements. Throughout the IS/MND, mitigation identified to avoid impacts to protected wildlife species and their habitats, as well as protected plant species is couched by the term "if feasible"—failing to identify concrete standards against which impacts will be measured. What if it is not feasible to avoid the impact? For example, if it is not feasible to avoid Western dog violet, the IS/MND appears to allow for the Project to impact the federally-listed Myrtle's silverspot butterfly. (See IS/MND, pp. 44-45.) How much Western dog violet exists within the identified trail corridors? Would it even be "feasible" to avoid it? If it is not feasible, what would be the extent of the impact to this federally-listed species? It is impossible to evaluate the extent of the impact, let alone whether the proposed mitigation adequately reduces it to a less-than-significant level. Avoiding impacts to special-status plant and wildlife species only if it is feasible is inadequate to reduce such impacts to a less-than-significant level. (See *Woodward Park Homeowners Assn., Inc. v. City of Fres*no (2007) 149 Cal.App.4th 892, 724 [an agency "cannot acknowledge a significant impact and approve the project after imposing a mitigation measure not shown to be adequate by substantial evidence."].)

Additionally, it is questionable whether the buffers recommended to mitigate impacts to resources, such as burrows for burrowing owl, can be implemented given the limited nature of the District's right to use the Bordessa Ranch. (Winfield Mem. pp.5-6.) If the trails cannot be constructed with the appropriate buffer distances from sensitive resources under the terms and conditions of the trail easement, a potentially significant impact may exist.

V. At a minimum, the IS/MND is deficient as an information document and the District must conduct a revised initial study with substantial evidence to support its conclusions.

A lead agency cannot "be allowed to hide behind its own failure to gather relevant data." (*Sundstrom, supra,* 202 Cal.App.3d 296, 311.) The "burden of environmental investigation" rests with the "government rather than the public" and where the lead agency "has failed to study an area of possible environmental impact, a fair argument may be based on the limited facts in the record." (*Ibid.*) Here, the District has failed to provide substantial evidence to support its conclusions in the IS/MND, and thus failed to adequately analyze impacts as required by CEQA. (See also *Lighthouse Field Beach, supra,* 131 Cal.App.4th at p. 1200 [where a lead agency "failed to consider the whole of the project in its initial study," the agency "failed to proceed in 'a manner required by law' and ... therefore abused its discretion].) To our knowledge, the bird surveys recommended by the District's own consultant, Emily Heaton, were never conducted.

The District admittedly has completed only reconnaissance-level surveys of the identified trail corridors themselves and has not bothered to identify the number of acres of sensitive habitat, including wetlands that exist throughout the Bordessa Ranch. Without the baseline knowledge of what presently exists in terms of sensitive biological resources, how can the District properly evaluate whether the proposed trail corridor locations are indeed the least environmentally damaging alternative? Or that the proposed mitigation is sufficient to reduce identified potentially significant environmental impacts to less-than-significant levels? While we continue to assert the position that an EIR is required, at a minimum, the District should complete the studies necessary to support a conclusion that the location of the trail corridors (wherever that may be) is the least environmentally damaging alternative—and quantify the impacts to biological resources in order to support the conclusion that the proposed mitigation adequately reduces those impacts to a less-than-significant level.

The IS/MND's failure to analyze and propose mitigation for the Project's significant adverse impacts to biological resources, agriculture, and traffic violates CEQA. "While foreseeing the unforeseeable is not possible, an agency must use its best efforts to find out and disclose all that it reasonably can." (CEQA Guidelines, § 15144; see also *Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 428.) The IS/MND does not come close to meeting this requirement.

VI. Request for Notices

In addition to providing comments, we request that the District provide our office with copies of any and all future public notices issued in connection with the Project. If the District decides to approve the Project, please send us a copy of the Notice of Determination immediately upon filing. (Pub. Resources Code, §§ 21152, 21167, subd. (f).)

VII. Conclusion

On behalf of our clients, we urge the District to seriously consider the concerns voiced herein. The District cannot make the required findings to approve the Project under CEQA based on the substantial evidence demonstrating that the Project may have significant unmitigated environmental impacts. Because substantial evidence in the record supports a "fair argument" of potentially significant adverse impacts of the Project, including from traffic safety and biological resources, an EIR is required and the IS/MND should not be adopted. (See *Quail Botanical Gardens Foundation, Inc. v. City of Encinitas* (1994) 29 Cal.App.4th 1597, 1601-1602.) Therefore, we respectfully suggest that the District prepare an EIR to address the deficiencies identified herein, as well as any additional potential impacts that may be identified.

Thank you for the opportunity to comment on the IS/MND and for your consideration of the matters set forth in this letter.

Very truly yours,

Howard "Chip" Wilkins III

Encl. (w/Federal Express)
Attachment A – Conservation Easement and Trail Easement
Attachment B – Memorandum from Ted P. Winfield, Ph.D
Attachment C – Excerpt from Sonoma Coast Villa website (http://www.scvilla.com/directions.htm)

cc: (w/o enclosures)
Al and Joe Bordessa
Chris Mazzia

Conservation Easement and Trail Easement

Attachment A

2012049982
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OFFICIAL RECORDS OF
SONOMA COUNTY
JANICE ATKINSON
30 PGS
FIDELITY NAT'L TITLE CO.
05/25/2012 08:00 TRD
RECORDING FEE: $0.00
PAID

RECORDING REQUESTED BY AND RETURN TO:

Sonoma County Agricultural
Preservation and Open Space District
575 Administration Drive, Room 102A
Santa Rosa, CA 95403

Free Recording per Gov't Code Sec 6103

AP #026-030-011

DEED AND AGREEMENT BY AND BETWEEN ALFRED BORDESSA AND JOSEPH BORDESSA, AS SUCCESSOR TRUSTEES OF THE BRUNO BORDESSA AND DOROTHY BORDESSA REVOCABLE INTERVIVOS TRUST AND THE SONOMA COUNTY AGRICULTURAL PRESERVATION AND OPEN SPACE DISTRICT CONVEYING A CONSERVATION EASEMENT AND ASSIGNING DEVELOPMENT RIGHTS

Alfred Bordessa and Joseph Bordessa, as Successor Trustees of the Bruno Bordessa and Dorothy Bordessa Revocable Intervivos Trust (created by Declaration of Trust dated June 12, 2000) (hereafter referred to as "GRANTOR") and the Sonoma County Agricultural Preservation and Open Space DISTRICT, a public agency formed pursuant to the provisions of Public Resources Code sections 5500 et seq. ("DISTRICT"), agree as follows:

RECITALS

A. GRANTOR is the owner in fee simple of that certain real property located in Sonoma County and more particularly described in Exhibit A, attached hereto and incorporated herein by this reference ("the Property").

B. In 1990 the voters of Sonoma County approved the creation of DISTRICT and the imposition of a transactions and use tax by the Sonoma County Open Space Authority ("the Authority"). The purpose for the creation of DISTRICT and the imposition of the tax by the Authority was to provide for the preservation of agriculture and open space through the acquisition of interests in appropriate properties from willing sellers. The District was created and the tax imposed in order to further the state policy for the preservation of agricultural and open space lands, to meet the mandatory requirements imposed on the County and each of its cities by Government Code sections 65560 et seq. and to advance the implementation of the open space elements of their respective general plans. In order to accomplish those purposes, DISTRICT and the Authority entered into a contract whereby, in consideration of the Authority's financing of DISTRICT's acquisitions, DISTRICT agreed to and did adopt an acquisition program that was in conformance with the Authority's voter approved Expenditure Plan. In 2006, the voters of Sonoma County approved an extension of the transaction and use tax and an update of the Expenditure Plan. The DISTRICT's acquisition program remains in full compliance with that updated voter-approved Expenditure Plan.

C. On March 27, 2012, DISTRICT's Board of Directors, pursuant to Government Code section 65402 and Sonoma County Ordinance No. 5180, determined, by its Resolution No. 12-0129, that the acquisition of a conservation easement in the Property was consistent with the Sonoma County General Plan (specifically the Plan's Open Space and Resource Conservation Element and the Agricultural Resources Element) because the Property is within a Scenic Landscape Unit, borders a scenic corridor and is very visible from the road. The Property has special status species, has sensitive status species habitat, marshes and wetlands, and riparian corridors, and it borders the Estero Americano, a critical habitat area. Under the Agricultural Resources Element the Property is identified for agricultural production, and has characteristics suitable for continued agricultural use. On December 1, 2011, the County's Fiscal Oversight Commission determined that the acquisition was consistent with its Expenditure Plan.

D. DISTRICT has the authority to acquire conservation easements by virtue of Public Resources Code section 5540 and possesses the ability and intent to enforce the terms of this Easement.

E. Concurrent with the recordation of this Conservation Easement, GRANTOR will record a trail easement ("Trail Easement") to DISTRICT to allow for public access to the Property as set forth therein.

F. GRANTOR intends, by selling this Conservation Easement and Trail Easement to DISTRICT at a price substantially less than its fair market value, to make a charitable contribution to DISTRICT in support of DISTRICT's efforts to preserve the Conservation Values of the Property, as defined below. DISTRICT acknowledges GRANTOR's charitable intent.

G. This Conservation Easement was acquired in part with funds provided by the State Coastal Conservancy (the "Conservancy"), an agency of the State of California, for the purposes of preserving the natural resource, open space, scenic, agricultural, and public access, recreation, and education values of the Property in perpetuity. These funds represent a substantial investment by the people of the State of California in the preservation of open space and natural resources, the long-term conservation of agricultural land, and the retention of land for these purposes in perpetuity. The rights vested herein in the State of California arise out of the State's statutory role in fostering the conservation of agricultural land, and the preservation of coastal open space and natural resources in California and its role as a contributor to, and a fiduciary for, the public investment represented here. The purpose of this Conservation Easement is recognized by and will serve the objectives of the Conservancy's enabling legislation, Division 21 (sections 31000, et seq.) of the California Public Resources Code.

THEREFORE, in consideration of the foregoing recitations and of the mutual covenants, terms, conditions, and restrictions herein set forth and other valuable consideration receipt of which is hereby acknowledged, GRANTOR and DISTRICT agree as follows:

EASEMENT

PART ONE: GRANT OF EASEMENT

1. Grant and Acceptance of Conservation Easement and Assignment of Development Rights. Pursuant to the common and statutory law of the State of California including the provisions of Civil Code sections 815 to 816, inclusive, GRANTOR hereby grants to DISTRICT and DISTRICT accepts a conservation easement in the Property in perpetuity ("the Easement"). GRANTOR hereby irrevocably assigns to DISTRICT all development rights associated with the Property, except those rights which are specifically reserved by GRANTOR through this Easement.

2. Conservation Values. The approximate 500-acre Property is located along the State Highway 1 scenic corridor and the Estero Americano west of Valley Ford. The Property is currently used for livestock grazing, and areas of the Property are well suited for continued agricultural use. The Property consists of rolling hills and open pasture land with two streams with native riparian vegetation, draining south into the Estero Americano. Critical resources on the Property (collectively "the Conservation Values"), include:

2.1 Natural Resources. The Property possesses sensitive natural resources, including two streams with native riparian vegetation, which flow south through the Property to the Estero Americano. Habitats on the property include coastal prairie, coastal scrub, and native riparian. The Property contains habitat for American Badger as well as for California red-legged frog. Short-eared Owls and Burrowing Owls use the Property during winter months and periods of migration, from approximately November through April. Although nesting on the Property by these owls has not been directly observed, there is evidence of such nesting on the Property. Protection of the Property as a wintering site is important for conservation of both species of owls. Additionally, the Property and the Estero Americano provide resources for an abundance of other species of birds, including a wide variety of raptors and sea birds.

2.2 Habitat Connectivity. The Property provides a corridor for wildlife movement along the Estero Americano, as well as to other adjacent open grasslands. In particular, the Property provides for connectivity between the Bodega area north of Highway 1 and the Estero Americano.

2.3 Open Space and Scenic Views. The Property is visible from the State Highway 1 corridor, as well as from Marin County, which is directly south of the Property across the Estero Americano, which makes up the Property's southern boundary. The Property is visible to recreational users in kayaks and canoes on the Estero Americano.

2.4 Agricultural Resources. The Property possesses physical and biotic features, including its soils, water and grasslands, that make portions of the Property well-suited for limited livestock grazing for production of food and fiber, and fire and vegetation management.

2.5 Recreation and Education. The Property provides opportunities for passive public outdoor recreational and educational uses, provided that such uses are compatible with the protection of the Property's natural resources.

3. Conservation Purpose. It is the purpose of this Easement to preserve and protect forever the Conservation Values of the Property, as described in Section 2. This purpose shall hereinafter be referred to as "the Conservation Purpose of this Easement." GRANTOR and DISTRICT intend that this Easement will confine the use of the Property to activities that are consistent with the Conservation Purpose of this Easement and will prohibit and prevent any use of the Property that will materially impair or interfere with the Conservation Values of the Property. GRANTOR and DISTRICT intend that all Conservation Values of the Property will be fully preserved and protected in perpetuity. In the event, however, that the preservation and protection of one Conservation Value becomes irreconcilably inconsistent with the preservation and protection of another Conservation Value, the following priorities shall be followed, with the Conservation Values of higher priority listed before the Conservation Values of lower priority: preservation and protection of natural resources shall be the first priority, habitat connectivity shall be the second priority, scenic and open space resources shall be the third priority, agricultural resources shall be the fourth priority, and recreation and education shall be the fifth priority.

PART TWO: RESERVED AND RESTRICTED RIGHTS

4. Affirmative Rights of DISTRICT. DISTRICT shall have the following affirmative rights under this Easement:

4.1 Protecting Conservation Values. DISTRICT shall have the right to preserve, protect and document in perpetuity the Conservation Values of the Property.

4.2 Property Inspections. DISTRICT shall have the right to enter upon the Property and to inspect, observe, and study the Property for the purposes of (i) identifying the current activities and uses thereon and the condition thereof, (ii) monitoring the activities and uses thereon to determine whether they are consistent with the terms and Conservation Purpose of this Easement, (iii) enforcing the terms of this Easement, and (iv) exercising its other rights under this Easement. Such entry shall be permitted at least once a year at reasonable times, upon twenty-four hours' prior notice to GRANTOR, and shall be made in a manner that will not unreasonably interfere with GRANTOR's use and quiet enjoyment of the Property pursuant to the terms and conditions of this Easement. Each entry shall be for only so long a duration as is reasonably necessary to achieve the purposes of this Section 4.2, but shall not necessarily be limited to a single physical entry during a single twenty-four hour period. Notwithstanding the foregoing, should DISTRICT's General Manager have a reasonable belief that GRANTOR is in breach of this Easement, DISTRICT shall have the right at any time, upon twenty-four hours' prior notice to GRANTOR, to enter upon the Property for the purpose of determining whether such breach has occurred. The rights of entry provided by this Section 4.2 shall extend to the officers, agents, consultants, and volunteers of DISTRICT, and to the Conservancy. The DISTRICT shall provide notice to the Conservancy of any periodic or other monitoring of the Property and copies of any written findings or reports. On request of the Conservancy, Conservancy staff shall be permitted to accompany the DISTRICT on any monitoring visit.

4.3 Enforcement. DISTRICT shall have the right to enforce the rights herein granted and to prevent or stop, by any legal means, any activity or use on the Property that is inconsistent

with the terms, conditions or Conservation Purpose of this Easement and to require restoration of such areas or features as may be damaged by such activities or uses.

4.4 Approval of Certain Uses. DISTRICT shall have the right to review and approve proposed uses and activities on the Property as more specifically set forth in Section 5, and in accordance with Section 6.

4.5 District Signage. DISTRICT shall have the right to erect and maintain a sign or other appropriate marker in a location on the Property acceptable to GRANTOR, visible from a public road, bearing information indicating that the Property is protected by DISTRICT and acknowledging the sources of DISTRICT funding for the acquisition of this Easement. The wording of the information shall be determined by DISTRICT with consent of GRANTOR. No sign shall exceed thirty-two (32) square feet in size. DISTRICT shall be responsible for all costs relating to approval, erecting and maintaining such sign or marker.

5. GRANTOR's Reserved and Restricted Rights. GRANTOR shall confine the use of the Property to activities and uses that are consistent with the Conservation Purpose of this Easement. Any activity or use that is inconsistent with the Conservation Purpose of this Easement is prohibited. Without limiting the generality of the foregoing, the following activities and uses are expressly reserved, restricted or prohibited as set forth below. GRANTOR and DISTRICT acknowledge that the following list does not constitute an exhaustive recital of consistent and inconsistent activities and uses, but rather (i) establishes specific allowed activities and uses, (ii) establishes specific prohibited activities and uses, and (iii) provides guidance for determining the consistency of similar activities and uses with this Easement, in accordance with the procedure set forth in Section 6.

5.1 General Requirements for All Uses.

5.1.1 Compliance with Governmental Regulations. All activities and uses permitted under this Easement shall be subject to and undertaken in accordance with all applicable federal, state, and local statutes, ordinances, rules, and regulations.

5.1.2 Compliance with Terms, Conditions and Conservation Purpose of this Easement. All activities and uses permitted under this Easement shall be undertaken in a manner consistent with the terms, conditions and Conservation Purpose of this Easement.

5.1.3 Protection of Conservation Values. All activities and uses permitted under this Easement shall be undertaken in a manner reasonably designed to minimize adverse impacts to the Conservation Values.

5.1.4 Protection of Soil and Water. No activity or use permitted under this Easement shall be undertaken in a manner that results in significant soil degradation or pollution, or significant degradation or pollution of any surface or subsurface waters.

5.1.5 Prior Approval. Whenever in this Section 5, DISTRICT's prior approval is required, such approval shall be obtained in accordance with Section 6 of this Easement.

5.2. Rangeland Management Plan. Within two years of the execution of this Easement GRANTOR shall develop and submit to the DISTRICT and the Conservancy for their review and approval, a long-term comprehensive rangeland management plan for the Property, referred to as a Rangeland Management Plan (the "RMP"), which shall be consistent with the terms, conditions and Conservation Purpose of this Easement. The RMP shall set forth required rangeland best management practices to assure that all grazing practices are conducted in a manner that is beneficial to the conservation values of the Property, and shall include analysis and standards for appropriate levels of grazing within the "Forever Wild Area" and "Natural Areas," as designated on the Baseline Site Map in consideration of sensitive wildlife habitat and associated species. The RMP is subject to review and approval by the DISTRICT and the Conservancy, or their designees. Once the RMP is approved by the DISTRICT and the Conservancy, all of the uses and activities identified in the RMP ("approved RMP") shall be deemed to be consistent with the Conservation Easement, and no further approvals for those uses or activities will be required, provided however, that the DISTRICT may require the approved RMP to be revised periodically, if the DISTRICT determines that the uses provided therein are significantly impacting the Conservation Values of the Property. The DISTRICT and Conservancy shall exercise reasonable diligence in reviewing the RMP, and each shall either approve or disapprove of the RMP within two months of the date the RMP is submitted for review. In the event the RMP is disapproved by either the DISTRICT or the Conservancy, the disapproving agency shall specify the areas of disapproval or requested revision. GRANTOR may then revise and re-submit the RMP to the DISTRICT and the Conservancy, with the same review and comment procedures and timelines identified above to be followed until the RMP is approved. Prior to approval of the RMP, GRANTOR may maintain current grazing levels on the Property.

5.3 Land Uses. Use of the Property is restricted solely to residential, agricultural, natural resource protection and enhancement, fire and vegetation management uses, and recreational and educational as defined in this Section 5.3. Commercial or industrial use of or activity on the Property is prohibited except as reserved in Section 5.3.3 and 5.3.5.

5.3.1 Residential Use. GRANTOR reserves the right to reside on the Property.

5.3.2 Natural Resource Protection and Enhancement. GRANTOR reserves the right to protect, restore and enhance the natural resources on the Property, including within and outside the "Forever Wild Area" and the "Natural Areas." Activities may include, but are not limited to the following: conducting scientific research, bank and soil stabilization practices, enhancement of water quality, native plants and wildlife habitat, vegetation management including grazing, prescriptive burning, thinning, planting and brush removal, and other activities to enhance the natural resources of the Property and to promote biodiversity. All activities shall be conducted in accordance with sound, generally accepted conservation practices and all applicable laws, ordinances and regulations.

5.3.2.1 Coastal Prairie and Grassland Management Activities. In addition to the activities described above, GRANTOR reserves the right to conduct grassland management activities on the Property for the purpose of enhancing the coastal prairie and inland grasslands in accordance with the approved RMP. Coastal Prairie and

Grassland Management activities may include grazing, prescriptive burning, and other methodologies as identified and described in the approved RMP.

5.3.3 Agricultural Use. GRANTOR reserves the right to engage in limited agricultural uses of the Property in accordance with sound, generally accepted agricultural and soil conservation practices, provided however that no agricultural use shall be conducted in a manner that significantly impairs the long-term agricultural productive capacity or open space character or negatively impacts the natural resources of the Property.

5.3.3.1 In connection with permitted agricultural uses, GRANTOR reserves the right to use government approved agrichemicals, including but not limited to, fertilizers and biocides, in those amounts and with that frequency of application necessary to accomplish reasonable agricultural purposes and consistent with government regulations and guidelines and GRANTOR's approved RMP. Agrichemicals shall not be used in the "Forever Wild Area" and "Natural Areas" of the Property, as designated on the Baseline Site Map.

5.3.3.2 For the purposes of this Easement, "limited agricultural use" shall be defined as grazing, breeding, pasturing and raising of livestock of every nature and description for the production of food and fiber, and/or for fire and vegetation management, provided that all such grazing, breeding, pasturing and raising of livestock shall comply with the provisions of Sections 5.6.1 and 5.6.2 and with GRANTOR's approved RMP; breeding and raising bees, poultry and other fowl; storing and selling, including direct retail sale to the public of products harvested and produced on the Property.

5.3.4 Recreational and Educational Use. GRANTOR reserves the right to use the Property for non-commercial low-intensity outdoor recreational and environmental educational purposes, such as hiking, nature study and other such uses similar in nature and intensity, which do not adversely impact the Conservation Values of this Easement. GRANTOR reserves the right to engage in personal, non-commercial hunting of non-native animals on the Property as allowed in Section 5.6.7.4.

5.3.5 Commercial Use. GRANTOR reserves the right to use the Property for: i) agricultural use as defined in Section 5.3.3; ii) home occupation(s) within permitted residential buildings; and iii) other ancillary commercial uses consistent with the Conservation Purpose of this Easement, subject to prior written approval by the District.

5.4 Subdivision and Parcels. GRANTOR and DISTRICT acknowledge and agree that the Property, in its entirety, is now and shall always remain under common ownership, except as provided in Section 5.4.1 below. GRANTOR acknowledges and agrees that, notwithstanding the existence of subordinate legal parcels, assessor's parcels or historic parcels, no portion of the Property may be sold or conveyed separate from the Property as a whole except as expressly provided in subsections 5.4.1 below. "Common ownership" means, each owner shall have an undivided ownership interest in the Property as a whole. This provision does not prohibit more than one individual or entity from having an ownership interest; nor does it restrict leasing or encumbering the Property.

5.4.1. Subdivision. GRANTOR shall not divide the Property, or any of its constituent parcels whether by subdivision, conveyance, lot line adjustment, or any other means, nor shall GRANTOR gain or seek to gain recognition, by certificate of compliance or otherwise, of additional parcels which may have previously been created on the Property by prior patent or deed conveyances, subdivisions, or surveys, nor shall GRANTOR place or convey any portion of the Property into ownership separate from the whole of the Property. This prohibition against division of the Property shall be inapplicable to:

5.4.1.1 Conveyance to Government or Non-Profit Entity. Subject to prior written approval by DISTRICT, GRANTOR may voluntarily convey a portion of the Property to a government or non-profit entity exclusively for conservation or public access purposes.

5.4.1.2 Leases. GRANTOR reserves the right to lease a portion(s) of the Property for the permitted uses described in Section 5.3.

5.4.2. Assessor and Historic Parcels. GRANTOR acknowledges and agrees that the Property currently contains one assessor's parcel as shown on the current Sonoma County Assessment Roll. GRANTOR acknowledges and agrees that assessors parcels are drawn, and assessor's parcel numbers are assigned for tax administrative purposes only and do not constitute separate legal parcels. GRANTOR further acknowledges that one or more additional historic parcels may exist on the Property, previously created by patent or deed conveyances, subdivisions, lot line adjustments, surveys, recorded or unrecorded maps or other documents. GRANTOR waives all rights to recognition of such historic parcels, whether through certificate of compliance under the Subdivision Map Act or otherwise.

5.5 Structures and Improvements. Placement, construction and reconstruction of structures or other improvements on the Property are prohibited except as provided for within this Section 5.5. All structures or other improvements allowed by Sections 5.5.1 through 5.5.5, whether existing at the time of this Easement or placed subsequent to this Easement shall be located within two Building Envelopes, the 2-acre Agricultural Building Envelope, as shown on the Baseline Site Map, and a 1-acre Residential Building Envelope, which location will be designated by GRANTOR, subject to prior written approval of DISTRICT. DISTRICT's approval shall be based on its determination that the designated location is consistent with the terms, conditions and Conservation Purpose of this Easement and with the terms, conditions and the Public Access Purpose of the Trail Easement. At no time shall there be more than two Building Envelopes on the Property. No structures or improvements shall be constructed in the "Forever Wild Area" and the "Natural Areas" except as provided for in Section 5.6.1 and 5.6.2 of this Easement and as provided for in the Trail Easement.

5.5.1 Maintenance, Repair or Replacement of Existing Structures and Improvements. GRANTOR may maintain, repair, remove or replace structures and improvements existing at the date hereof or constructed subsequently pursuant to the provisions of Section 5.5, as follows:

5.5.1.1 If the maintenance, repair or replacement does not increase the height of the structure or improvement, increase the land surface area it occupies or change its location or function, no notice to or approval by DISTRICT shall be required.

5.5.1.2 Any maintenance, repair or replacement that increases the height of the structure or improvement, increases the land surface area it occupies, or changes its location or function, shall be treated as new construction and shall be subject to provisions of Sections 5.5.2 through 5.5.10.

5.5.2 Primary Residences. Subject to prior written notice to DISTRICT, GRANTOR may place or construct within the designated 1-acre Residential Building Envelope, one primary residence, provided that such residence shall not exceed 24 feet in height measured from the average of the highest and lowest point of the building footprint to the topmost point of the roof nor be greater than 3,000 square feet in size, exclusive of garage, which garage shall not exceed 1,200 square feet in size and 24 feet in height. In no case shall there be more than one primary residence located on the Property. At such time that a new primary residence is constructed, GRANTOR shall remove any existing primary residence or re-designate and maintain it as a structure accessory to the residential or agricultural use in accordance with Section 5.5.3, 5.5.4 or 5.5.5, as applicable. DISTRICT agrees that the existing 'bunkhouse' on the Property may be removed or re-designated as a structure accessory to the residential or agricultural use, provided that it remains within one of the two Building Envelopes.

5.5.3 Structures Accessory to the Residential Use. Subject to prior written notice to DISTRICT, GRANTOR may place or construct additional accessory structures and improvements reasonably related to the permitted residential use of the Property including, without limitation, guest house, garage, shed, swimming pool and other similar improvements. The total cumulative square footage of the structures accessory to residential use shall not exceed 3,000 square feet. No single structure shall exceed 1,000 square feet. All such structures must be placed or constructed within the 1-acre Residential Building Envelope.

5.5.4 Residential Agricultural Structures. Subject to prior written notice to DISTRICT, GRANTOR may place or construct within the 2-acre designated Agricultural Building Envelope, agricultural residences including farm worker housing, and farm family housing, provided that no such residence shall exceed 24 feet in height measured from the average of the highest and lowest point of the building footprint to the topmost point of the roof nor be greater than 2,000 square feet in size, exclusive of garage, which garage shall not exceed 750 square feet in size.

5.5.5 Structures Accessory to the Agricultural Use. Subject to prior written notice to DISTRICT, GRANTOR may place or construct within the 2-acre designated Agricultural Building Envelope accessory structures and improvements reasonably necessary for the permitted agricultural use of the Property, including, without limitation, barns, corrals, and one lighted horse arena not to exceed 90 feet by 180 feet in size to be used for personal use only. Agricultural structures may not be higher than 40 feet.

5.5.6 Improvements for Recreational and Educational Uses. All recreational and educational improvements shall be located, designed and constructed in a manner to limit (a) soil erosion, (b) impairment of wetlands, streams and water quality, (c) damage to native plant

communities and wildlife habitat, (d) damage to scenic resources, and (e) damage to cultural resources. All such improvements shall require prior written approval of DISTRICT. DISTRICT's approval shall be based on the determination that said recreational and educational improvements comply with this Section 5.5.6 and are compatible with protection of the Conservation Values of this Easement.

5.5.7 Roads. Subject to prior written approval of DISTRICT, GRANTOR may construct new roads and reconstruct, relocate or expand existing roads provided that such roads (i) are directly required for uses and activities allowed herein, and (ii) are the minimum necessary for such uses and activities. The existing access road may be relocated within the "Natural Area" and the "Forever Wild Area," only if resource studies show that such relocation would reduce impacts to or enhance the natural resources of the Property. Roads shall be constructed and maintained so as to minimize erosion and sedimentation and ensure proper drainage, utilizing Best Management Practices for roads as recommended by the California Department of Fish and Game or other similar or successor entity. Roads constructed subsequent to this Easement may not be paved with asphalt, concrete or other impervious surface unless such paving is required by any federal, state or local law, code, ordinance or regulation. Roads that are abandoned, permanently closed and/or decommissioned shall be re-vegetated with native species, stabilized and ensured of proper drainage.

5.5.8 Bridge. Subject to prior written approval of DISTRICT, GRANTOR may maintain, construct, reconstruct or expand the one existing bridge, which crosses the western stream and its' "Natural Area" on the Property, in the same or similar location. The bridge shall be maintained, constructed, reconstructed or expanded in such a manner as to minimize erosion and sedimentation and ensure proper drainage, utilizing Best Management Practices for bridges as recommended by the California Department of Fish and Game or other similar or successor entity.

5.5.9 Fences and Gates. GRANTOR may construct, place and erect fencing and gates only as necessary for agricultural uses, natural resources protection and management or uses accessory to the residential use of the Property. Fencing must be the minimum necessary for such use. All fencing and gates must i) preserve the scenic values of the Property; ii) not impede wildlife movement except in cases where necessary to protect the allowed agricultural and residential uses described in this Easement; and iii) comply with the DISTRICT's then current standards for fences and gates on conservation lands. Notwithstanding the provisions of Section 5.5.1.1, in the event of destruction or deterioration of any fences and gates, whether existing at the date hereof or constructed subsequently pursuant to the provisions of this Easement, GRANTOR may maintain and/or replace such fencing and gates only in accordance with the provisions of this Section 5.5.9. In the event any fence or gate, or portion thereof, becomes obsolete or unnecessary for the uses described in this Section 5.5.9, GRANTOR shall remove such fencing or gate from the Property.

5.5.10 Utilities and Energy Resources. Subject to prior written approval of DISTRICT, GRANTOR may expand existing or develop or construct new utilities outside of the "Natural Areas" and the "Forever Wild Area," including but not limited to electric power, septic or sewer, communication lines, and water storage and delivery systems, including domestic and agricultural wells, provided that such utilities are directly required for permitted uses on the

Property and are reasonably scaled to serve only those uses. No utilities of any kind shall be placed within the "Natural Areas" or the "Forever Wild Area," provided however, that the one existing well and its associated delivery system, consisting of a pump and enclosure, and underground pipes, may remain in its current location within the "Forever Wild Area," pursuant to the provisions of Section 5.6.1. For protection of wildlife on the Property, wind mills and wind turbines are not permitted on the Property. GRANTOR may, without notice to or approval of DISTRICT, place or construct solar panels on the roofs of existing structures or any future additional structures placed on the Property pursuant to Sections 5.5.1 through 5.5.5, provided that such solar panels do not cause the structure or improvement to exceed the height limitations set forth in those sections.

5.5.11 Signs. GRANTOR reserves the right to construct a maximum of two on-site advertising signs in connection with the allowed uses herein. No sign shall exceed thirty-two (32) square feet in size nor be artificially illuminated. GRANTOR reserves the right to construct additional internal directional signs that do not exceed two (2) square feet in size. Signs advocating candidates or issues that will be presented to voters in a public election are allowed, provided that such signs do not exceed then existing state and local regulations for political signs, and that such signs are removed within ten (10) days after the date of election.

5.6. Land and Resource Management.

Management of the Property shall be consistent with the Conservation Purpose of this Easement, and a Rangeland Management Plan, approved by the District and the Conservancy, pursuant to Section 6 and Section 7 of this Easement.

5.6.1 Forever Wild Area. The "Forever Wild Area," on the Property is established to protect habitat for species of special concern, including Burrowing Owls, Short-eared Owls and American Badgers, as shown on the Baseline Site Map. In the future, if other areas on the Property are inhabited by Burrowing Owls, Short-eared Owls and American Badgers, GRANTOR shall take reasonable steps so that these areas will comply with the management prescribed below and these areas may, if agreed to by GRANTOR, also be designated "Forever Wild Areas." GRANTOR shall fence the boundary of the "Forever Wild Area," if necessary to protect the habitat and resources for Burrowing Owls, Short-eared Owls and American Badgers. No structures or improvements of any kind shall be built in the "Forever Wild Area," including recreational trails or uses, except a segment of trail, a viewing area with related appurtenances, and a segment of an associated access road may be located within the "Forever Wild Area" in accordance with the provisions of the Trail Easement, and as designated on its Exhibit B. The one existing well and its associated delivery system may be located in the "Forever Wild Area," pursuant to 5.5.10. No off road vehicle access shall occur during ground nesting season for owls, provided, however, that in case of well failure, whether temporary or permanent, GRANTOR may access the "Forever Wild Area" by vehicle at any time for necessary repair or replacement. Limited livestock grazing may be allowed in the "Forever Wild Area," if necessary and recommended by the approved RMP.

5.6.2 Natural Areas. The "Natural Areas" are established to restore native riparian plants along all streams on the Property, to stabilize bank and soil erosion, and to prevent sedimentation of the streams. GRANTOR shall seek funding and if awarded shall install and maintain native

riparian plantings within the 150 foot setback from top of bank on all streams for restoration of the "Natural Areas." GRANTOR may install riparian fencing along or near the 150 foot setback from top of bank on all streams, if said fencing is necessary and recommended by the approved RMP. All riparian planting and fencing shall be undertaken in consultation with a Resource Conservation District or other similar or successor entity. The approved RMP will stipulate appropriate livestock grazing prescriptions within the 150 foot riparian setback from the streams on the Property, and all grazing shall comply with those stipulations. No structures or improvements shall be constructed in the "Natural Areas," except a segment of trail and a segment of an associated access road may be located within the "Natural Areas" in accordance with the provisions of the Trail Easement, and as designated on its Exhibit B.

5.6.3 Surface Alteration. Alteration of the contour of the Property in any manner whatsoever is prohibited, including, but not limited to, excavation, removal or importation of soil, sand, gravel, rock, peat or sod, except as reasonably necessary in connection with the uses allowed under Section 5 of this Easement. In connection with allowed uses, movement of over 50 cubic yards is subject to prior DISTRICT approval.

5.6.4 Water Resources. Draining, filling, dredging, diking, damming or other alteration, development or manipulation of watercourses, subsurface water, springs, ponds and wetlands is prohibited except as reasonably necessary in connection with (i) the maintenance, replacement, development and expansion of water storage and delivery systems allowed under Section 5, and (ii) the restoration and enhancement of natural resources allowed under Section 5.

5.6.5 Mineral Exploration. Exploration for, or development and extraction of, geothermal resources, minerals and hydrocarbons by any surface or sub-surface mining or any other method is prohibited.

5.6.6 Fire Management. GRANTOR reserves the right to undertake vegetation management activities for the purpose of fire control. The requirement for notice under this Section 5.6.6 may be satisfied by the submission of an annual fire management plan to the District for approval. Fire management methods are limited to:

5.6.6.1 Brush removal and limited grazing of the Property, consistent with the approved RMP pursuant to Section 5.2, or other methods of similar nature and intensity, without need for notice to or approval from DISTRICT.

5.6.6.2 Subject to prior written notice to DISTRICT, prescriptive burning undertaken in a manner consistent with the standards and requirements of the local fire protection agency having jurisdiction.

5.6.6.3 In addition to leasing rights reserved under Section 5.4.1.2, GRANTOR reserves the right to lease a portion of the Property for limited livestock grazing for vegetation and fire management or in connection with native plant restoration and enhancement, in compliance with GRANTOR's approved RMP.

5.6.7 Restoration and Enhancement. GRANTOR reserves the right to undertake conservation and restoration of biotic and natural resources, including, but not limited to, bank

and soil stabilization, practices to reduce erosion, enhancement of water quality and plant and wildlife habitat, and activities which promote biodiversity in accordance with sound, generally accepted conservation practices.

5.6.7.1 Native Tree Removal. Harvesting, cutting, removal or destruction of any native trees is prohibited, except as reasonably necessary (i) to control insects and disease, (ii) to prevent personal injury and property damage, (iii) for the purpose of fire management, in accordance with Section 5.6.6; and (iv) for natural resource management, including native seed collection and plant propagation for use on the Property as set forth in Section 5.3.2 of this Easement.

5.6.7.2 Native Vegetation Removal. Removal or destruction of any native vegetation is prohibited, except as reasonably necessary (i) within footprint of permitted structures and improvements, (ii) to control insects and disease, (iii) to prevent personal injury and property damage, (iv) for the purpose of fire management, in accordance with Section 5.6.6; and (v) for natural resource management, including native seed collection and plant propagation for use on the Property as set forth in Section 5.3.2 of this Easement.

5.6.7.3 Native Animal Removal. Killing, hunting, trapping, injuring or removing native animals is prohibited except (i) under imminent threat to human life or safety; and (ii) as reasonably necessary to promote or sustain biodiversity in accordance with restoration and enhancement activities in connection with Section 5.3.2, using selective control techniques consistent with the policies of the Sonoma County Agricultural Commissioner and other governmental entities having jurisdiction.

5.6.7.4 Non-Native Plant and Animal Removal. GRANTOR reserves the right to remove or control invasive, non-native plant and animal species (i) to further the Conservation Purpose of this Easement; (ii) to foster the growth of native species and promote biodiversity; (iii) to control insects and disease; (iv) to prevent personal injury and property damage; (v) for the purpose of fire management, in accordance with Section 5.6.6; (vi) for natural resource management as set forth in Section 5.3.2, 5.6.1 and 5.6.2, and (vii) as reasonably necessary within footprint of permitted structures and improvements. Techniques used shall minimize harm to native wildlife and plants and shall be in accordance with all applicable laws.

5.7 Off-road Motorized Vehicle Use. Use of motorized vehicles off roadways is prohibited, except for the minimal use when necessary in connection with allowed agriculture, conservation or wildlife management activities, for emergency and fire control purposes, and as further restricted in Section 5.6.1.

5.8 Dumping. Dumping, releasing, burning or other disposal of wastes, refuse, debris, non-operative motorized vehicles or hazardous substances is prohibited except that agricultural products and by-products generated on the Property may be disposed on site, consistent with sound generally accepted agricultural practices.

5.9 Outdoor Storage. Outdoor storage of work materials in areas that may be visible from public roadways is prohibited except as follows:

5.9.1 Storage of Materials Related to Allowed Uses. GRANTOR may store vehicles, building materials, machinery or agricultural supplies and products reasonably necessary for permitted uses so long as such storage is consistent with sound generally accepted agricultural practices and provided such storage shall be located so as to minimize visual impacts.

5.9.2 Storage of Construction Materials. GRANTOR may store construction and other work materials needed during construction of permitted structures and improvements on the Property while work is in progress and for a period not to exceed thirty (30) days after completion or abandonment of construction. Construction shall be deemed abandoned if work ceases for a period of 180 days.

5.10 Easements. GRANTOR may continue the use of existing easements of record granted prior to this Easement. The granting of new temporary or permanent easements, and the modification or amendment of existing easements is prohibited without the prior approval of the DISTRICT. It is the duty of GRANTOR to prevent the use of the Property by third parties that may result in the creation of prescriptive rights.

5.11. Public Access to the Property. The parties acknowledge that the Trail Easement to be recorded concurrent with this Easement will allow for public access to the Property as set forth therein. Nothing contained in this Easement, however, shall be construed as granting, permitting or affording the public access to any portion of the Property or as limiting or precluding GRANTOR's right to exclude the public from the Property. Nothing in this Easement shall be construed to preclude GRANTOR's right to grant access to third parties across the Property, provided that such access is allowed in a reasonable manner and is consistent with the Conservation Purpose of this Easement and so long as such access is undertaken subject to the terms and conditions of this Easement.

PART THREE: PROCEDURES AND REMEDIES

6. Notice and Approval Procedures. Some uses permitted by this Easement require that prior written notice be given by GRANTOR to DISTRICT, while other uses permitted by this Easement require the prior written approval of DISTRICT. Unless and until such notice is given or approval is obtained in accordance with this Section 6 and with Section 19, any such activity or use shall be deemed to be prohibited on the Property. GRANTOR shall use the following procedure to provide notice to DISTRICT or to obtain DISTRICT's approval. All notices and requests for approval shall include all necessary information to permit DISTRICT to make an informed judgment as to the consistency of the GRANTOR's request with the terms, conditions and Conservation Purpose of this Easement. Forms for notices and requests for approval shall be available at DISTRICT's offices.

6.1 Uses/Activities Requiring Notice to DISTRICT. For any activity or use that requires prior written notice to DISTRICT, GRANTOR shall deliver such notice to DISTRICT at least forty-five (45) days prior to the commencement of such activity or use. That forty-five (45)

day time period provides DISTRICT an opportunity to evaluate whether the proposed activity or use is consistent with the terms, conditions and Conservation Purpose of this Easement before the activity or use is begun.

6.2 Uses/Activities Requiring Prior Approval from DISTRICT. For any activity or use that requires prior written approval from DISTRICT, GRANTOR shall submit a request for such approval ("GRANTOR's request") at least forty-five (45) days prior to the intended commencement of such activity or use. DISTRICT shall have forty-five (45) days from the receipt of a complete request for approval to review the request and to approve, conditionally approve, disapprove or notify GRANTOR of any objection thereto. Disapproval or objection, if any, shall be based on DISTRICT's determination that the proposed activity or use is inconsistent with the terms, conditions or Conservation Purpose of this Easement or that GRANTOR's request is incomplete or contains material inaccuracies. If, in DISTRICT's judgment, the proposed activity or use would not be consistent with the terms, conditions or Conservation Purpose of this Easement or the request is incomplete or contains material inaccuracies, DISTRICT's notice to GRANTOR shall inform GRANTOR of the reasons for DISTRICT's disapproval or objection. Only upon DISTRICT's express written approval, given by DISTRICT's General Manager, may the proposed activity or use be commenced, and then only in accordance with the terms and conditions of the DISTRICT's approval.

6.3 DISTRICT's Failure to Respond. Should DISTRICT fail to respond as provided in Section 6.2 to GRANTOR's request for approval within forty-five (45) days of the receipt of GRANTOR's request, GRANTOR may, after giving DISTRICT ten (10) days written notice by registered or certified mail, commence an action in a court of competent jurisdiction to compel DISTRICT to respond to GRANTOR's request. In the event that such legal action becomes necessary to compel DISTRICT to respond and GRANTOR prevails in that action, DISTRICT shall reimburse GRANTOR for all reasonable attorney fees incurred in that action. In the alternative, GRANTOR may commence a proceeding in arbitration under Section 13.

6.4 Uses Not Expressly Addressed; DISTRICT's Approval. In the event GRANTOR desires to commence an activity or use on the Property that is neither expressly reserved nor expressly prohibited in Section 5, GRANTOR shall seek DISTRICT's prior written approval of such activity or use in accordance with the procedure set forth in Section 6.2. The exercise of any activity or use not expressly reserved in Section 5 may constitute a breach of this Easement and may be subject to the provisions of Section 11.

7. Approvals. Whenever in this Easement the consent or approval of one party is required to an act of the other party, such consent or approval shall not be unreasonably withheld, conditioned or delayed.

8. Costs and Liabilities Related to the Property.

8.1 Maintenance of the Property. GRANTOR agrees to bear all costs and liabilities of any kind related to the operation, upkeep, and maintenance of the Property and does hereby indemnify and hold DISTRICT harmless therefrom. Without limiting the foregoing, GRANTOR agrees to pay any and all real property taxes, fees, exactions and assessments levied or imposed by local, state or federal authorities on the Property. GRANTOR shall be solely responsible for

any costs related to the maintenance of general liability insurance covering acts on the Property. Except as specifically set forth in Section 9.2 below, DISTRICT shall have no responsibility whatever for the operation of the Property, the monitoring of hazardous conditions thereon, or the protection of GRANTOR, the public, or any third parties from risks relating to conditions on the Property. Except as otherwise provided in Section 9.1, GRANTOR hereby agrees to indemnify and hold DISTRICT harmless from and against any damage, liability, claim, or expense, including attorneys' fees, relating to such matters.

8.2 Hazardous Materials.

8.2.1 No District Obligation or Liability. Notwithstanding any other provision of this Easement to the contrary, the parties do not intend and this Easement shall not be construed such that it creates in DISTRICT or the Conservancy:

a) The obligations or liabilities of an "owner" or "operator" as those words are defined and used in environmental laws, as defined below, including, but not limited to, the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended (42 United States Code, sections 9601 et seq.) ("CERCLA");

b) The obligations or liabilities of a person described in 42 United States Code section 9607(a)(3) or any successor statute then in effect;

c) The right to investigate and remediate any hazardous materials, as defined below, on or associated with the Property; or

d) Any control over GRANTOR's ability to investigate and remediate any hazardous materials, as defined below, on or associated with the Property.

8.2.2 Warranty of Compliance. GRANTOR represents, warrants, and covenants to DISTRICT that GRANTOR's use of the Property shall comply with all environmental laws, as defined below.

8.2.3 Definitions. For the purposes of this Easement:

a) The term "hazardous materials" includes, but is not limited to, any flammable explosives, radioactive materials, hazardous materials, hazardous wastes, hazardous or toxic substances, or related materials defined in CERCLA, the Hazardous Materials Transportation Act, as amended (49 United States Code sections 1801 et seq.), the Resource Conservation and Recovery Act of 1976, as amended (42 United States Code sections 6901 et seq.), sections 25117 and 25316 of the California Health & Safety Code, and in the regulations adopted and publications promulgated pursuant to them, or any other federal, state, or local environmental laws, ordinances, rules, or regulations concerning the environment, industrial hygiene or public health or safety now in effect or enacted after this date of this Easement.

b) The term "environmental laws" includes, but is not limited to, any federal, state, local or administrative agency statute, regulation, rule, ordinance, order or requirement relating to environmental conditions or hazardous materials.

9. Indemnification.

9.1 GRANTOR's Indemnity. GRANTOR shall hold harmless, indemnify, and defend DISTRICT, its agents, employees, volunteers, successors and assigns, and the State of California from and against all damages, liabilities, claims and expenses, including reasonable attorneys' fees, arising from or in any way connected with (i) injury to or the death of any person, or physical damage to any property resulting from any act, omission, condition or other matter related to or occurring on or about the Property, except to the extent that such damage, liability, claim or expense is the result of the negligence, gross negligence, or intentional misconduct of DISTRICT (it being the intent of this provision to limit GRANTOR's indemnity to the proportionate part of DISTRICT's damage, liability, claim or expense for which GRANTOR is responsible); and (ii) the obligations specified in Section 8. In the event of any claim, demand, or legal complaint against DISTRICT, the right to the indemnification provided by this Section 9.1 shall not apply to any cost, expense, penalty, settlement payment, or judgment, including attorneys' fees, incurred prior to DISTRICT's written notice of such claim, demand, or legal complaint to GRANTOR, unless GRANTOR has acquired knowledge of the matter by other means, nor to any costs, expenses, or settlement payment, including attorneys' fees, incurred subsequent to that notice unless such cost, expense, or settlement payment shall be approved in writing by GRANTOR, which approval shall not be unreasonably withheld.

9.2 DISTRICT's Indemnity. DISTRICT shall hold harmless, indemnify, and defend GRANTOR, its heirs, devisees, successors and assigns, from and against all damages, liabilities, claims and expenses, including reasonable attorneys' fees, arising from or in any way connected with injury to or the death of any person, or physical damage to any property, resulting from any act, omission, condition, or other matter related to or occurring on or about the Property and attributable to DISTRICT, except to the extent that such damage, liability, claim or expense is the result of the negligence, gross negligence, or intentional misconduct of GRANTOR (it being the intent of this provision to limit DISTRICT's indemnity to the proportionate part of GRANTOR's damage, liability, claim or expense for which DISTRICT is responsible). In the event of any claim, demand, or legal complaint against GRANTOR, the right to the indemnification provided by this Section 9.2 shall not apply to any cost, expense, penalty, settlement payment, or judgment, including attorneys' fees, incurred prior to GRANTOR's written notice of such claim, demand, or legal complaint to DISTRICT, nor to any costs, expenses, or settlement payment, including attorneys' fees, incurred subsequent to that notice unless such cost, expense, or settlement payment shall be approved in writing by DISTRICT, which approval shall not be unreasonably withheld. DISTRICT hereby also agrees to hold harmless, indemnify and defend GRANTOR from and against all damages, liabilities, claims and expenses, including attorneys' fees, asserted against GRANTOR by any officer, agent, employee, or volunteer of DISTRICT, for personal injury and/or property damage arising out of any inspection or visit to the Property by any such officer, agent, employee or volunteer acting on behalf of DISTRICT, except to the extent that such injury is attributable to the negligence, intentional act or willful misconduct of GRANTOR.

10. Baseline Documentation for Enforcement. In order to establish the present condition of the Property, DISTRICT has prepared a Baseline Documentation Report which will be maintained on file with DISTRICT and which is intended to serve as an objective information baseline for monitoring compliance with the terms of this Easement. A copy of the Baseline Documentation Report has been provided to GRANTOR. The parties agree that the Baseline Documentation Report provides an accurate representation of the Property at the time of the execution of this Easement.

11. Remedies for Breach.

11.1 DISTRICT's Remedies. In the event of a violation or threatened violation by GRANTOR of any term, condition or restriction contained in this Easement, DISTRICT may, following notice to GRANTOR, institute a suit to enjoin and/or recover damages for such violation and/or to require the restoration of the Property to the condition that existed prior to such violation. The DISTRICT's notice to GRANTOR shall contain a general description of the condition claimed by DISTRICT to be a violation and shall contain a reasonable and specific cure period by which the violation is to cease and the Property is to be restored to the condition that existed prior to the violation. The notice shall be provided in accordance with Section 19. If DISTRICT reasonably determines that circumstances require immediate action to prevent or mitigate significant damage to the Conservation Values protected by this Easement, DISTRICT (a) may pursue any and all remedies available under law without waiting for the cure period to expire, and (b) shall have the right, upon the giving of 24 hours' notice, to enter the Property for the purpose of assessing damage or threat to the Conservation Values protected by this Easement and determining the nature of curative or mitigation actions that should be taken. DISTRICT's rights under this Section 11 shall apply equally in the event of either actual or threatened violations of the terms of this Easement. GRANTOR agrees that DISTRICT's remedies at law for any violation of the terms of this Easement are inadequate and that DISTRICT shall be entitled to the injunctive relief described herein, both prohibitive and mandatory and including specific performance, in addition to such other relief, including damages, to which DISTRICT may be entitled, without the necessity of proving either actual damages or the inadequacy of otherwise available legal remedies.

11.2 DISTRICT's Discretion. Enforcement of the terms of this Easement shall be at the sole discretion of DISTRICT, and any forbearance by DISTRICT to exercise its rights under this Easement in the event of any violation or threatened violation of any term of this Easement shall not be deemed or construed to be a waiver by DISTRICT of such term or of any subsequent violation or threatened violation of the same or any other term of this Easement. Any failure by DISTRICT to act shall not be deemed a waiver or forfeiture of DISTRICT's right to enforce any term, condition, or covenant of this Easement in the future.

11.3 Liquidated Damages. Inasmuch as the actual damages that would result from the loss or deprivation of the Conservation Values of the Property caused by a violation or threatened violation by GRANTOR of the terms of this Easement are uncertain and would be impractical or extremely difficult to measure, GRANTOR and DISTRICT agree that the damages allowed by Civil Code section 815.7(c) shall be measured as follows:

a) For an improvement prohibited by this Easement, an amount equal to the product of (i) the market value of the improvement, (ii) the length of time that the improvement exists on the Property (in terms of years or portion thereof), and (iii) the then current annual interest rate for post judgment interest; and

b) For an activity or change in use prohibited by this Easement, whether or not it involves an improvement, an amount equal to any economic gain realized by GRANTOR because of the activity or change in use; and

c) For an activity or change in use prohibited by this Easement, whether or not it involves an improvement and where there is no measurable economic gain realized by GRANTOR, the product of (i) the cost of restoration, as set forth in a written estimate by a qualified person selected by DISTRICT, (ii) the length of time that the prohibited activity or use continues (in terms of years or portion thereof), and (iii) the then current annual interest rate for post judgment interest.

11.4 GRANTOR's Compliance. If DISTRICT, in the notice to GRANTOR, demands that GRANTOR remove an improvement, discontinue a use or both and claims the damages allowed by Civil Code section 815.7(c), then GRANTOR may mitigate damages by fully complying with DISTRICT's notice within the cure period provided therein. If GRANTOR so complies, then in the event of litigation arising out of the notice, brought either by GRANTOR or by DISTRICT, if GRANTOR prevails, then GRANTOR shall be entitled to economic damages, if any, resulting from its compliance with DISTRICT's notice. Neither DISTRICT nor GRANTOR shall be entitled to damages where DISTRICT has not claimed damages in its notice.

11.5 Remedies Nonexclusive. The remedies set forth in this Section 11 are in addition to, and are not intended to displace, any other remedy available to either party as provided by this Easement, Civil Code sections 815 et seq. or any other applicable local, state or federal law.

11.6 Existing Conditions. There are one or more existing Notices of Violation issued by the County of Sonoma relating to structures or improvements on the Property, and fencing, trenching and piping was installed at the Property without permits. GRANTOR shall abate, remedy or legalize these conditions with reasonable diligence after this Easement is recorded.

12. Acts Beyond GRANTOR's Control. Nothing contained in this Easement shall be construed to entitle DISTRICT to bring any action against GRANTOR for any injury to or change in the Property resulting from causes beyond GRANTOR's control, including, but not limited to, fire, flood, storm, and earth movement, or a tortious or criminal act of a third party which GRANTOR could not have prevented, or from any prudent action taken by GRANTOR under emergency conditions to prevent, abate, or mitigate significant injury to the Property resulting from such causes so long as such action, to the extent that GRANTOR has control, is designed and carried out in such a way as to further the Conservation Purpose of this Easement.

13. Arbitration. If a dispute arises between the parties concerning the consistency of any activity or use, or any proposed activity or use, with the terms, conditions or Conservation Purpose of this Easement, or any other matter arising under or in connection with this Easement

or its interpretation, either party, with the written consent of the other, may refer the dispute to arbitration by a request made in writing upon the other. Provided that GRANTOR agrees not to proceed with any activity or use that is the subject of the dispute pending resolution of the dispute, the parties shall select a single arbitrator to hear the matter. If the parties are unable to agree on the selection of a single arbitrator, then each party shall name one arbitrator and the two arbitrators thus selected shall select a third arbitrator who shall be a retired United States District Court or California Superior Court judge; provided, however, if either party fails to select an arbitrator within fourteen (14) days of delivery of the request for arbitration, or if the two arbitrators fail to select a third arbitrator within fourteen (14) days after the appointment of the second arbitrator, then in each such instance, a proper court, on petition of any party, shall appoint the second or third arbitrator or both, as the case may be, in accordance with California Code of Civil Procedure sections 1280 et seq., or any successor statutes then in effect. The arbitration shall be conducted in accordance with said statute, including, without limitation, the provisions of Section 1283.05 of the Code of Civil Procedure which are incorporated into, made a part of, and made applicable to any arbitration pursuant to this Section. The Conservation Purpose of this Easement, the terms and conditions of this Easement, and the applicable laws of the State of California shall be the bases for determination and resolution, and a judgment of the arbitration award may be entered in any court having jurisdiction thereof. The prevailing party shall be entitled, in addition to such other relief as may be granted, to a reasonable sum as and for all its costs and expenses related to such arbitration, including, but not limited to, the fees and expenses of the arbitrators, but excluding attorneys' fees, which sum shall be determined by the arbitrators and any court of competent jurisdiction that may be called upon to enforce or review the award. That is, each side shall bear its own attorneys' fees.

14. Extinguishment and Condemnation.

14.1. Extinguishment. Subject to the requirements and limitations of California Public Resources Code section 5540, or successor statute then in effect, if circumstances arise in the future that render the Conservation Purpose of this Easement impossible to accomplish, this Easement can only be terminated or extinguished, whether in whole or in part, by judicial proceedings in a court of competent jurisdiction, and the amount of the compensation to which DISTRICT shall be entitled from any sale, exchange or involuntary conversion of all or any portion of the Property after such termination or extinguishment, shall be determined, unless otherwise provided by California law at the time, in accordance with Section 14.2. If, pursuant to this section, the DISTRICT is entitled to receive any proceeds, the District shall provide the Conservancy a share of the proceeds proportionate with its contribution towards the purchase price of this Conservation Easement. The rest of the proceeds paid to DISTRICT shall be used by DISTRICT for the purpose of the preservation of agriculture and open space within Sonoma County.

14.2 Property Interest and Fair Market Values. This Easement constitutes a real property interest immediately vested in DISTRICT. For the purpose of this Section 14, the parties stipulate that the fair market value of the Easement at the time of extinguishment or condemnation (hereinafter "Easement Value') shall be determined by multiplying (i) the fair market value of the Property, unencumbered by the Easement, at the time of extinguishment or condemnation (minus any increase in value attributable to improvements made on the Property after the date of this Easement) (hereinafter "Unencumbered Property Value") by (ii) the ratio of

the value of the Easement at the time of this grant to the value of the Property, unencumbered by the Easement, at the time of this grant. The values at the time of this grant shall be those values established by GRANTOR's qualified appraisal (prepared in accordance with applicable Treasury Regulations) for federal income tax purposes. The ratio of the Easement Value to the Unencumbered Property Value shall remain constant, and on a subsequent sale, exchange, or involuntary conversion of all or any portion of the Property pursuant to the provisions of Sections 14.1 or 14.3, DISTRICT shall be entitled to a portion of the proceeds equal to such proceeds multiplied by the ratio of the Easement Value to the Unencumbered Property Value. For purposes of calculations under this Section, "improvements made on the Property after the date of this Easement" shall not include improvements made or funded by DISTRICT or improvements that constitute a breach of this Easement.

14.3 Condemnation. If all or any part of the Property is taken by exercise of the power of eminent domain or acquired by purchase in lieu of condemnation; whether by public, corporate, or other authority, so as to terminate this Easement in whole or in part, either GRANTOR or DISTRICT (or both, on such conditions as they may agree) may commence appropriate actions to recover the full value of the Property (or portion thereof) subject to the condemnation or in-lieu purchase and all direct or incidental damages resulting therefrom. Any expense incurred by GRANTOR or DISTRICT in any such action shall first be reimbursed out of the recovered proceeds; the remainder of such proceeds shall be divided between GRANTOR and DISTRICT in proportion to their interests in the Property, as established by Section 14.2. If, pursuant to this section, the DISTRICT is entitled to receive any proceeds, the District shall provide the Conservancy a share of the proceeds proportionate with its contribution towards the purchase price of this Easement.

PART FOUR: MISCELLANEOUS

15. Interpretation and Construction. To the extent that this Easement may be uncertain or ambiguous such that it requires interpretation or construction, then it shall be interpreted and construed in such a way that best promotes the Conservation Purpose of this Easement.

16. Easement to Bind Successors. The Easement herein granted shall be a burden upon and shall continue as a restrictive covenant and equitable servitude running in perpetuity with the Property and shall bind GRANTOR, GRANTOR's heirs, personal representatives, lessees, executors, successors, including but not limited to purchasers at tax sales, assigns, and all persons claiming under them forever. The parties intend that this Easement shall benefit and burden, as the case may be, their respective successors, assigns, heirs, executors, administrators, agents, officers, employees, and all other persons claiming by or through them pursuant to the common and statutory law of the State of California. Further, the parties agree and intend that this Easement creates an easement encompassed within the meaning of the phrase "easements constituting servitudes upon or burdens to the property," as that phrase is used in California Revenue & Taxation Code section 3712(d), or any successor statute then in effect, such that a purchaser at a tax sale will take title to the Property subject to this Easement.

17. Subsequent Deeds and Leases. GRANTOR agrees that a clear reference to this Easement will be made in any subsequent deed, or other legal instrument, by means of which any

interest in the Property (including, but not limited to, a leasehold interest) is conveyed and that GRANTOR will attach a copy of this Easement to any such instrument. GRANTOR further agrees to give written notice to DISTRICT of the conveyance of any interest in the Property at least ten (10) days prior to any such conveyance. These obligations of GRANTOR shall not be construed as a waiver or relinquishment by DISTRICT of rights created in favor of DISTRICT by Section 16 of this Easement and the failure of GRANTOR to perform any act required by this Section 17 shall not impair the validity of this Easement or limit its enforceability in any way.

18. Warranty of Ownership. GRANTOR warrants that it is the owner in fee simple of the Property, and that on the date it executed this Easement the Property is not, subject to any deeds of trust.

19. Notices.

19.1 Method of Delivery. Except as otherwise expressly provided herein, all notices, (including requests, demands, approvals or communications) under this Easement shall be in writing and either served personally or sent by first class mail, postage prepaid, private courier or delivery service or telecopy addressed as follows:

To GRANTOR: Joseph Bordessa and Alfred Bordessa
PO Box 751254
Petaluma, CA 94975

To DISTRICT: General Manager
Sonoma County Agricultural Preservation and Open Space District
747 Mendocino Avenue, Suite 100
Santa Rosa, CA 95401

Or to such other address as either party from time to time shall designate by written notice pursuant to this Section 19.

19.2 Effect Date of Notice. Notice shall be deemed given for all purposes as follows:

a) When personally delivered to the recipient, notice is effective on delivery.

b) When mailed first class postage prepaid to the last address designated by the recipient pursuant to Section 19.1, notice is effective one day following the date shown on the postmark of the envelope in which such notice is mailed or, in the event the postmark is not shown or available, then one day following the date of mailing. A written declaration of mailing executed under penalty of perjury by the GRANTOR or DISTRICT or an officer or employee thereof shall be sufficient to constitute proof of mailing.

c) When mailed by certified mail with return receipt requested, notice is effective on receipt as confirmed by the return receipt.

d) When delivered by overnight delivery with charges prepaid or charged to the sender's account, notice is effective on delivery as confirmed by the delivery service.

e) When sent by telex or fax to the last telex or fax number of the recipient known to the party giving notice, notice is effective on receipt as long as (i) a duplicate copy of the notice is promptly given by first-class or certified mail or by overnight delivery or (ii) the receiving party delivers a written confirmation of receipt. Subject to the foregoing requirements, any notice given by telex or fax shall be considered to have been received on the next business day if it is received after 5 p.m. (recipient's time) or on a non-business day.

19.3 Refused or Undeliverable Notices. Any correctly addressed notice that is refused or undeliverable because of an act or omission of the party to be notified shall be considered to be effective as of the first date that the notice was refused, unclaimed, or considered undeliverable by the postal authorities, messenger, or overnight delivery service.

20. Amendment. If circumstances arise under which an amendment or modification of this Easement would be appropriate, GRANTOR and DISTRICT shall be free to jointly amend this Easement, provided that any amendment shall be consistent with the Conservation Purpose of this Easement, shall ensure protection of the Conservation Values of the Property, and shall not affect the Easement's perpetual duration and further provided that the Conservancy provides its prior written consent to the amendment. Any such amendment shall be in writing, executed by GRANTOR and DISTRICT, and recorded in the Office of the Sonoma County Recorder.

21. No Forfeiture. Nothing contained in this Easement shall result in a forfeiture or reversion of GRANTOR's title in any respect.

22. Termination of Rights and Obligations. A party's rights and obligations under this Easement shall terminate upon transfer of the party's interest in the Property, except that liability for acts or omissions occurring prior to transfer shall survive transfer.

23. Enforceable Restriction. This Easement and each and every term contained herein is intended for the benefit of the public and constitutes an enforceable restriction pursuant to the provisions of Article XIII, section 8 of the California Constitution, California Public Resources Code section 5540, and California Revenue and Taxation Code section 420 et seq., or any successor constitutional provisions or statutes then in effect.

24. Applicable Law and Forum. This Easement shall be construed and interpreted according to the substantive law of California, excluding the law of conflicts. Any action to enforce the provisions of this Easement or for the breach thereof shall be brought and tried in the County of Sonoma.

25. Pronoun Number and Gender. Whenever used herein, unless the provision or context otherwise requires, the singular number shall include the plural and the plural the singular, and the masculine gender shall include the feminine and neuter.

26. GRANTOR and DISTRICT. Wherever used herein, the terms GRANTOR, and any pronouns used in place thereof, shall mean and include the above-named GRANTOR and its heirs, lessees, executors, successors, and assigns, including any persons claiming under them. Wherever used herein, the terms DISTRICT, and any pronouns used in place thereof, shall mean and include the above-named DISTRICT, and its successors and assigns.

27. DISTRICT's General Manager. Wherever used herein, the term DISTRICT's General Manager, and any pronoun used in place thereof, shall mean and include the General Manager of DISTRICT and his duly authorized representatives.

28. Fees and Charges. DISTRICT shall have the right to establish and impose reasonable fees and charges on GRANTOR for inspections, approvals, and other services performed by DISTRICT pursuant to this Easement. Such fees and charges shall not exceed the reasonable costs of providing such services.

29. Entire Agreement. This instrument sets forth the entire agreement of the parties with respect to this Easement and supersedes all prior discussions, negotiations, understandings, or agreements relating to this Easement, all of which are merged herein. No alteration or variation of this instrument shall be valid or binding unless contained in a written amendment prepared, executed and recorded in accordance with Section 20.

30. Severability. In the event any provision of this Easement is determined by the appropriate court to be void and unenforceable, all remaining terms and conditions shall remain valid and binding. If the application of any provision of this Easement is found to be invalid or unenforceable as to any particular person or circumstance, the application of such provisions to persons or circumstances, other than those as to which it is found to be invalid, shall not be affected thereby.

31. Estoppel Certificates. DISTRICT shall, at any time during the existence of this Easement, upon not less than thirty (30) days' prior written notice from GRANTOR, execute and deliver to GRANTOR a statement in writing certifying that this Easement is unmodified and in full force and effect (or, if modified, stating the date of execution and date of recording of the respective amendment) and acknowledging that there is not, to DISTRICT's knowledge, any default by GRANTOR hereunder, or, if DISTRICT alleges a default by GRANTOR, specifying such default. DISTRICT's obligation to deliver the statement of certification is conditioned on GRANTOR's reimbursing DISTRICT for all costs and expenses reasonably and necessarily incurred in its preparation as determined by DISTRICT's General Manager.

32. Execution. GRANTOR shall execute this Easement, cause the same to be acknowledged, and deliver said executed and acknowledged instrument to DISTRICT in such form as to permit its acceptance by DISTRICT and recordation in the Office of the Sonoma County Recorder.

33. No Liens, Encumbrances, or Conveyances. GRANTOR warrants that after it has executed this Easement, it will not record any lien, encumbrance, or otherwise convey any right, title, or interest in and to the Property until such time as this Easement has been accepted and recorded by DISTRICT.

34. Effective Date. This Easement shall be effective as of the date of its acceptance by DISTRICT pursuant to California Public Resources Code sections 5500 et seq.

35. Third Party Beneficiary/Assignment. The Conservancy is a third party beneficiary of this Easement. This Easement was acquired by District pursuant, in part, to a grant of funds from the Conservancy, for the purpose of preserving the open space, natural resource, scenic, and agricultural values of the Property, and no use of the Property inconsistent with that purpose is permitted, except by specific act of the California Legislature. DISTRICT shall regularly monitor the condition of the Property and the uses and practices on the Property to determine consistency with the purpose and terms of this Easement. DISTRICT shall take all reasonable steps to ensure the safety and health of any persons, whether professionals, staff members, or volunteers, who enter the Property for the purposes of monitoring.

Upon a finding by the Conservancy at a noticed public hearing and supported by clear and convincing evidence, following written notice to the DISTRICT and the GRANTOR and a reasonable opportunity to cure, that any of the essential terms of this Easement have been violated; or that the existence of DISTRICT has terminated for any reason prior to an assignment of DISTRICT's interest in the Easement in compliance with this Easement; then DISTRICT's right, title, and interest in this Easement shall automatically vest in the State of California for the benefit of the Conservancy or its successor, upon acceptance of the Easement and compliance with any legal requirements related to acceptance; provided, however that the State, through the Executive Officer of the Conservancy, or its successor, may designate another public agency or a nonprofit organization to accept the right, title and interest, in which case vesting shall be in that agency or organization rather than in the State. For purposes of this Section 35 the "essential terms of this Easement" are those set forth in Sections 4.2, 5.2, 8.2.1, 9.1, 14.1, 14.3, 20, and 35.

The DISTRICT may not assign this Easement without obtaining the prior written consent of the State of California through the Executive Officer of the Conservancy or its successor. Any assignment without such consent shall be void and of no effect. Such consent shall not be unreasonably withheld. This Easement (including any portion or interest in it) may not be used as security for any debt without the written approval of the DISTRICT and the State of California, acting through the Executive Officer of the Conservancy, or its successor.

IN WITNESS WHEREOF, GRANTOR and DISTRICT have executed this Easement this 8th day of May, 2012.

GRANTOR:

By: _____

Joseph Bordessa, as Successor Co-Trustee of the Bruno Bordessa and Dorothy Bordessa Revocable Intervivos Trust (created by Declaration of Trust dated June 12, 2000

By: _____
Alfred Bordessa, as Successor Co-Trustee of the Bruno Bordessa and Dorothy Bordessa Revocable Intervivos Trust (created by Declaration of Trust dated June 12, 2000

DISTRICT:

SONOMA COUNTY AGRICULTURAL PRESERVATION AND OPEN SPACE DISTRICT

By _____
President of the Board of Directors

ATTEST:

Veronica A. Ferguson by M. Arellano
_____, County Clerk of the Board of Directors

DEED AND AGREEMENT

State of California)
County of Sonoma)

On May 8, 2012 before me,
Kathy Nelsen, Notary Public (here insert name and title of the officer),
personally appeared Joseph Bordessa and Alfred Bordessa,
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____ (Seal)



CERTIFICATE OF ACCEPTANCE
(Government Code Section 27281)
OF REAL PROPERTY BY THE
BOARD OF DIRECTORS OF THE
SONOMA COUNTY AGRICULTURAL PRESERVATION
AND OPEN SPACE DISTRICT

This is to certify that the interests in real property conveyed by the Conservation Easement Agreement dated May 8, 2012, Alfred Bordessa and Joseph Bordessa, as Successor Trustees of the Bruno Bordessa and Dorothy Bordessa Revocable Intervivos Trust, created by Declaration of Trust dated June 12, 2002, to the Sonoma County Agricultural Preservation and Open Space District, a governmental agency formed pursuant to the provisions of Public Resources Code Section 5506.5, is hereby accepted by the President of the Board of Directors on behalf of the District pursuant to the authority conferred by Resolution No. 12-0129 of the Board of Directors, dated March 27, 2012 and the District consents to the recording thereof by its duly authorized officer.

Sonoma County Agricultural Preservation
and Open Space District

Dated: 5-8-12

By: _____
Shirlee Zane, President
Board of Directors

ATTEST:

Veronica A. Ferguson by M. Arellano
Clerk of the Board of Directors

CALIFORNIA ALL-PURPOSE CERTIFICATE OF ACKNOWLEDGMENT

State of California

County of Sonoma

On May 8, 2012 before me, Sandra L. Faus Notary Public,
(Here insert name and title of the officer)

personally appeared Shirlee Zane,

who proved to me on the basis of satisfactory evidence to be the person~~(s)~~ whose name~~(s)~~ is/~~are~~ subscribed to the within instrument and acknowledged to me that ~~he~~/she/~~they~~ executed the same in ~~his~~/her/~~their~~ authorized capacity~~(ies)~~, and that by ~~his~~/her/~~their~~ signature~~(s)~~ on the instrument the person~~(s)~~, or the entity upon behalf of which the person~~(s)~~ acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Sandra L Faus
Signature of Notary Public

SANDRA L. FAUS
Commission # 1957686
Notary Public - California
Sonoma County
My Comm. Expires Oct 22, 2015

(Notary Seal)

ADDITIONAL OPTIONAL INFORMATION

DESCRIPTION OF THE ATTACHED DOCUMENT

Deed & Agreement
(Title or description of attached document)

Bordessa
(Title or description of attached document continued)

Number of Pages 26 Document Date 5/8/12

SCAPOSD
(Additional information)

CAPACITY CLAIMED BY THE SIGNER

- ☐ Individual (s)
- ☐ Corporate Officer

(Title)

- ☐ Partner(s)
- ☐ Attorney-in-Fact
- ☐ Trustee(s)
- ☑ Other Board Chair

INSTRUCTIONS FOR COMPLETING THIS FORM

Any acknowledgment completed in California must contain verbiage exactly as appears above in the notary section or a separate acknowledgment form must be properly completed and attached to that document. The only exception is if a document is to be recorded outside of California. In such instances, any alternative acknowledgment verbiage as may be printed on such a document so long as the verbiage does not require the notary to do something that is illegal for a notary in California (i.e. certifying the authorized capacity of the signer). Please check the document carefully for proper notarial wording and attach this form if required.

- State and County information must be the State and County where the document signer(s) personally appeared before the notary public for acknowledgment.
- Date of notarization must be the date that the signer(s) personally appeared which must also be the same date the acknowledgment is completed.
- The notary public must print his or her name as it appears within his or her commission followed by a comma and then your title (notary public).
- Print the name(s) of document signer(s) who personally appear at the time of notarization.
- Indicate the correct singular or plural forms by crossing off incorrect forms (i.e. ~~he/she/they~~, is /~~are~~) or circling the correct forms. Failure to correctly indicate this information may lead to rejection of document recording.
- The notary seal impression must be clear and photographically reproducible. Impression must not cover text or lines. If seal impression smudges, re-seal if a sufficient area permits, otherwise complete a different acknowledgment form.
- Signature of the notary public must match the signature on file with the office of the county clerk.
  - Additional information is not required but could help to ensure this acknowledgment is not misused or attached to a different document.
  - Indicate title or type of attached document, number of pages and date.
  - Indicate the capacity claimed by the signer. If the claimed capacity is a corporate officer, indicate the title (i.e. CEO, CFO, Secretary).
- Securely attach this document to the signed document

Escrow No.: 12-**490119808Z**-KN
Locate No.: CAFNT0949-0949-0001-490119808Z
Title No.: 12-**490119808Z**

EXHIBIT "A"

The land referred to herein is situated in the State of California, County of Sonoma, Unincorporated Area, and is described as follows:

All of that certain land lying and being in Townships 5 and 6 North, Range 10 West, M.D.M., in the County of Sonoma, State of California , and particularly described as follows:

BEGINNING at a point in the center of the County road leading from Valley Ford to Bodega Bay at the Southwest corner of that certain 634.12 acre tract of land shown and designated upon the plat entitled "Map of survey made for heirs of Hollis Hitchcock in Rancho Estero Americano and Rancho Canada De Pogolimi", said Plat being on file in Book 16 of Maps, page 11, Sonoma County Records, said point of beginning is further described as bearing South 30.0 feet from a granite monument marked "L 12", thence from said point of beginning S. 76° 35'W. along the center line of said County Road 579.4 feet to a point from which an iron pipe monument bears S. 21° 37' W. 30.3 feet; thence S.21° 37'W. 4762.2 feet to a point on the line of high tide of the Estero Americano, and from which an iron pipe monument bears N. 21°37'E.20.0 feet; thence Westerly along the northerly bank of said Estero Americano following the meanderings of the line of high tide to a point from which an iron pipe monument bears N.7° 53'E.23.0 feet; thence leaving the line of high tide N.7°53'E.2589.0 feet; thence N.7° 42'E. 1943.8 feet; thence N. 8° 01'E. 2270.7 feet; thence N.7° 47' E. 974.3 feet to a point in the center of the heretofore mentioned County Road; thence in a southeasterly direction along the center of said County Road to the point of beginning.

EXCEPTING THEREFROM, the following land described as follows:

A tract of land in the Rancho Estero Americano, in Townships 5 and 6 North, Range 10 West, M.D.M., and particularly described as follows:
BEGINNING at a point in the center of the county road leading from Valley Ford to Bodega Bay at the Southwest corner of that certain 634.12 acre tract of land shown and designated upon the plat entitled "Map of survey made for heirs of Hollis Hitchcock in Rancho Estero Americano and Rancho Canada De Pogolimi", said Plat being on file in Book 16 of Maps, page 11, Sonoma County Records, said point of beginning is further described as bearing South 30.0 feet and S36° 35W.579.40 feet from a granite monument marked "L12"; thence from said point of beginning along the center line of said road, N76°40'40" W.2713.74 feet and N.57°42'W.370.747 feet; thence leaving said roadway, S.12°25'14" W.896.094 feet, S.13°21'39"W.287.985 feet, S.74°32'30"E. 1199.43 feet, S.28°55'17"W.795.94 feet, S.27°20'19"W.177.028 feet, S.28°38'W.419.78 feet, S.44°26'30"W.186.55 feet, S.27°34'30"W.160.87 feet, S.5°04'30"W.124.74 feet, S.23°18'30"W.138.05 feet, S.32°52'W.272.42 feet, S.39°30'30"W.123.80 feet, S.49°56'W.140.54 feet, S.58°22'W.285.09 feet, S73°05'30"W.45.32 feet and S.60°08'W.20.604 feet to a point on the line of high tide of the Estero Americano; thence along said high water line, S.43°34'E.67.399 feet, S.45°23'W.264.4 feet, S.6°04'E.200.0 feet, S.23°16'E.345.0 feet, S.51°17'E.607.1 feet, S.54°19E.416.4 feet, S.86°56'E.561.0 feet and S.84°35'E.504.8 feet to a point which bears S.21°37'W.4762.2 feet from the point of beginning; thence N.21°37'E.4762.2 feet to the point of beginning.

APN: 026-030-011

BORDESSA RANCH CONSERVATION EASEMENT

BASELINE DOCUMENTATION

ATTACHMENT 2
TRAIL EASEMENT

2012049983
OFFICIAL RECORDS OF
SONOMA COUNTY
JANICE ATKINSON
13 PGS
FIDELITY NAT'L TITLE CO.
05/25/2012 08:00 DEED
RECORDING FEE: $0.00
PAID

RECORDING REQUESTED BY AND RETURN TO:

Sonoma County Agricultural
Preservation and Open Space District
575 Administration Drive, Room 102A
Santa Rosa, CA 95403

Free Recording per Gov't Code Sec 6103

APN 026-030-011

TRAIL EASEMENT

Alfred Bordessa and Joseph Bordessa, as Successor Trustees of the Bruno Bordessa and Dorothy Bordessa Revocable Intervivos Trust (created by Declaration of Trust dated June 12, 2000) (hereafter referred to as "GRANTOR") hereby grants a public trail easement to the Sonoma County Agricultural Preservation and Open Space District, a public agency formed pursuant to the provisions of Public Resources Code sections 5500 et seq. ("DISTRICT"), as follows:

RECITALS

A. GRANTOR is the owner in fee simple of that certain real property located in Sonoma County and more particularly described in Exhibit A, attached hereto and incorporated herein by this reference ("the Property").

B. The Property possesses significant value as a recreational, educational, public access, open space, and scenic resource for the general public.

C. When properly managed, public recreational use of the Property is compatible with the sensitive natural resources and agriculture on the Property.

D. On March 27, 2012, DISTRICT's Board of Directors, pursuant to Government Code section 65402 and Sonoma County Ordinance No. 5180, determined, by its Resolution No. 12-0129, that the acquisition of a trail easement in the Property was consistent with the Sonoma County General Plan (specifically the Plan's Open Space Element) and with the District's voter-approved Expenditure Plan.

E. DISTRICT has the authority to acquire trail easements by virtue of Public Resources Code section 5540 and possesses the ability and intent to enforce the terms of this trail easement.

F. Concurrently with the recordation of this trail easement, GRANTOR is conveying a conservation easement and assigning development rights to the DISTRICT with respect to the Property. Design and construction of the trails and staging areas outlined in this public trail easement shall be consistent with the terms, conditions and purpose of the conservation easement.

G. The parties anticipate that the DISTRICT will either designate an Operating Entity as provided in Section 4, or assign this trail easement in whole to a qualified organization as permitted in Section 12.

H. The recordation of this trail easement is a condition of Grant No. 11-063 to the DISTRICT from the State Coastal Conservancy ("Conservancy"), an agency of the State of California charged under Division 21 of the Public Resources Code with protecting and enhancing the resources of the coast and the San Francisco Bay area, and providing public access to them. Grant No. 11-063 provides funding for the District's acquisition of the Conservation Easement.

EASEMENT

1. Grant and Acceptance of Trail Easement. Pursuant to the common and statutory law of the State of California, GRANTOR hereby grants to DISTRICT and DISTRICT accepts a trail easement in the Property in perpetuity ("the Trail Easement") under the terms and conditions set forth herein.

2. Purpose. The purpose of this Trail Easement (hereinafter referred to as the "Public Access Purpose") is to assure that the Staging Areas and Trail Corridors, as defined below, will be established and made available to the public in perpetuity for low-intensity public outdoor recreational and educational purposes, defined as dispersed, nonexclusive, and non-motorized activities that do not adversely impact the natural resources or agriculture on the Property. Uses may include hiking, nature study, bird watching, sightseeing, picnicking, outdoor education, docent-led tours, scientific research and observation, limited seasonal access to the Estero Americano for recreational uses such as kayaking and canoeing, and other such uses similar in nature and intensity.

3. Staging Areas, Trail Corridors and Access. The Trail Easement shall include, within the boundaries of the Property, two trail corridors, each fifty (50) feet in width ("Trail Corridors"), two staging areas, ("Staging Areas"), and use of the main access road, or replacement road in a similar location ("Access Road"), the existing bridge, or a replacement bridge in the same or similar location ("Access Bridge"), and the entrance gate to the Property, or a replacement gate in the same or similar location ("Access Gate"), as shown on Exhibit B, attached hereto and incorporated herein by this reference. As of the date of execution of this Trail Easement, the precise length and location of each of the Trail Corridors and the size and locations of the Staging Areas have not yet been determined. The DISTRICT shall, in its sole discretion, after reasonable consultation with GRANTOR and the Conservancy, designate and survey the precise locations of the Trail Corridors and the Staging Areas. The DISTRICT shall, within two years of the effective date of this Trail Easement, execute, acknowledge, and record in Sonoma County a document styled "Bordessa Trail Easement: Designation of Trail Corridors and Staging Areas," in such form as may be required by law at the time of the recordation. The Trail Corridors and Staging Areas shall comply with the following criteria: Each Trail Corridor shall begin at a Staging Area. Each Staging Area shall be suitable for use by pedestrians, bicyclists and motor vehicles. At the sole discretion of DISTRICT, one Staging Area may be located near State Highway 1 and one Staging Area may be located within the interior of the Property, potentially in the pasture directly south of the 2-acre Agricultural Building Envelope, as shown on Exhibit B, with access from State Highway 1 on the Access Road. The combined total acreage of the two Staging Areas shall not exceed one and a half acres in size. Beyond the Staging Areas, each Trail Corridor shall be fifty feet in width and shall be restricted to pedestrian use only, except

as otherwise provided in this Trail Easement. Small bridges used only for public pedestrian use and trail and ranch operations and maintenance use, may be constructed, reconstructed and maintained, within the fifty (50) feet wide Trail Corridor. Cumulatively, the Trail Corridors may extend up to five (5) miles in length. At the DISTRICT's sole discretion, the Trail Corridors may be left unimproved or developed with an impervious surface. The Staging Areas and Trail Corridors shall not be placed within two hundred feet of the Residential Building Envelope on the Property. At a minimum, the Trail Corridors shall provide access from State Highway 1 to portions of the Property with vistas of the Estero Americano and surrounding lands. Walk-in access to the Estero Americano may be provided for pedestrians and hand-carried, non motorized boats, such as kayaks and canoes, if and to the extent that such access is determined by DISTRICT to be compatible with sensitive resources associated with the Estero Americano and the Property. No recreational structures or improvements of any kind shall be built in the "Forever Wild Area" or the "Natural Areas" on the Property, except that, at District's sole discretion, a segment of the Access Road, a segment of trail and a viewing area with related appurtenances, may be placed within the area designated as "Trail Corridor within Forever Wild Area and Natural Areas" on Exhibit B, if resource studies show that such location would minimize impacts to or enhance the resources of the Property. DISTRICT may place limitations on the nature, hours and season of public access to the Access Road, Access Bridge, Access Gate, Staging Areas and Trail Corridors, or portions thereof, as it deems appropriate for natural resource protection.

4. **Opening of Trail Corridors and Staging Areas.** Opening of the Trail Corridors and Staging Areas to public access is subject to the following restriction for the benefit and protection of the Property. Prior to opening any trails for public use, DISTRICT shall ensure that it or another public agency or nonprofit organization (the "Operating Entity") with sufficient assets, management capability, resources, and liability insurance to carry out the obligations hereunder, has accepted full responsibility for the operation and maintenance of the Trail Corridors and Staging Areas. Prior to designating the Operating Entity, the DISTRICT shall consult with and receive the written approval of the Conservancy regarding the choice of Operating Entity.

5. **Maintenance of Access Road, Access Bridge and Access Gate.** For a period of five (5) years after recordation of this Trail Easement, GRANTOR shall be solely responsible for maintenance of the Access Road, Access Bridge and Access Gate in a condition safe and serviceable for use of vehicles and equipment for development and construction of the Staging Areas and Trail Corridors, and for public access to the Staging Areas and Trail Corridors. Thereafter, GRANTOR and DISTRICT, or the Operating Entity, may enter into a maintenance agreement to provide for continued maintenance of the Access Road, the Access Bridge, and the Access Gate, and to allocate the costs of such maintenance, generally in proportion to use of the improvements by GRANTOR and the public.

6. **Trail Easement Inspections.** DISTRICT shall provide notice to the Conservancy of any periodic or other monitoring of the Trail Easement and copies of any written findings or reports; on request of the Conservancy, Conservancy staff shall be permitted to accompany the DISTRICT on any monitoring visit.

7. **Affirmative Rights of DISTRICT.** DISTRICT shall have the following rights under this Trail Easement:

7.1 Preservation. DISTRICT shall have the right to preserve and protect the Staging Areas and Trail Corridors to ensure that the Public Access Purpose of this Trail Easement is realized.

7.2 Trail Uses And Access. DISTRICT shall have the right to develop, maintain, operate, and use the Access Road, the Access Bridge, the Access Gate, Staging Areas, and Trail Corridors for Public Access Purposes. This development and use shall occur in accordance with all required governmental approvals and in strict compliance with this Trail Easement.

7.3 Improvements. DISTRICT may enter the Property to construct, install, operate, and maintain the Access Road, Access Bridge, Access Gate, trails, parking areas, small unlighted signs, footbridges, stairs, fences, toilets, trash cans, picnic tables, benches, vegetation, landscaping, and other facilities as necessary or appropriate for the safe and convenient use of the Staging Areas and Trail Corridors by the public. Any grading required for such improvements must be contained within the Trail Corridors, Staging Areas and Access Road.

7.4 Service Access. DISTRICT may use the Property for service vehicle, equestrian and pedestrian access when necessary for construction, operation, and maintenance of the Staging Areas and Trail Corridors, or for law enforcement, medical or other emergencies, or rescue.

7.5 Public Use. DISTRICT may allow and provide for public use, access, ingress and egress to the Staging Areas and Trail Corridors in a manner consistent with this Trail Easement.

8. Indemnification.

8.1 GRANTOR's Indemnity. GRANTOR shall hold harmless, indemnify, and defend DISTRICT, its agents, employees, volunteers, successors and assigns, and the State of California from and against all damages, liabilities, claims and expenses, including reasonable attorneys' fees, arising from or in any way connected with (i) injury to or the death of any person, or physical damage to any property resulting from any act, omission, condition or other matter related to or occurring on or about the Property, including the Staging Areas and Trail Corridors, except to the extent that such damage, liability, claim or expense is the result of the negligence, gross negligence, or intentional misconduct of DISTRICT (it being the intent of this provision to limit GRANTOR's indemnity to the proportionate part of DISTRICT's damage, liability, claim or expense for which GRANTOR is responsible). In the event of any claim, demand, or legal complaint against DISTRICT, the right to the indemnification provided by this Section 8.1 shall not apply to any cost, expense, penalty, settlement payment, or judgment, including attorneys' fees, incurred prior to DISTRICT's written notice of such claim, demand, or legal complaint to GRANTOR, unless GRANTOR has acquired knowledge of the matter by other means, nor to any costs, expenses, or settlement payment, including attorneys' fees, incurred subsequent to that notice unless such cost, expense, or settlement payment shall be approved in writing by GRANTOR, which approval shall not be unreasonably withheld.

8.2 DISTRICT's Indemnity. DISTRICT shall hold harmless, indemnify, and defend

GRANTOR, its heirs, devisees, successors and assigns, from and against all damages, liabilities, claims and expenses, including reasonable attorneys' fees, arising from or in any way connected with injury to or the death of any person, or physical damage to any property, resulting from any act, omission, condition, or other matter related to or occurring on or about the Property, including the Staging Areas and Trail Corridors, and attributable to DISTRICT or to the Operating Entity, except to the extent that such damage, liability, claim or expense is the result of the negligence, gross negligence, or intentional misconduct of GRANTOR (it being the intent of this provision to limit DISTRICT's indemnity to the proportionate part of GRANTOR's damage, liability, claim or expense for which DISTRICT is responsible). In the event of any claim, demand, or legal complaint against GRANTOR, the right to the indemnification provided by this Section 8.2 shall not apply to any cost, expense, penalty, settlement payment, or judgment, including attorneys' fees, incurred prior to GRANTOR's written notice of such claim, demand, or legal complaint to DISTRICT, nor to any costs, expenses, or settlement payment, including attorneys' fees, incurred subsequent to that notice unless such cost, expense, or settlement payment shall be approved in writing by DISTRICT, which approval shall not be unreasonably withheld. DISTRICT hereby also agrees to hold harmless, indemnify and defend GRANTOR from and against all damages, liabilities, claims and expenses, including attorneys' fees, asserted against GRANTOR by any officer, agent, employee, or volunteer of DISTRICT, for personal injury and/or property damage arising out of any inspection or visit to the Property by any such officer, agent, employee or volunteer of DISTRICT, except to the extent that such injury is attributable to the negligence, intentional act or willful misconduct of GRANTOR.

9. Interpretation and Construction. To the extent that this Trail Easement may be uncertain or ambiguous such that it requires interpretation or construction, then it shall be interpreted and construed in such a way that best promotes the Public Access Purpose of this Trail Easement.

10. Notices.

10.1 Method of Delivery. Except as otherwise expressly provided herein, all notices, (including requests, demands, approvals or communications) under this Trail Easement shall be in writing and either served personally or sent by first class mail, postage prepaid, private courier or delivery service addressed as follows:

To GRANTOR: Joseph Bordessa and Alfred Bordessa
P.O. Box 751254
Petaluma, CA 94975

To DISTRICT: General Manager
Sonoma County Agricultural Preservation and Open Space District
747 Mendocino Avenue, Suite 100
Santa Rosa, CA 95401

Or to such other address as either party from time to time shall designate by written notice pursuant to this Section 8.

10.2 Effect Date of Notice. Notice shall be deemed given for all purposes as follows:

(a) When personally delivered to the recipient, notice is effective on delivery.

(b) When mailed first class postage prepaid to the last address designated by the recipient pursuant to Section 8.1, notice is effective one day following the date shown on the postmark of the envelope in which such notice is mailed or, in the event the postmark is not shown or available, then one day following the date of mailing. A written declaration of mailing executed under penalty of perjury by the GRANTOR or DISTRICT or an officer or employee thereof shall be sufficient to constitute proof of mailing.

(c) When mailed by certified mail with return receipt requested, notice is effective on receipt as confirmed by the return receipt.

(d) When delivered by overnight delivery with charges prepaid or charged to the sender's account, notice is effective on delivery as confirmed by the delivery service.

(e) When sent by telex or fax to the last telex or fax number of the recipient known to the party giving notice, notice is effective on receipt as long as (i) a duplicate copy of the notice is promptly given by first-class or certified mail or by overnight delivery or (ii) the receiving party delivers a written confirmation of receipt. Subject to the foregoing requirements, any notice given by telex or fax shall be considered to have been received on the next business day if it is received after 5 p.m. (recipient's time) or on a non-business day.

10.3 Refused or Undeliverable Notices. Any correctly addressed notice that is refused or undeliverable because of an act or omission of the party to be notified shall be considered to be effective as of the first date that the notice was refused, unclaimed, or considered undeliverable by the postal authorities, messenger, or overnight delivery service.

11. Amendment. If circumstances arise under which an amendment or modification of this Trail Easement would be appropriate, GRANTOR and DISTRICT shall be free to jointly amend this Trail Easement, provided that any amendment shall be consistent with the Public Access Purpose of this Trail Easement, and shall not affect the Trail Easement's perpetual duration and further provided that the Conservancy provides its prior written consent to the amendment. Any such amendment shall be in writing, executed by GRANTOR and DISTRICT, and recorded in the Office of the Sonoma County Recorder.

12. Assignment. The DISTRICT may assign this Trail Easement in whole or in part, but only to an entity that is a qualified entity at the time of transfer under Section 170(h) of the Internal Revenue Code, as amended (or any successor provision then applicable), and the applicable regulations promulgated thereunder, and is authorized to acquire and hold conservation easements under Section 815.3 of the California Civil Code (or any successor provision then applicable). As a condition of such transfer, DISTRICT shall require the transferee to expressly agree in writing to assume DISTRICT's obligations hereunder in order that the purposes of this Trail Easement shall continue to be carried out. The DISTRICT may not assign this Trail Easement without obtaining the prior written consent of the State of California through the Executive Officer of the Conservancy or its successor. Any assignment without such consent shall be void and of no effect. Such consent shall not be unreasonably withheld.

13. Third Party Beneficiary. This Trail Easement was acquired by DISTRICT pursuant, in part, to a grant of funds from the Conservancy, for the purpose of preserving the open space, natural resource, scenic, recreational and educational values of the Property, and no

use of the Property inconsistent with that purpose is permitted, except by specific act of the California Legislature. The DISTRICT is further obligated to use, manage, operate and maintain the Trail Easement as described in the "USE, MANAGEMENT, OPERATION AND MAINTENANCE" section of California State Coastal Conservancy Grant Agreement No. 11-063, an unrecorded agreement, an executed copy of which is on file at the office of DISTRICT and at the office of the Conservancy. DISTRICT shall regularly monitor the condition of the Property and the uses and practices on the Property to determine consistency with the purpose and terms of this Trail Easement. DISTRICT shall take all reasonable steps to ensure the safety and health of any persons, whether professionals, staff members, or volunteers, who enter the Property for the purposes of monitoring.

Upon a finding by the Conservancy at a noticed public hearing, following written notice to the DISTRICT and the GRANTOR and a reasonable opportunity to cure, that any of the essential terms of this Trail Easement have been violated; or that the existence of DISTRICT has terminated for any reason prior to an assignment of DISTRICT's interest in the Trail Easement in compliance with Section 10 of this Trail Easement; DISTRICT's right, title, and interest in this Trail Easement shall automatically vest in the State of California for the benefit of the Conservancy or its successor, upon acceptance of the Trail Easement and compliance with any legal requirements related to acceptance; provided, however that the State, through the Executive Officer of the Conservancy, or its successor, may designate another public agency or a nonprofit organization to accept the right, title and interest, in which case vesting shall be in that agency or organization rather than in the State. For purposes of this section the "essential terms of this Trail Easement" are those set forth in Sections 2, 3, 4, 6, and 9.

This Trail Easement (including any portion or interest in it) may not be used as security for any debt without the written approval of the DISTRICT and the State of California, acting through the Executive Officer of the Conservancy, or its successor.

The Conservancy is an express third-party beneficiary with respect to the provisions of this Trail Easement pertaining to the Conservancy, and may take all steps that it deems necessary to enforce its rights.

14. Applicable Law and Forum. This Trail Easement shall be construed and interpreted according to the substantive law of California, excluding the law of conflicts. Any action to enforce the provisions of this Trail Easement or for the breach thereof shall be brought and tried in the County of Sonoma.

15. Entire Agreement. This instrument sets forth the entire agreement of the parties with respect to this Trail Easement and supersedes all prior discussions, negotiations, understandings, or agreements relating to this Trail Easement, all of which are merged herein. No alteration or variation of this instrument shall be valid or binding unless contained in a written amendment prepared, executed and recorded in accordance with Section 9.

16. Severability. In the event any provision of this Trail Easement is determined by the appropriate court to be void and unenforceable, all remaining terms and conditions shall remain valid and binding. If the application of any provision of this Trail Easement is found to be invalid or unenforceable as to any particular person or circumstance, the application of such provisions to persons or circumstances, other than those as to which it is found to be invalid, shall not be affected thereby.

17. **Effective Date.** This Trail Easement shall be effective as of the date of its acceptance by DISTRICT pursuant to California Public Resources Code sections 5500 et seq.

IN WITNESS WHEREOF, GRANTOR and DISTRICT have executed this Trail Easement this 8th day of May, 2012

GRANTOR:

By: _____
Joseph Bordessa, as Successor Co-Trustee of the Bruno Bordessa and Dorothy Bordessa Revocable Intervivos Trust (created by Declaration of Trust dated June 12, 2000)

By: _____
Alfred Bordessa, as Successor Co-Trustee of the Bruno Bordessa and Dorothy Bordessa Revocable Intervivos Trust (created by Declaration of Trust dated June 12, 2000)

DISTRICT:

SONOMA COUNTY AGRICULTURAL PRESERVATION AND OPEN SPACE DISTRICT

By: _____
President of the Board of Directors

ATTEST: Veronica A. Ferguson by M. Arellano
_____, County Clerk of the Board of Directors

TRAIL EASEMENT

State of California)
County of Sonoma)

On May 8, 2012 before me,
Kathy Nelsen, Notary Public (here insert name and title of the officer),
personally appeared Joseph Bordessa and Alfred Bordessa,
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____ (Seal)

NCR-1 KATHY NELSEN COMM. #1926728 NOTARY PUBLIC - CALIFORNIA SONOMA COUNTY My Comm. Expires March 25, 2015 NCR-1

CERTIFICATE OF ACCEPTANCE
(Government Code Section 27281)
OF REAL PROPERTY BY THE
BOARD OF DIRECTORS OF THE
SONOMA COUNTY AGRICULTURAL PRESERVATION
AND OPEN SPACE DISTRICT

This is to certify that the interests in real property conveyed by the Trail Easement Agreement dated May 8, 2012, Alfred Bordessa and Joseph Bordessa, as Successor Trustees of the Bruno Bordessa and Dorothy Bordessa Revocable Intervivos Trust, created by Declaration of Trust dated June 12, 2002, to the Sonoma County Agricultural Preservation and Open Space District, a governmental agency formed pursuant to the provisions of Public Resources Code Section 5506.5, is hereby accepted by the President of the Board of Directors on behalf of the District pursuant to the authority conferred by Resolution No. 12-0129 of the Board of Directors, dated March 27, 2012 and the District consents to the recording thereof by its duly authorized officer.

Sonoma County Agricultural Preservation
and Open Space District

Dated: 5-8-12

By: _____
Shirlee Zane, President
Board of Directors

ATTEST:

Veronica A. Ferguson by M. Williams
Clerk of the Board of Directors

CALIFORNIA ALL-PURPOSE CERTIFICATE OF ACKNOWLEDGMENT

State of California

County of Sonoma

On May 8, 2012 before me, Sandra L. Faus Notary Public
(Here insert name and title of the officer)

personally appeared Shirlee Zane,

who proved to me on the basis of satisfactory evidence to be the person~~(s)~~ whose name~~(s)~~ is/~~are~~ subscribed to the within instrument and acknowledged to me that ~~he~~/she/~~they~~ executed the same in ~~his~~/her/~~their~~ authorized capacity~~(ies)~~, and that by ~~his~~/her/~~their~~ signature~~(s)~~ on the instrument the person~~(s)~~, or the entity upon behalf of which the person~~(s)~~ acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Sandra L Faus
Signature of Notary Public

SANDRA L. FAUS
Commission # 1957686
Notary Public - California
Sonoma County
My Comm. Expires Oct 22, 2015

(Notary Seal)

ADDITIONAL OPTIONAL INFORMATION

DESCRIPTION OF THE ATTACHED DOCUMENT

Trail Easement
(Title or description of attached document)

Bordessa
(Title or description of attached document continued)

Number of Pages 8 Document Date 5/8/12

SCAPOSD
(Additional information)

CAPACITY CLAIMED BY THE SIGNER

- ☐ Individual (s)
- ☐ Corporate Officer

(Title)

- ☐ Partner(s)
- ☐ Attorney-in-Fact
- ☐ Trustee(s)
- ☑ Other Board Chair

INSTRUCTIONS FOR COMPLETING THIS FORM

Any acknowledgment completed in California must contain verbiage exactly as appears above in the notary section or a separate acknowledgment form must be properly completed and attached to that document. The only exception is if a document is to be recorded outside of California. In such instances, any alternative acknowledgment verbiage as may be printed on such a document so long as the verbiage does not require the notary to do something that is illegal for a notary in California (i.e. certifying the authorized capacity of the signer). Please check the document carefully for proper notarial wording and attach this form if required.

- State and County information must be the State and County where the document signer(s) personally appeared before the notary public for acknowledgment.
- Date of notarization must be the date that the signer(s) personally appeared which must also be the same date the acknowledgment is completed.
- The notary public must print his or her name as it appears within his or her commission followed by a comma and then your title (notary public).
- Print the name(s) of document signer(s) who personally appear at the time of notarization.
- Indicate the correct singular or plural forms by crossing off incorrect forms (i.e. ~~he~~/she/~~they~~, is /~~are~~) or circling the correct forms. Failure to correctly indicate this information may lead to rejection of document recording.
- The notary seal impression must be clear and photographically reproducible. Impression must not cover text or lines. If seal impression smudges, re-seal if a sufficient area permits, otherwise complete a different acknowledgment form.
- Signature of the notary public must match the signature on file with the office of the county clerk.
  - Additional information is not required but could help to ensure this acknowledgment is not misused or attached to a different document.
  - Indicate title or type of attached document, number of pages and date.
  - Indicate the capacity claimed by the signer. If the claimed capacity is a corporate officer, indicate the title (i.e. CEO, CFO, Secretary).
- Securely attach this document to the signed document

Escrow No.: 12-**490119808Z**-KN
Locate No.: CAFNT0949-0949-0001-490119808Z
Title No.: 12-**490119808Z**

EXHIBIT "A"

The land referred to herein is situated in the State of California, County of Sonoma, Unincorporated Area, and is described as follows:

All of that certain land lying and being in Townships 5 and 6 North, Range 10 West, M.D.M., in the County of Sonoma, State of California , and particularly described as follows:

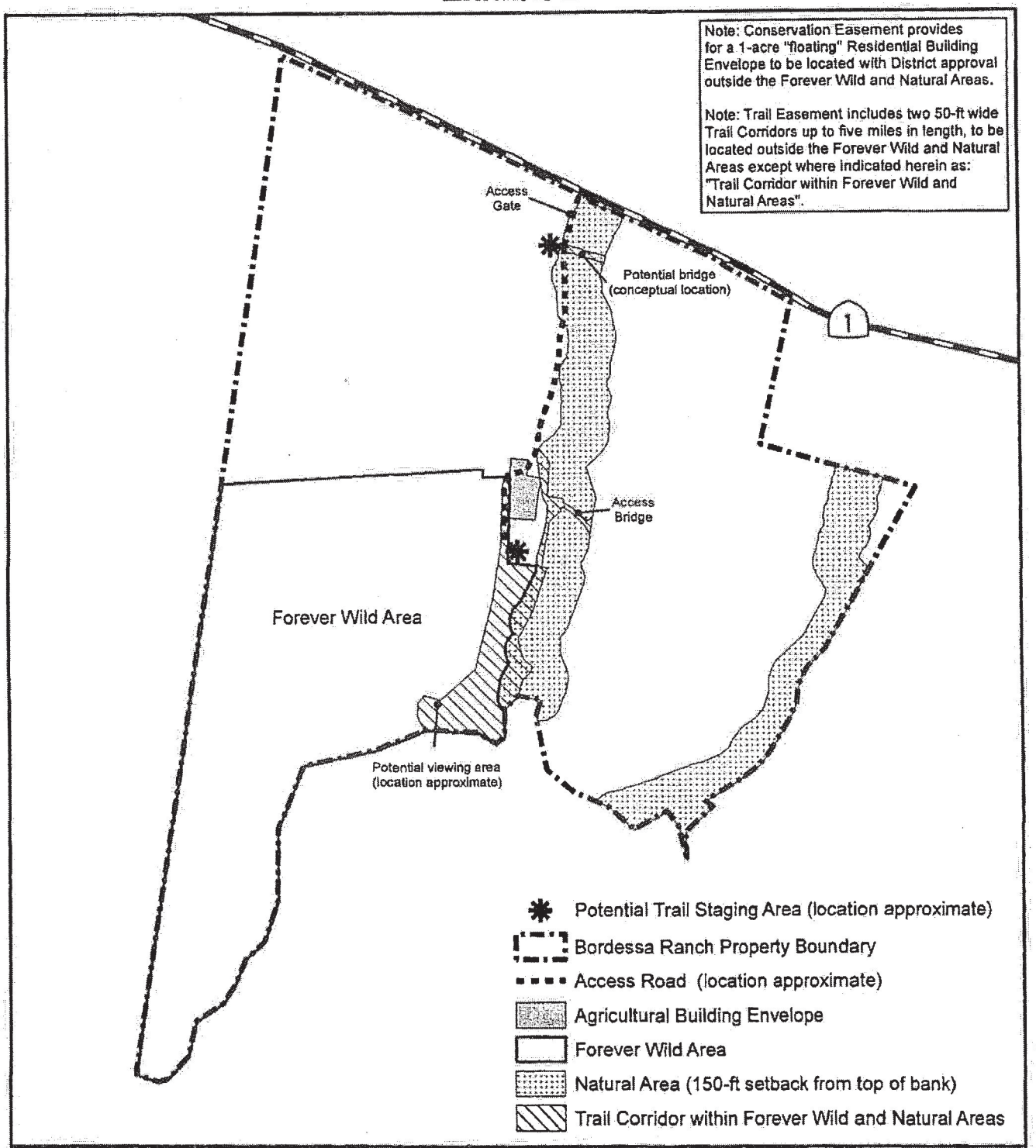
BEGINNING at a point in the center of the County road leading from Valley Ford to Bodega Bay at the Southwest corner of that certain 634.12 acre tract of land shown and designated upon the plat entitled "Map of survey made for heirs of Hollis Hitchcock in Rancho Estero Americano and Rancho Canada De Pogolimi", said Plat being on file in Book 16 of Maps, page 11, Sonoma County Records, said point of beginning is further described as bearing South 30.0 feet from a granite monument marked "L 12", thence from said point of beginning S. 76° 35'W. along the center line of said County Road 579.4 feet to a point from which an iron pipe monument bears S. 21° 37' W. 30.3 feet; thence S.21° 37'W. 4762.2 feet to a point on the line of high tide of the Estero Americano, and from which an iron pipe monument bears N. 21°37'E.20.0 feet; thence Westerly along the northerly bank of said Estero Americano following the meanderings of the line of high tide to a point from which an iron pipe monument bears N.7° 53'E.23.0 feet; thence leaving the line of high tide N.7°53'E.2589.0 feet; thence N.7° 42'E. 1943.8 feet; thence N. 8° 01'E. 2270.7 feet; thence N.7° 47' E. 974.3 feet to a point in the center of the heretofore mentioned County Road; thence in a southeasterly direction along the center of said County Road to the point of beginning.

EXCEPTING THEREFROM, the following land described as follows:

A tract of land in the Rancho Estero Americano, in Townships 5 and 6 North, Range 10 West, M.D.M., and particularly described as follows:
BEGINNING at a point in the center of the county road leading from Valley Ford to Bodega Bay at the Southwest corner of that certain 634.12 acre tract of land shown and designated upon the plat entitled "Map of survey made for heirs of Hollis Hitchcock in Rancho Estero Americano and Rancho Canada De Pogolimi", said Plat being on file in Book 16 of Maps, page 11, Sonoma County Records, said point of beginning is further described as bearing South 30.0 feet and S36° 35W.579.40 feet from a granite monument marked "L12"; thence from said point of beginning along the center line of said road, N76°40'40" W.2713.74 feet and N.57°42'W.370.747 feet; thence leaving said roadway, S.12°25'14" W.896.094 feet, S.13°21'39"W.287.985 feet, S.74°32'30"E. 1199.43 feet, S.28°55'17"W.795.94 feet, S.27°20'19"W.177.028 feet, S.28°38'W.419.78 feet, S.44°26'30"W.186.55 feet, S.27°34'30"W.160.87 feet, S.5°04'30"W.124.74 feet, S.23°18'30"W.138.05 feet, S.32°52'W.272.42 feet, S.39°30'30"W.123.80 feet, S.49°56'W.140.54 feet, S.58°22'W.285.09 feet, S73°05'30"W.45.32 feet and S.60°08'W.20.604 feet to a point on the line of high tide of the Estero Americano; thence along said high water line, S.43°34'E.67.399 feet, S.45°23'W.264.4 feet, S.6°04'E.200.0 feet, S.23°16'E.345.0 feet, S.51°17'E.607.1 feet, S.54°19E.416.4 feet, S.86°56'E.561.0 feet and S.84°35'E.504.8 feet to a point which bears S.21°37'W.4762.2 feet from the point of beginning; thence N.21°37'E.4762.2 feet to the point of beginning.

APN: 026-030-011

Exhibit B



Bordessa Ranch Trail Easement

0 500 1,000 2,000 Feet

SONOMA COUNTY
AGRICULTURAL PRESERVATION AND OPEN SPACE DISTRICT

Map Date: April 2, 2012

Sources: Sonoma County GIS (roads, parcels); Digital Globe 2009 (imagery); SCAPOSD (CE Areas, stream channels).

This map is for illustrative purposes only and is not intended to be a definitive property description. The easement areas shown on this map are generated from digital vector data on file with the District; the vector data itself designates these areas. The southern and western boundaries of the Forever Wild Area extend to the property boundary.

N

J. Newell S:\GISProjects\Bordessa\PDFs\bordessa_Exhibit_B_to_Trail_Easement

Memorandum from Ted P. Winfield, Ph.D

Attachment B

TED WINFIELD & ASSOCIATES

MEMORANDUM

Date: November 18, 2016

To: Howard F. Wilkins, III (Remy Moose Manley, LLP)

Andrea K. Leisy (Remy Moose Manley, LLP)

Cc: Christopher M. Mazzia (Anderson Zeigler)

From: Ted P. Winfield, Ph.D.

RE: Comments on Mitigated Negative Declaration/Initial Study and Mitigation Monitoring Program (PCAS # QE441300) prepared for the Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas Project

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Ted Winfield & Associates has reviewed the Mitigated Negative Declaration/Initial Study (MND/IS) and Mitigation Monitoring Program (PCAS # QE441300) prepared for the Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas Project (Project) by the Sonoma County Permit and Resource Management Department (PRMD) as an informational document to "*. . . identify the potential environmental impacts of a pedestrian-use-only trail system at the site, and will be used by project decision-makers, responsible and trustee agencies under CEQA, and the public.*"[1] We have also attached the CV for Ted P. Winfield, Ph.D. as you requested.

Preliminarily, we note that the Project, as evaluated in the MND/IS consists of the establishment of two 50-foot wide pedestrian-only trail corridors totaling just under five miles in length, and associated staging areas (trailheads/parking lots) at the Bordessa Ranch (Project Site). The PRMD determined, after its review of information on the proposed trail corridors and staging areas and other Project details, that it was appropriate to prepare an Initial Study and Mitigated Negative Declaration based on the assumption that the Project "*. . . would result in less than significant impacts with mitigation measures incorporated into the project.*"[2]

As requested, this memorandum evaluates whether there is sufficient information to support MND/IS's conclusions that the significant impacts resulting from the location, construction and operation of the Project would be rendered less than significant with implementation of proposed mitigation measures thus supporting the preparation of a MND and not an Environmental Impact Report (EIR). As discussed in detail below, the MND/IS relies on the flawed assumption that the presence and extent of sensitive biological resources, including potential habitat, that would or could be affected by the proposed trail corridors have been

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[1] Last paragraph on page 2 (Introduction) of the MND/IS.

[2] First paragraph on page 3 of the MND/IS.

identified, and that sufficient efforts to avoid impacts to sensitive resources have been taken as an integral part of the mitigation process.

Before addressing specific issues with the MND/IS concerning the adequacy of the document in addressing the presence of sensitive biological resources and potential impacts on these resources from construction and operation of the Project, I have some general comments on the MND/IS and the present location of the proposed trail corridors.

GENERAL COMMENTS

The proposed trail corridors appear to have been established with limited—and in some instances no—information regarding the presence, location and extent of sensitive biological resources, including wetlands and habitat for special-status species. Even the limited information regarding sensitive biological resources does not appear to have been used to evaluate possible alternatives alignments to avoid known sensitive resource areas; avoidance is the initial step in identifying mitigation options but does not appear to have been employed in proposing the trail corridors. For example, the location of the western trail could be revised to avoid the wetland areas. But there is no reason provided in the MND/IS as to why alternative corridor alignments were not investigated to avoid the wetlands.

The description of the Project states that the existing access road, gate and bridge may be improved or replaced in the same or similar location. The existing access road is wide enough for a single car but does not appear to be wide enough to safely allow two cars to pass one another in opposite directions without one vehicle having to move off the roadway to allow the other car to pass. To accommodate the free flow of traffic in both directions on the existing access road some type of modification would be necessary. The MND/IS, however, does not include any specific information on potential sensitive resources along the existing access road. Seasonal wetlands occur along portions of the existing road and improvements to the existing access road could affect these wetlands. The MND/IS must be revised to evaluate the existing access road so that potential significant impacts to sensitive resources resulting from modification of the existing access road can be assessed.

The first sentence in the discussion on Biological Resources[3] states that the proposed designation of the trail corridors and staging areas "... *will not affect biological resources.*" This statement, however, seems to be contradicted by the statement in this first paragraph discussing the reconnaissance-level surveys and the purposes of these surveys, which included "... *recommend measures to minimize potential impacts from* ***designation of trail corridors and associated staging areas and trail easement recordation****, and trail development and operation.*" (emphasis added) The fact that the trail corridors and staging/parking areas had already been selected prior to the referenced reconnaissance-level surveys contradicts this statement. Although the MND/IS's environmental review of the trails is labelled a programmatic-level assessment, the MND/IS must disclose enough information to assess and evaluate the presence and extent of sensitive resources located on the Project Site to support the

[3] Page 20, section 4 (Biological Resources) of the MND/IS.

current selection of the trail corridors and staging areas such that the selected trail corridors will not significantly impact these sensitive resources and represent the least environmentally damaging alternatives and, hence, the environmentally preferable action. As discussed herein, the MND/IS does not meet this standard.

For example, under the discussion on *Existing Plant Communities and Habitats*[4], several community or habitat types are mentioned, including brackish and freshwater marshes and coastal prairie. The marshes and coastal prairie are considered Environmentally Sensitive Habitat Areas (ESHA) but the subsequent description does not provide a description of coastal prairie or provide a map showing the location of this feature at the Project Site. The description of marsh habitat is limited to the brackish and freshwater marsh at the mouth of the drainage that bisects the Project Site. As stated later in the MND/IS, there are wetlands associated with the numerous seeps on the Project Site, but seep wetlands are not addressed in this section. Without, this information it is impossible for the public (and experts) to know the true scope of the Project's impacts and whether the Project will result in potentially significant impacts to sensitive resources.

SPECIFIC COMMENTS

The MND/IS concludes that the Project would not "*[h]ave a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service*" with the incorporation of mitigation.[5] The conclusion is not supported based on the lack of full disclosure of the presence and location of special-status species and/or sensitive habitat, and the inadequacy of the proposed mitigation measures as discussed in detail below.

Special-status Plant Species

Mitigation Measure BIO-1: Item 1. This mitigation measure puts off the performance of plant surveys until the actual trail alignment has been determined, whereas the entire 50-foot wide trail corridor should be surveyed before the trail alignment within the trail corridor is selected to ensure that the selected trail alignment avoids sensitive resources to the extent possible. It is not possible to conclude that a designated trail alignment is the least environmentally impactful alignment without first knowing the possible presence and extent of special-status plants within the currently designated trail corridors.

Special-status Bat Species

Mitigation Measure BIO-3. This measure assumes that Townsend's big-eared bat and pallid bats are unlikely to occupy the barn and other storage structure at the Project Site. This assumption must be verified since the Townsend's big-eared bat, as a candidate for listing under

[4] Page 21 (bottom), section 4 (Biological Resources) of the MND/IS
[5] Page 23, item a) of the MND/IS.

the California Endangered Species Act (CESA), is afforded the protections of CESA until such time that a determination is made to not list the species as threatened or endangered under CESA. The likely increase in human activity resulting from construction and operation of the Project in the vicinity of these buildings has the potential to adversely affect Townsend's big-eared bats should they be present in the buildings, especially the barn. Due to its protection as a candidate species, this would be a significant impact. The MND/IS does not acknowledge this potentially significant impact. Surveys by an expert bat biologist must be completed to address this issue rather than assuming the absence of the species, as the MND/IS has done.

Special-status Bird Species

Mitigation Measure BIO-4: Trail Routing. Information on the current use and possible breeding by special-status birds in the Forever Wild Areas adjacent to the west side of the southern extension of the proposed East Estero Trail Corridor has not been updated since the surveys conducted by Heaton (2012) [6] in 2011-2012. Of particular interest is the possible nesting by the short-eared owl at the Project Site, and possible occurrence of the California black rail and possibly Ridgeway's rail (formerly California clapper rail) along the shoreline of the Estero.

Although Heaton (2012) did not observe any short-eared owls during her breeding season survey in 2011, she stated that "*nesting remains a definite possibility.*"[7] There does not appear to have been further surveys to confirm possible nesting by short-eared owls at the Project Site, particularly in the vicinity of the proposed trail corridors that pass near areas where the short-eared owl has been observed and where possible nesting sites could occur. Such surveys should also include the marsh areas near the mouth of the central drainage as short-eared owls are reported to nest in salt and freshwater marshes (Shuford and Gardali 2008).[8]

According to the report prepared by Peltz and Stabler (2014)[9], in which they cited Heaton (2012) concerning roosting by the short-eared owl during the winter, their survey of the proposed trail corridors did not include the pond in the Forever Wild Area, which is where Heaton has observed evidence of possible breeding activity. The pond in the Forever Wild Area and other potential nesting sites for the short-eared owl should have been surveyed regularly during the nesting season to determine possible nesting at the Project Area since, as stated in Peltz and

[6] E. Heaton. (2012). Summary of Findings from Bird Surveys on the Bordessa Ranch. Final Report: 2011 and 2012 Surveys. Submitted to Sonoma County Agricultural Preservation and Open Space District. February 6, 2012.
[7] Heaton (2012), page 7, first sentence, last paragraph.
[8] Shuford, W.D. and Gardali, T., editors. 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies if Western Birds 1. Western Field Ornighologists, Camarillo, California and California Department of Fish and Game [now Wildlife], Sacramento, CA.
[9] P. Peltz and R. Stabler. Estero Trail Wildlife Resources Evaluation. Phase 1 – Assessment. Prepared for Sonoma County Agricultural Preservation and Open Space District. October, 2014.

Stabler (2014) "*[c]onfirmation of breeding would be a significant find as there is only one recorded breeding occurrence in Sonoma County.*"[10]

If short-eared owls are found to be breeding within or near any of the proposed trail corridors, any disturbance, direct or indirect, would be considered significant. Sufficient measures would be necessary to ensure that any nesting site would not be adversely affected by routing the trail corridor away from such areas to avoid possible direct impacts, or incorporating a sufficient buffer to avoid indirect impacts to the nesting area. Without further information concerning the possible presence of nesting by short-eared owls, the conclusion of no *significant impact with mitigation* cannot be supported.

The proposed East Estero Trail Corridor also encroaches on areas where other special-status birds have been observed. Figure 1 in the Heaton (2012) report shows the location of areas with evidence of activity by special-status bird species in addition to the short-eared owl, including the burrowing owl and grasshopper sparrow. The reported evidence of burrowing owl activity occurs primarily along the eastern side of the Forever Wild Area (Figure 1 in Heaton 2012). There is also a small area where Heaton (2012) observed grasshopper sparrows during the 2011 breeding season that could be directly impacted by the proposed trail corridor/alignment. Further, additional areas of grasshopper sparrow activity were observed along the eastern side of the Forever Wild Area adjacent to the southern extension of the East Estero Trail Corridor.

Mitigation Measure BIO – 4: Trail Routing. This mitigation does not include any measure to avoid potential direct or indirect impacts to areas used by the burrowing owl. The proposed trail corridor for the southern extension of the East Estero Trail Corridor appears to include areas where burrowing owl activity has been observed in the past or nearby areas with evidence of use by burrowing owls (Figure 1 in Heaton 2012). The designation of the proposed southern extension of the East Estero Trail Corridor needs to be re-evaluated in light of the presence of special-status birds nesting activity and possibly other species along and within close proximity to the proposed trail corridor.

Mitigation Measure BIO – 4: Construction. This measure would require pre-construction bird surveys during the winter and nesting season prior to construction of the trail to characterize continued use of the areas in and around the proposed trail corridors, and realignment of the trail alignment to avoid areas of use for nesting or winter roosting. Given the observations of Heaton (2012) on special-status birds in 2011-2012, these surveys should have been ongoing to document annual patterns of use of the Project Site by special-status birds, and adjustment made to the proposed trail corridor alignments.

Item 4 of this mitigation measure requires a 160-foot (50-meter) buffer around any burrow found to be occupied by a burrowing owl, and calls for construction of a replacement burrow in suitable habitat away from the trail alignment. Since the trail corridor easement is 50-feet wide and any replacement burrow would likely have to be within the easement area, there is no way that any replacement burrow constructed within a proposed trail corridor and successfully

[10] Peltz and Stabler (2014), page 24, last sentence in second full paragraph.

occupied in the future would meet this mitigation standard. Further, any survey along the proposed trail corridors must extend beyond the limits of the proposed trail alignment to account for any burrowing owls that may be within 160-feet of the proposed trail corridor.

Mitigation Measure BIO – 4: Operations. This measure does not include any consideration of limiting seasonal use of the trails due to the presence of nesting or roosting birds close to the trail. There should be annual winter and nesting season bird surveys, especially along those sections of the trails where roosting and/or nesting by special-status birds has been documented during prior bird surveys or where nesting habitat is present (e.g., abandoned burrows for burrowing owls). Allowing trail use when birds are actively nesting has the potential to result in nest abandonment, which would be a significant impact, especially if it involved special-status birds such as the burrowing owl, grasshopper sparrow, or short-eared owl.

This measure should also include enforceable mitigation to completely bar dogs from the trails. Even allowing dogs that are on a leash to accompany their owners on the trails is insufficient to adequately protect nesting birds. Not everyone will obey the leash requirement and a dog wandering off leash during nesting season would likely result in nest abandonment. Nest abandonment by special-status birds would be a significant impact. The MND/IS must also address the potential physical harm to birds that are caught by wandering dogs.

Finally, the meaning of the first sentence under item 1 of this measure is unclear[11]. What is the purpose of removing vegetation that exists greater than five feet of the trail footprint and how wide of a swath of vegetation would be removed? Would vegetation surveys be conducted prior to the vegetation clearing? The vegetation clearing appears to be a maintenance activity, and trail maintenance and other related maintenance, such as maintenance of the access road and staging areas, and potential impacts resulting from maintenance activities are not addressed, but should be, in this MND/IS, with mitigation measures proposed for the maintenance activities, as such activities have the potential to impact sensitive resources.

SPECIAL-STATUS AMPHIBIANS AND REPTILES

The surveys that were conducted for the California red-legged frog were limited to selected areas but did not appear to include the areas along the access road, the staging areas, especially the proposed staging area near the entrance to the Project Site, the entire length of the central drainage, the drainage along the eastern side of the Project Site, and a pond located along the eastern loop of the proposed East Estero Trail Corridor.

The likely upgrading of the access road and construction of the staging areas have the potential to have the greatest construction-related impact on habitat for the California red-legged frog. Without information on the presence of California red-legged frogs in the wetlands associated with the existing access road and proposed location of the staging/parking area near the entrance to the Project Site, evaluation of the potential significance of impact to California red-legged frog habitat cannot be determined. Such information must also be used to investigate possible

[11] Page 35 of the MND/IS, item 1 under Operations.

alternative locations or designs for the access road and staging areas to confirm mitigation will be adequate to address potentially significant impacts to the species and their habitat.

Any potential breeding or non-breeding season habitat for the California red-legged frog, especially aquatic features that could support breeding, and located within migrating distance of the proposed Trail Corridors must be surveyed to determine possible use by the California red-legged frog, including use of habitats away from the breeding site by juvenile and adult frogs prior to proposing Trail Corridors . During the non-breeding season some California red-legged frogs will remain at the breeding sites but others will disperse up to two to three kilometers to other habitats that remain moist and cool during the summer months, such as coyote bush (*Baccharis pilularis*) and California blackberry (*Rubus ursinus*) thickets, and root masses associated with willow (*Salix* sp.) and California bay trees (*Umbellularia californica*) (Fellers 2013).[12]

Fellers and Kleeman (2007)[13] found that migrating frogs will cross non-habitat areas (e.g., grazed fields) to reach suitable non-breeding habitat. Given the distance that migrating California red-legged frogs have been shown to move and the current layout of the proposed trail corridors, migrating adult and juvenile California red-legged frogs would potentially be encountered along much of the proposed trail corridors and the ultimate trail alignment.

Mitigation Measure BIO-5. The proposed mitigation lacks measures to reduce operational impacts to a less-than-significant level, including measures to be implemented during maintenance activities. Areas likely to require maintenance include areas where the trail crosses seeps and drainages or near these features, which are features that can also provide habitat for the California red-legged frog. Mitigation Measure BIO-5, or alternative mitigation, must be included to address potentially significant impacts from maintenance activities along the trails.

In addition, the information included on the interpretive signage should include a statement on the penalties for handling the California red-legged frog or collecting its tadpoles from breeding sites.

SPECIAL-STATUS INVERTEBRATES – MYRTLE'S SILVERSPOT BUTTERFLY

Mitigation Measure BIO – 8: Item 1.b. The survey for the Western dog violet must occur prior to selection of trail alignments—not after selection of the trail alignments. The information from the surveys of the proposed trail corridors must be evaluated along with other surveys (e.g., vegetation, wetlands) conducted prior to selection of the trail alignments to better align the trails to avoid sensitive habitat areas and species. Such information, combined with other information on the location of areas frequented by special-status wildlife relative to the proposed trail corridors would also provide a basis for selecting alternative trail corridors to reduce impacts to

[12] Fellers, G.M. 2013. AmphibiaWeb: Information on amphibian biology and conservation. [web application]. 2013. Berkeley, California: AmphibiaWeb. Available: http://amphibiaweb.org/.

[13] Fellers, G.M. and P.M. Kleeman. 2007. California red-legged frog (*Rana draytonii*) movement and habitat use: Implications for conservation. Journal of Herpetology 41: 276-286.

sensitive resources, consistent with the first step in determining mitigation which is avoidance of impacts.

RIPARIAN HABITAT OR OTHER SENSITIVE NATURAL COMMUNITY

The MND/IS acknowledges that the proposed trail alignment and related elements of the Project (e.g., staging areas, access road) will affect freshwater seeps and wetland habitat. The MND/IS also acknowledges that these habitats are considered ESHAs. What is not discussed in the MND/IS are steps taken to avoid these features. For example, the proposed West Estero Trail Corridor could be routed to avoid the multiple crossing of the two drainage features occurring west of the access road, or realigned to completely avoid impacting wetlands.

The MND/IS provides no explanation as to why the proposed West Estero Trail Corridor has to be in its present configuration. The purpose of the Trail Easement is to establish staging areas and trail corridors for low-intensity public outdoor recreational and educational purposes that " *. . . do not adversely impact the natural resources or agriculture on the Property.*"[14] The Trail Easement also prioritizes uses of the Project Site consistent with the purpose of the Trail Easement to preserve and protect forever the conservation values of the Project Site; "*preservation and protection of natural resources shall be the first priority, habitat connectivity shall be the second priority, scenic and open space resources shall be the third priority, agricultural resources shall be the fourth priority, and recreation and education shall be the fifth priority.*"[15]

The provisions of the Trail Easement mandate that if there is a conflict between the prescribed uses of the Project Site, that preservation and protection of natural resources prevails over recreation and education uses, meaning if there are alternatives to the proposed recreational facilities (e.g., proposed trail corridors, staging areas, access road) that avoid impacting natural resources, those alternatives need to be identified and fully evaluated pursuant to the provisions of the Trail Easement and the mitigation standards under CEQA and other statues (e.g., the first step if avoidance).

WETLANDS

The proposed trail corridors cross wetland features that are likely to be subject to the jurisdictional authority of the U.S. Army Corps of Engineers pursuant to section 404 of the Clean Water Act, the jurisdictional authority of the State Water Resources Control Board pursuant to the Porter-Cologne Water Quality Act as waters of the State, as implemented by the Regional Water Quality Control Board, North Coast Region, and as wetlands and ESHAs pursuant to the California Coastal Act. Avoidance of impacts to these jurisdictional features is the first step in mitigating impacts to these resources, but as explained above, the MND/IS does

[14] Page 2 of Trail Easement, section Easement, item 2. Purpose.
[15] Page 4 of Trail Easement, Part 1: Grant of Easement, item 3 Conservation Purpose (first paragraph on page 4).

not even attempt to meaningfully evaluate alternative alignments of the proposed trail corridors to avoid such features, especially the proposed West Estero Trail Corridor placement.

WILDLIFE MOVEMENT AND USE

See the discussion concerning issues with BIO – 4 above under the heading Special-status Bird Species.

TED WINFIELD & ASSOCIATES

THEODORE P. WINFIELD, JR.

wetland ecology
Wetland habitat restoration
Wetland delineation and permitting
Wetland mitigation planning
Wildlife surveys
Endangered species process
NEPA and CEQA
Natural Resource Damage Assessment

ACADEMIC HISTORY

University of California, Riverside and San Diego State University: Ph.D., Ecology, 1980
Brigham Young University, Provo, UT: M.S., Invertebrate Zoology (Paleontology minor), 1971
Brigham Young University, Provo, UT: B.S., Invertebrate Zoology (Chemistry minor), 1967

PROFESSIONAL WORK HISTORY

Ted Winfield & Associates, /Sole Proprietor and Senior Consultant - 1998-Present
ENTRIX, Inc, Senior Consultant/Associate - 1989-1998
Woodward-Clyde Consultants, Senior Project Scientist - 1972-1989

CERTIFICATION AND TRAINING

Certified CRAM (California Rapid Assessment Methodology) Practitioner in Depressional Wetlands (2013)
Certified CRAM (California Rapid Assessment Methodology) Practitioner in Riverine Wetlands (2012)
Workshop on the Biology and Conservation of the California Tiger Salamander (P. Trenham, Ph.D. 2010, 2012)
Workshop on the Biology and Conservation of the California Tiger Salamander (C. Searcy, Ph.D, 2014)
Workshop on the Biology and Management of the California Red-legged Frog (N. Scott & G. Rathbun, 2011)
Certified in Habitat Evaluation Procedures (HEP), U.S. Fish and Wildlife Service
Wetland Evaluation Technique (WET)
Multiparameter Approach For Delineating Wetlands (1987 Corps Manual)
New Federal Method For Delineating Wetlands (1989 Federal Manual)
OSHA 40-hr. Health and Safety Training and 8-hr. Refresher Courses

REPRESENTATIVE EXPERIENCE

Dr. Ted P. Winfield has been engaged as a consultant since 1972 and has consulted on projects throughout the United States, including Washington, Oregon, Idaho, Colorado, New Mexico, Arizona, Texas, Louisiana, Alabama, Virginia, New York/New Jersey, Ohio/West Virginia, Wisconsin, Illinois and Indiana, and outside of the United States in Germany and Colombia. He completed his Ph.D. program at the University of California, Riverside/San Diego State University under the direction of Dr. Joy Zedler (San Diego State University). His dissertation research investigated carbon and inorganic nitrogen cycling in a salt marsh habitat in the lower Tijuana Estuary on the California and Mexico border. He worked with Dr. Joy Zedler on the design and establishment of a tidal salt marsh on dredged spoil material at the Chula Vista Wildlife Reserve in south San Diego Bay. Dr. Winfield also worked with Dr. Ron Phillips to design and implement a program to investigate the potential effects of an oil spill on an eelgrass bed in Puget Sound, Washington. Dr. Winfield was the project manager and primary author of the Tijuana Estuary tidal

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Restoration Program draft Environmental Impact Report/Environmental Impact Statement. Dr. Winfield also provided expert technical consulting to a law firm on a lawsuit in Texas related to impacts to seagrass beds resulting from oil exploration in Laguna Madre.

Since 1979, Dr. Winfield has been involved in a number of projects requiring some form of wetland permit, including Section 404 permit (Clean Water Act) and/or Section 10 permit (Rivers and Harbors Act). His responsibilities have included delineating the boundary of wetlands subject to the Corps jurisdiction pursuant to Section 404 of the Clean Water Act in California, Texas, Oregon, Washington, Wisconsin and Alabama, development of alternatives analyses to demonstrate compliance with the 404 (b)(1) (Clean Water Act) guidelines, development of mitigation plans, and ongoing negotiations with agencies to resolve issues as they arise. Dr. Winfield's in-depth knowledge of the functional attributes of wetlands and his knowledge of the permitting process and the policies of the pertinent agencies (EPA, U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, National Marine Fisheries Service, and state resources agencies) contribute to his ability to anticipate project-related issues and work with clients to develop acceptable project designs.

He has conducted several wetland research programs investigating functional aspects of wetlands, including nutrient cycling and primary production in a coastal tidal marsh in southern California (dissertation research) and primary production in estuarine tidal marshes along the lower Columbia River. Dr. Winfield also has completed a number of wetland restoration and enhancement projects. He developed the conceptual design and worked with a civil engineer to develop the specific restoration plan for a pond/marsh creation project near the City of Yoncalla, Oregon. He developed a riparian restoration plan for re-vegetating a section of river that was to be mined for aggregate for dam construction. He was the project director for the Sonoma Bayland Project in San Francisco Bay. This project utilized dredged material to hasten restoration of a former agricultural field to tidal marsh. Dr. Winfield also worked with Amador County to create a riparian enhancement/restoration plan to help improve habitat for trout along a degraded creek.

Dr. Winfield has also helped design and conduct numerous wildlife surveys throughout the western United States. He was the lead biologist on the wildlife studies conducted along the proposed Gas Arctic Pipeline that was to run from Cajon Pass in southern California to the Idaho-Canadian border. He conducted live trapping of small mammals, bird surveys, and surveys for other wildlife along the pipeline route, which was to have gone through southern California, Nevada, eastern Oregon and Washington, and Idaho. He also conducted wildlife surveys for several projects related to electric utility development, including power plants and transmission lines throughout southern California.

Currently, Dr. Winfield is assisting in the development of Conservation Banks in the Santa Rosa area designed to conserve and restore habitat for several endangered plant species and the endangered California tiger salamander. He has been responsible for development of banking documents, including interim and long-term monitoring and management plans, biological assessments, Conservation Bank Agreements, and Table of Credits that define the number of credits the individual banks can sell for each of the conserved species. He is also working as part of a team designing and implementing a program to "close" a tailings impoundment for a gold mine in the Clear Lake area. His responsibilities include design and implementation of a program to vegetate the cover being placed over the mine tailings, including upland and wetland habitats. This work includes a pilot program to investigate different approaches for establishing vegetation on the cover material placed over the mine tailings. A key focus of this effort is the establishment of seasonally ponded wetland habitat on the periphery of the tailing area.

A listing of relevant project experience for Dr. Winfield can be found below.

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RELEVANT PROJECT EXPERIENCE

- Sundesert Nuclear Power Plant and Transmission Line Network, Southern California - designed and performed biological resource studies for the proposed facility. Biological resource issues included impacts on the desert ecosystem and listed species.
- HTGR Nuclear Power Plant and Transmission Line Network, Southern California - the proposed project would have been located near Parker, Arizona with transmissions lines extending to the the west across the desert. Assisted in designing extensive studies of the biological resources that would have been impacted by the project, including the desert tortoise. Studies included an extensive small mammal population study. Also involved in data analysis and preparation of environmental documents for the project.
- Gas Arctic Pipeline, Cajon Pass to Idaho-Canadian Border - designed and conducted wildlife studies for pipeline corridor extending from the Cajon Pass near San Bernardino to the Idaho-Canadian border, including the colder desert region of southeastern California. Surveys included small mammal trapping program and walking surveys to identify larger mammals, bird, reptiles, and amphibians.
- Harry Allen and Werner Valley Generating Projects, Western Transmission Line Corridors, Southern California Desert (includes Mountain Pass Area) - Designed and conducted surveys of four alternative transmission line corridors from southern Nevada to Southern California along the I-10 and I-15 corridor. Studies included small mammal trapping surveys and walking surveys for other wildlife, including desert tortoise, and vegetation. Responsible for analysis of data and writing report.
- Threatened and Endangered Species Issues Relating to Upgrading an Existing Dam and the Potential Impacts on the Least Bell's Vireo - worked with USFWS to identify and resolve possible impacts to the endangered least Bell's vireo associated with upgrading of dam.
- Technical Input and Advice regarding Threatened and Endangered Species Issues Associated with Linear Facilities including Transmission Corridors and Pipelines. This includes both animal and plant species.
- Threatened and Endangered Species issues related to several types of development in California, including rare plant surveys, wildlife surveys (amphibians, burrowing owls), preparation of biological assessments, and negotiations with agency personnel.
- Preparation of biological assessment of project impacts on four listed species (California tiger salamander, San Joaquin kit fox, California red-legged frog, vernal pool crustaceans) in eastern Contra Costa County resulting from construction of two schools. Duties included coordination and negotiation with agencies regarding mitigation for impacts to the listed species and preparing the draft Biological Opinion for the U.S. Fish and Wildlife Service's use and approval.
- Delineation of jurisdictional features subject to the authority of the U.S. Army Corps of Engineers and Regional Water Quality Control Board for numerous projects throughout California using the 1987 Wetland Delineation Manual and the Regional Supplement to the Corps of Engineers Wetland Manual: Arid West Region.
- Pre-construction surveys for burrowing owls, San Joaquin kit fox, California red-legged frog and California tiger salamander for development project in Brentwood, CA. Work also included passive relocation of burrowing owls.
- Pre-construction surveys for burrowing owls for school project in Brentwood, CA. Work also included passive relocation of burrowing owls.
- Pre-construction surveys for burrowing owls, ground-nesting birds and western pond turtles for a development project in Rohnert Park, CA
- Pre-construction surveys for burrowing owls for development project in Dixon, CA.
- Critique for landfill project in San Diego, CA. Review background documents and prepare letter addressing inadequacies in documents for project opponents.

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- Evaluate and prepare critique of CEQA process and scope of coverage for project in Roseville, CA. Work included review of project documents prepared by City and its consultants over several decades, and preparation of letter addressing lack of appropriate conditions being required by the City. Work was coordinated through a CEQA attorney.
- Prepare supplemental information for controversial quarry project in Sonoma County, coordinate with agencies in preparing for hearings, supporting applicant at hearings, and preparation of Biological Assessment and related documents for project, including development of project mitigation program. (project is ongoing)
- Prepare biological resources report and HCP for winery project in Sonoma County. (project is ongoing)
- Prepare permit applications and the mitigation and monitoring plan for a quarry in Mendocino County.

ADDITIONAL PROJECT EXPERIENCE

Special-status Species

Responsibilities for the following include consultation with the U.S. Fish and Wildlife Service, California Department of Fish and Wildlife (formerly California Department of Fish and Game) and other involved agencies concerning the possible impacts to listed species, development of acceptable mitigation and preparation of the necessary reports.

- Biological Assessment for Dredging and Potential Impacts on the California Least Tern.
- Threatened and Endangered Species Issues Relating to Upgrading an Existing Dam and the Potential Impacts on the Least Bell's Vireo.
- Various Coastal Wetlands Projects involving California Clapper Rails, Light-footed Clapper Rails, and the Salt Marsh Harvest Mouse.
- Technical Input and Advice regarding Threatened and Endangered Species Issues Associated with Linear Facilities including Transmission Corridors and Pipelines. This includes both animal and plant species.
- Preparation of biological assessment of project impacts on the endangered California tiger salamander in Sonoma County resulting from mixed use development.
- Assessment of effect of diesel spill on wildlife, including the northwestern pond turtle, which included participating in surveys to capture and relocate turtles in the impact area.
- Preparation of biological assessment of project impacts on four listed species (California tiger salamander, San Joaquin kit fox, California red-legged frog, vernal pool crustaceans) in eastern Contra Costa County resulting from construction of two schools. Duties included coordination and negotiation with agencies regarding mitigation for impacts to the listed species and preparing the draft Biological Opinion for the U.S. Fish and Wildlife Service's use and approval.
- California tiger salamander survey design and implementation on school project in Brentwood, CA.
- Preparation of biological assessment (and draft Biological Opinion for submittal to the USFWS for its use) for three federally endangered plant species and the federally threatened California tiger salamander for a residential development in Santa Rosa, CA.
- Preparation of a master biological assessment for three federally endangered plant species and the federally endangered California tiger salamander to cover eleven residential development projects in Santa Rosa, CA.
- Preparation of biological assessment for three federally endangered plant species and the federally endangered California tiger salamander for several residential development projects in Santa Rosa, CA.

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- Preparation of documents for the establishment of Conservation Banks on the Santa Rosa Plain (CA) to preserve several endangered species of plants and the endangered California tiger salamander.
- Conduct surveys for burrowing owls and implementing a passive relocation program for owls for two projects in east Contra Costa County.
- Monitor nesting burrowing owl pair in proximity to a school in east Contra Costa County.
- Pre-construction surveys for burrowing owls for development in Brentwood, CA
- Special-status plant surveys throughout Sonoma County for parcels slated for development.
- Member of working group providing input to USFWS for Recovery Plan for three endangered plants that occur in vernal pool habitats in Sonoma, Lake and Mendocino Counties.

Wetland Research Projects

- Functional Ecology of Tijuana Estuary – research on the carbon and nitrogen cycle in a tidal salt marsh (dissertation research)
- Productivity of Wetlands in Columbia River Estuary - design, implement, analyze data and prepare project report.
- Functional Relationship Between Surrounding Wildlife and Various Types of Small Isolated Wetlands (Vernal Pools) – design, implement, analyze data and prepare project report.
- Effects of Altered Tidal Regimes on Coastal Wetlands in San Diego County – research study in two coastal marsh systems in southern California - with Dr. Joy Zedler and Phil Williams.
- Effects of Crude Oil Spill and Cleanup Procedures on Emergent Marsh in Suisun Bay Vicinity, California – design, implement, analyze data and prepare project report following spill of crude oil in brackish water bay in the San Francisco Bay region.
- Comparison of Tidal Marsh Habitat on Dredged Material Relative to Natural Tidal Marsh Habitat – manager and responsible for biological input on study of tidal salt marsh habitat development on dredged material compared to natural tidal salt marsh habitat.
- Re-vegetation of mine tailing cover for a gold mine – design of pilot program to investigate different approaches for establishing vegetation on cover placed over mine tailings.

Wetland Restoration/Enhancement/Creation Projects

- Eelgrass Transplant Study, San Diego Bay, CA – assisted in project design, implementation of project, monitoring and analysis of result.
- Los Penasquitos Lagoon Enhancement Plan, San Diego County, CA – input on biological aspects of enhancement plan.
- Batiquitos Lagoon Enhancement Plan, San Diego County, CA – input on biological aspects of enhancement plan.
- Management Plan for Tijuana River National Estuarine Sanctuary, San Diego County, CA – input on biological aspects of management plan.
- Chula Vista Wildlife Reserve, south San Diego Bay, CA – developed design of restoration project on dredge spoil island, provided oversight on the implementation of the plan, and monitored the progress of the restored habitat (tidal salt marsh). Coordinated several studies related to various aspects of tidal marsh ecology. Initial work completed in coordination with Dr. Joy Zedler.
- Tidal Salt Marsh Restoration using Dredged Materials, San Francisco Bay, CA – manager and responsible for biological input to project designed to use dredged material to restore agricultural land to tidal marsh in northern San Francisco Bay (Sonoma Baylands Project).

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- Tidal and non-tidal salt marsh restoration following spill of gasoline, Gertrude St. Ditch for Chevron, San Francisco Bay – provided technical advice and planning on design of study to restore tidal and non-tidal salt marsh habitat affected by gasoline spill, assisted with implementation of study, analysis of data, and provided input and peer review of reports.
- Restoration of tidal brackish marsh (pilot study) impacted by spill of crude oil, Suisun Bay, CA – designed, implemented and monitored restoration of shoreline that had been impacted by crude oil following the 1988 Shell Oil spill in Suisun Bay, CA.
- Sand Dune Restoration, Humboldt Bay, CA – designed conceptual dune restoration plan with emphasis to restore habitat conditions for a plant species of concern.
- Riparian Revegetation Plan, Santa Barbara County, CA – manage development of plan to restore riparian habitat in burrow pit area of coastal California river.
- Freshwater Marsh/Pond Habitat Creation, Yoncalla, OR – developed design for pond/freshwater marsh designed to offset impacts to creek from diesel spill.
- Tidal Brackish Marsh, Solano County, CA – developing conceptual design for biological component of tidal marsh restoration project on lands owned by State of California.
- Tidal Marsh, Washington State – developing tidal marsh restoration plan to offset natural resource injury to aquatic system in state of Washington.
- Tidal Brackish Marsh, Lake Merritt, Oakland, CA – develop design for demonstration tidal marsh in Lake Merritt, located in heavily urbanized area of Oakland.
- Enhancement and Management Plan for tidal lagoon system in Berkeley, CA – provide biological evaluation and recommendations for improvement to quality of tidal lagoon in Berkeley, CA
- Assist with development design of seasonally ponded wetland habitat and monitoring of performance of created wetland for construction of an industrial facility in American Canyon, CA.
- Assist with development of design of vernal pool and swale habitat creation project and construction supervision for several mitigation banks and preserves in Sonoma County, CA. Work included development and assessment of soil profiles to determine which soils could support vernal pool habitat, and supervision of construction
- Preparation of documents to supporting fee title transfer to State of California of 10 properties (mitigation and conservation banks, and preserves), including preparation of a Biological Assessment, Interim Management Plan and Long-term Monitoring and Management Plans and the agreement document.
- Design and implement program to monitor vegetation colonization of cover material placed over mine tailings at a mine site in Lake County. Responsibility also includes defining actions to vegetate areas that are not colonized naturally.

Projects With Wetland Impacts

Responsibilities on the following projects included determination of the presence and extent of wetlands and presence of other biological resources in the project area, prediction of possible impacts of the project on biological resources and preparation of project report.

- Technical guidance and peer review for addressing impacts of proposed remediation at Hunters Point Shipyard BRAC site, San Francisco, CA
- Natural Resource Management Plan, Two NATO facilities, Germany
- BECO Oil Refinery, Cape Fear River, North Carolina
- Cerrejon Marine Terminal, Baja Portete, Colombia, South America
- El Paso Natural Gas LNG Plant, Matagorda Bay, Texas

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- Petrochemical Plant, Coastal Texas
- SDG&E Encina Power Plant, Effect of Dredging, Southern California
- Kiewit Facilities, Vallejo, California
- Shorebase Facility Siting, Corpus Christi Area, Texas
- Dam Strengthening Project, Santa Barbara County, California
- Waste-to-Energy Plant, San Francisco Bay, California
- Office Building Complex, King County, Washington
- Industrial Facility, Humboldt Bay, California
- Residential Development, Redwood City, California
- Campus Industrial Park, San Jose, California
- Resort Hotel and Golf Course, Napa, California
- MOTCO Waste Disposal Facility, Galveston Bay, Texas
- Oil Spill Impact and Recovery, Suisun Bay, California
- Tijuana Estuary Tidal Restoration Plan EIR/EIS, San Diego County, California
- System Master Plan for Sanitary District, Alameda County, California
- Batiquitos Lagoon Enhancement Plan EIR/EIS, San Diego County, California
- Tailing Modernization Project, Kennecott, Magna, Utah
- WNC & Associates, Commercial Development, Wisconsin
- Amoco Pipeline, pipline maintenance Indiana and Illinois
- Fort Wayne Reduction Facility, Waste Management, Inc., Indiana, environmental liability management/restoration of habitats
- Wetland Permitting Strategy for RCRA Clean-up Activities at an Oil Refinery near Port Arthur, Texas
- Residential/Commercial development in Alameda County
- Wetland Permitting Strategy for golf course in Fremont, CA
- Wetland and other Natural Resource Impacts resulting from alternative runway alignments at Oakland Airport (with Laurel Marcus & Associates)
- Wetland permitting for vineyard in Lake County, CA, including filing and prevailing on appeal of permit conditions
- Wetland permitting and endangered species consultation for high school and middle school in Brentwood, CA
- Wetland permitting and endangered species consultation for mitigation project in Sonoma County, CA
- Wetland permitting for several residential projects in Sonoma County, CA.

Wetland Delineation

The following delineations were completed using the Corps 1987 Wetland Delineation Manual. The Corps verified each of the following delineations, although not all of the projects have been constructed.

- Tijuana River National Estuarine Research Sanctuary, San Diego County, California
- Government Property, lower Tijuana River Valley
- Airport Expansion, Santa Barbara, California
- Residential Development, North Livermore, California
- Residential Development, Pleasanton, California

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- Residential/Office Park Development, Milpitas, California
- Residential Development, Reassessment of Delineation, Folsom, California
- Industrial Complex, Folsom, California
- Office Building, Pleasanton, California
- Residential/School Development, Lincoln, California
- Highway Expansion, Contra Costa County, California
- Highway Interchange, Fremont, California
- Highway Interchange, South San Jose, California
- Equestrian Trail along Creek, San Jose, California
- Slurry Wall for Remediation of Contaminated Groundwater, Richmond, California
- Industrial Park, Reassessment – Prior Converted Cropland, South San Jose, California
- Gravel Pit, Expert Witness, Fremont, California
- J. H. Baxter Superfund Site, Weed, California
- Ballona Development Project, California (Coastal Act wetlands under Coastal Commission)
- Products Pipeline, Southwest Texas
- Mixed Development Site, Fremont, CA
- RCRA site at Refinery, Southeast Texas
- Playa Vista development – delineation of wetlands under jurisdiction of Coastal Commission pursuant to California Coastal Act.
- Delta Breeze Vineyard – delineation of waters of the United States at proposed vineyard site in Lake County, CA
- Delineation of waters of the United States for storage facilities in Napa County
- Residential development in Pittsburg, CA
- Re-evaluation of jurisdictional delineation in North Livermore (California) pursuant to U.S. Supreme Court decision in SWANCC
- Re-evaluation of jurisdictional delineation in Pleasanton (California) pursuant to U.S. Supreme Court decision in SWANCC
- Re-evaluation of jurisdictional delineation in central California pursuant to U.S. Supreme Court decision in SWANCC
- James Ranch – delineation of waters of the United States on approximately 2100 acres in Lake County, CA
- Industrial Complex (2) – delineation of waters of the United States at site of two industrial complexes in American Canyon, CA.
- High school and middle school in Brentwood, CA
- Future vineyard site in hills east of the Napa Valley, CA
- Several residential developments in Sonoma County, CA
- Residential subdivision in Winters, CA

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Oil and Chemical Spill Assessments and Recovery Planning

Responsibilities on the spill responses listed below include initial assessment of possible impact(s) of spilled material on biological resources, work with the trustees to develop and implement studies to document possible impacts and recovery from impacts, and involvement in the natural resource damage assessment process designed to develop a monetary value for impacts (injury) to the services (functions) provided by biological resources affected by the release of oil or other materials.

- Puerto Rican, San Francisco, California
- Shell Oil Spill, Suisun Bay [San Francisco], California
- American Trader, Huntington Beach, California
- Exxon Bayway, Arthur Kill, New Jersey/New York
- Texaco – Fidalgo Bay, Anacortes, Washington
- Colonial Pipeline, Virginia/Maryland
- Southern Pacific Railroad Yoncalla Diesel Spill, Yoncalla, Oregon
- Chevron Pipeline Break, Richmond, California
- Chevron USA Tanker Truck Spill, Contra Costa County, California
- UNOCAL Avila Beach, California
- UNOCAL Nederland, Texas
- Exxon Pipeline, Chiltipin Creek, Texas
- Shell Chemical Plant, Belpre, Ohio
- Colonial/Texaco Pipeline, San Jacinto River, Texas
- Koch Oil Spill, Corpus Cristi Bay Region, Texas
- Chevron Pipeline Break, Arroyo Pasajaro, California
- UNOCAL Guadalupe Oil Field, California
- Torch Oil Spill, Vandenberg AFB, Central CA Coast
- MV Kure Oil Spill in Humboldt Bay, CA
- Texaco Mococco Marsh Oil Spill (Brackish Marsh), Martinez, CA
- Hunter's Point Naval Ship Yard remediation and wetland creation opportunities, San Francisco, CA

Excerpt from Sonoma Coast Villa website
(http://www.scvilla.com/directions.htm)

EXHIBIT C

[redacted]

Plan a Weekend Getaway from the Bay Area

Sonoma Coast Villa & Spa
16702 Coast Highway One, Bodega 94922
888-404-2255 | 707-876-9818

The Sonoma Coast Villa is conveniently located just sixty minutes North of the Golden Gate Bridge on Highway One, five miles South of Bodega Bay.

San Francisco and SFO

Approximately 1-1/2 hours

- SFO Airport: take Hwy. 380 to Hwy. 280 North following signs to Nineteenth Avenue, Golden Gate Park and the Golden Gate Bridge
- From Golden Gate Bridge go North 32 miles on Hwy. 101 to the Central Petaluma / East Washington Blvd. exit, then west (left at stop light) (over freeway) on East Washington Blvd
- Continue 22 miles on the same road, which will become Hwy. One
- Our signs and entrance are two miles past the small town of Valley Ford on the right hand side at the bottom of a long hill

Sacramento

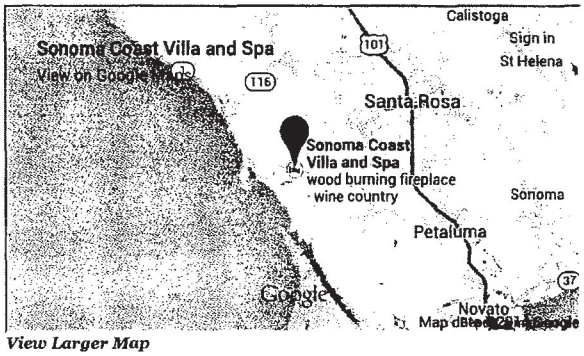
Approximately 2-1/2 hours

- South on Hwy. 80 to Napa / Sonoma / Hwy. 12 exit by Fairfield
- Hwy. 12 merges with Hwy.29 and crosses the Napa River
- After the bridge turn left on Hwy 121 and follow signs for Hwy. 116 and Petaluma. Ultimately reaching Hwy. 101
- Turn north on Hwy. 101 and go one exit to the Central Petaluma / East Washington Blvd. exit, then west (left at stop sign) on East Washington Blvd
- Continue 22 miles on the same road, which becomes Hwy. One
- Our signs and entrance are two miles past the small town of Valley Ford on the right hand side at the bottom of a long hill

East Bay and Oakland Airport

Approximately 1-1/2 hours

- North on Hwy. 80 / 880 past the San Francisco Bay Bridge and follow signs for Sacramento
- Follow signs for Hwy. 580 West and the Richmond / San Rafael Bridge
- After crossing San Rafael/Richmond Bridge follow signs for Hwy. 101 North. Head North to Petaluma
- At Petaluma take the Central Petaluma exit, then west (left at stop sign) on East Washington Blvd
- Continue 22 miles on the same road, which becomes Hwy. One
  Our signs and entrance are two miles past the small town of Valley Ford on the right hand side at the bottom of a long hill.



View Larger Map

Proprietor's notes

Many maps in travel books and on the Internet give routes that vary in distance and directions for the same trip from points A to B. Our goal is for Guests of the Villa to arrive timely and safely as there is so much to enjoy here in West Sonoma County. Driving times are based on normal traffic. Remember to allow an extra hour if it's afternoon, evening or Friday night.

A slight diversion for those coming from Sacramento might be to follow Hwy. 12 into the town of Sonoma where the Plaza will offer shopping and great food. When ready to continue the journey to the Villa just follow Hwy. 12 through Santa Rosa and Sebastopol until the road dead ends at Hwy. 1. Turn left 1 mile and you will see our gates on the left hand side as you come down a steep hill. Caution! Put your blinker on early.

Another route might be to follow Hwy. 116 to Sebastopol where there are antique shops and shopping. From there just follow the signs for Bodega on Hwy. 12.

From the south there is always scenic Coast Hwy. 1. From the Golden Gate Bridge follow signs for Hwy.1. Stinson Beach, Point Reyes and the Hog Island Oyster Farm in Marshall are a few spots on the way to the Villa. Double your driving time as the road has many curves and great vistas.

12-20-2017 NOP Comment Letter -

Attachment B

2012049983
OFFICIAL RECORDS OF
SONOMA COUNTY
FIDELITY NAT'L TITLE CO. JANICE ATKINSON
05/25/2012 08:00 DEED
RECORDING FEE: $0.00
PAID
13 PGS

RECORDING REQUESTED BY AND RETURN TO:

Sonoma County Agricultural
Preservation and Open Space District
575 Administration Drive, Room 102A
Santa Rosa, CA 95403

Free Recording per Gov't Code Sec 6103

APN 026-030-011

TRAIL EASEMENT

Alfred Bordessa and Joseph Bordessa, as Successor Trustees of the Bruno Bordessa and Dorothy Bordessa Revocable Intervivos Trust (created by Declaration of Trust dated June 12, 2000) (hereafter referred to as "GRANTOR") hereby grants a public trail easement to the Sonoma County Agricultural Preservation and Open Space District, a public agency formed pursuant to the provisions of Public Resources Code sections 5500 et seq. ("DISTRICT"), as follows:

RECITALS

A. GRANTOR is the owner in fee simple of that certain real property located in Sonoma County and more particularly described in Exhibit A, attached hereto and incorporated herein by this reference ("the Property").

B. The Property possesses significant value as a recreational, educational, public access, open space, and scenic resource for the general public.

C. When properly managed, public recreational use of the Property is compatible with the sensitive natural resources and agriculture on the Property.

D. On March 27, 2012, DISTRICT's Board of Directors, pursuant to Government Code section 65402 and Sonoma County Ordinance No. 5180, determined, by its Resolution No. 12-0129, that the acquisition of a trail easement in the Property was consistent with the Sonoma County General Plan (specifically the Plan's Open Space Element) and with the District's voter-approved Expenditure Plan.

E. DISTRICT has the authority to acquire trail easements by virtue of Public Resources Code section 5540 and possesses the ability and intent to enforce the terms of this trail easement.

F. Concurrently with the recordation of this trail easement, GRANTOR is conveying a conservation easement and assigning development rights to the DISTRICT with respect to the Property. Design and construction of the trails and staging areas outlined in this public trail easement shall be consistent with the terms, conditions and purpose of the conservation easement.

G. The parties anticipate that the DISTRICT will either designate an Operating Entity as provided in Section 4, or assign this trail easement in whole to a qualified organization as permitted in Section 12.

H. The recordation of this trail easement is a condition of Grant No. 11-063 to the DISTRICT from the State Coastal Conservancy ("Conservancy"), an agency of the State of California charged under Division 21 of the Public Resources Code with protecting and enhancing the resources of the coast and the San Francisco Bay area, and providing public access to them. Grant No. 11-063 provides funding for the District's acquisition of the Conservation Easement.

EASEMENT

1. Grant and Acceptance of Trail Easement. Pursuant to the common and statutory law of the State of California, GRANTOR hereby grants to DISTRICT and DISTRICT accepts a trail easement in the Property in perpetuity ("the Trail Easement") under the terms and conditions set forth herein.

2. Purpose. The purpose of this Trail Easement (hereinafter referred to as the "Public Access Purpose") is to assure that the Staging Areas and Trail Corridors, as defined below, will be established and made available to the public in perpetuity for low-intensity public outdoor recreational and educational purposes, defined as dispersed, nonexclusive, and non-motorized activities that do not adversely impact the natural resources or agriculture on the Property. Uses may include hiking, nature study, bird watching, sightseeing, picnicking, outdoor education, docent-led tours, scientific research and observation, limited seasonal access to the Estero Americano for recreational uses such as kayaking and canoeing, and other such uses similar in nature and intensity.

3. Staging Areas, Trail Corridors and Access. The Trail Easement shall include, within the boundaries of the Property, two trail corridors, each fifty (50) feet in width ("Trail Corridors"), two staging areas, ("Staging Areas"), and use of the main access road, or replacement road in a similar location ("Access Road"), the existing bridge, or a replacement bridge in the same or similar location ("Access Bridge"), and the entrance gate to the Property, or a replacement gate in the same or similar location ("Access Gate"), as shown on Exhibit B, attached hereto and incorporated herein by this reference. As of the date of execution of this Trail Easement, the precise length and location of each of the Trail Corridors and the size and locations of the Staging Areas have not yet been determined. The DISTRICT shall, in its sole discretion, after reasonable consultation with GRANTOR and the Conservancy, designate and survey the precise locations of the Trail Corridors and the Staging Areas. The DISTRICT shall, within two years of the effective date of this Trail Easement, execute, acknowledge, and record in Sonoma County a document styled "Bordessa Trail Easement: Designation of Trail Corridors and Staging Areas," in such form as may be required by law at the time of the recordation. The Trail Corridors and Staging Areas shall comply with the following criteria: Each Trail Corridor shall begin at a Staging Area. Each Staging Area shall be suitable for use by pedestrians, bicyclists and motor vehicles. At the sole discretion of DISTRICT, one Staging Area may be located near State Highway 1 and one Staging Area may be located within the interior of the Property, potentially in the pasture directly south of the 2-acre Agricultural Building Envelope, as shown on Exhibit B, with access from State Highway 1 on the Access Road. The combined total acreage of the two Staging Areas shall not exceed one and a half acres in size. Beyond the Staging Areas, each Trail Corridor shall be fifty feet in width and shall be restricted to pedestrian use only, except

as otherwise provided in this Trail Easement. Small bridges used only for public pedestrian use and trail and ranch operations and maintenance use, may be constructed, reconstructed and maintained, within the fifty (50) feet wide Trail Corridor. Cumulatively, the Trail Corridors may extend up to five (5) miles in length. At the DISTRICT's sole discretion, the Trail Corridors may be left unimproved or developed with an impervious surface. The Staging Areas and Trail Corridors shall not be placed within two hundred feet of the Residential Building Envelope on the Property. At a minimum, the Trail Corridors shall provide access from State Highway 1 to portions of the Property with vistas of the Estero Americano and surrounding lands. Walk-in access to the Estero Americano may be provided for pedestrians and hand-carried, non motorized boats, such as kayaks and canoes, if and to the extent that such access is determined by DISTRICT to be compatible with sensitive resources associated with the Estero Americano and the Property. No recreational structures or improvements of any kind shall be built in the "Forever Wild Area" or the "Natural Areas" on the Property, except that, at District's sole discretion, a segment of the Access Road, a segment of trail and a viewing area with related appurtenances, may be placed within the area designated as "Trail Corridor within Forever Wild Area and Natural Areas" on Exhibit B, if resource studies show that such location would minimize impacts to or enhance the resources of the Property. DISTRICT may place limitations on the nature, hours and season of public access to the Access Road, Access Bridge, Access Gate, Staging Areas and Trail Corridors, or portions thereof, as it deems appropriate for natural resource protection.

4. **Opening of Trail Corridors and Staging Areas**. Opening of the Trail Corridors and Staging Areas to public access is subject to the following restriction for the benefit and protection of the Property. Prior to opening any trails for public use, DISTRICT shall ensure that it or another public agency or nonprofit organization (the "Operating Entity") with sufficient assets, management capability, resources, and liability insurance to carry out the obligations hereunder, has accepted full responsibility for the operation and maintenance of the Trail Corridors and Staging Areas. Prior to designating the Operating Entity, the DISTRICT shall consult with and receive the written approval of the Conservancy regarding the choice of Operating Entity.

5. **Maintenance of Access Road, Access Bridge and Access Gate**. For a period of five (5) years after recordation of this Trail Easement, GRANTOR shall be solely responsible for maintenance of the Access Road, Access Bridge and Access Gate in a condition safe and serviceable for use of vehicles and equipment for development and construction of the Staging Areas and Trail Corridors, and for public access to the Staging Areas and Trail Corridors. Thereafter, GRANTOR and DISTRICT, or the Operating Entity, may enter into a maintenance agreement to provide for continued maintenance of the Access Road, the Access Bridge, and the Access Gate, and to allocate the costs of such maintenance, generally in proportion to use of the improvements by GRANTOR and the public.

6. **Trail Easement Inspections**. DISTRICT shall provide notice to the Conservancy of any periodic or other monitoring of the Trail Easement and copies of any written findings or reports; on request of the Conservancy, Conservancy staff shall be permitted to accompany the DISTRICT on any monitoring visit.

7. **Affirmative Rights of DISTRICT**. DISTRICT shall have the following rights under this Trail Easement:

7.1 Preservation. DISTRICT shall have the right to preserve and protect the Staging Areas and Trail Corridors to ensure that the Public Access Purpose of this Trail Easement is realized.

7.2 Trail Uses And Access. DISTRICT shall have the right to develop, maintain, operate, and use the Access Road, the Access Bridge, the Access Gate, Staging Areas, and Trail Corridors for Public Access Purposes. This development and use shall occur in accordance with all required governmental approvals and in strict compliance with this Trail Easement.

7.3 Improvements. DISTRICT may enter the Property to construct, install, operate, and maintain the Access Road, Access Bridge, Access Gate, trails, parking areas, small unlighted signs, footbridges, stairs, fences, toilets, trash cans, picnic tables, benches, vegetation, landscaping, and other facilities as necessary or appropriate for the safe and convenient use of the Staging Areas and Trail Corridors by the public. Any grading required for such improvements must be contained within the Trail Corridors, Staging Areas and Access Road.

7.4 Service Access. DISTRICT may use the Property for service vehicle, equestrian and pedestrian access when necessary for construction, operation, and maintenance of the Staging Areas and Trail Corridors, or for law enforcement, medical or other emergencies, or rescue.

7.5 Public Use. DISTRICT may allow and provide for public use, access, ingress and egress to the Staging Areas and Trail Corridors in a manner consistent with this Trail Easement.

8. Indemnification.

8.1 GRANTOR's Indemnity. GRANTOR shall hold harmless, indemnify, and defend DISTRICT, its agents, employees, volunteers, successors and assigns, and the State of California from and against all damages, liabilities, claims and expenses, including reasonable attorneys' fees, arising from or in any way connected with (i) injury to or the death of any person, or physical damage to any property resulting from any act, omission, condition or other matter related to or occurring on or about the Property, including the Staging Areas and Trail Corridors, except to the extent that such damage, liability, claim or expense is the result of the negligence, gross negligence, or intentional misconduct of DISTRICT (it being the intent of this provision to limit GRANTOR's indemnity to the proportionate part of DISTRICT's damage, liability, claim or expense for which GRANTOR is responsible). In the event of any claim, demand, or legal complaint against DISTRICT, the right to the indemnification provided by this Section 8.1 shall not apply to any cost, expense, penalty, settlement payment, or judgment, including attorneys' fees, incurred prior to DISTRICT's written notice of such claim, demand, or legal complaint to GRANTOR, unless GRANTOR has acquired knowledge of the matter by other means, nor to any costs, expenses, or settlement payment, including attorneys' fees, incurred subsequent to that notice unless such cost, expense, or settlement payment shall be approved in writing by GRANTOR, which approval shall not be unreasonably withheld.

8.2 DISTRICT's Indemnity. DISTRICT shall hold harmless, indemnify, and defend

GRANTOR, its heirs, devisees, successors and assigns, from and against all damages, liabilities, claims and expenses, including reasonable attorneys' fees, arising from or in any way connected with injury to or the death of any person, or physical damage to any property, resulting from any act, omission, condition, or other matter related to or occurring on or about the Property, including the Staging Areas and Trail Corridors, and attributable to DISTRICT or to the Operating Entity, except to the extent that such damage, liability, claim or expense is the result of the negligence, gross negligence, or intentional misconduct of GRANTOR (it being the intent of this provision to limit DISTRICT's indemnity to the proportionate part of GRANTOR's damage, liability, claim or expense for which DISTRICT is responsible). In the event of any claim, demand, or legal complaint against GRANTOR, the right to the indemnification provided by this Section 8.2 shall not apply to any cost, expense, penalty, settlement payment, or judgment, including attorneys' fees, incurred prior to GRANTOR's written notice of such claim, demand, or legal complaint to DISTRICT, nor to any costs, expenses, or settlement payment, including attorneys' fees, incurred subsequent to that notice unless such cost, expense, or settlement payment shall be approved in writing by DISTRICT, which approval shall not be unreasonably withheld. DISTRICT hereby also agrees to hold harmless, indemnify and defend GRANTOR from and against all damages, liabilities, claims and expenses, including attorneys' fees, asserted against GRANTOR by any officer, agent, employee, or volunteer of DISTRICT, for personal injury and/or property damage arising out of any inspection or visit to the Property by any such officer, agent, employee or volunteer of DISTRICT, except to the extent that such injury is attributable to the negligence, intentional act or willful misconduct of GRANTOR.

9. Interpretation and Construction. To the extent that this Trail Easement may be uncertain or ambiguous such that it requires interpretation or construction, then it shall be interpreted and construed in such a way that best promotes the Public Access Purpose of this Trail Easement.

10. Notices.

10.1 Method of Delivery. Except as otherwise expressly provided herein, all notices, (including requests, demands, approvals or communications) under this Trail Easement shall be in writing and either served personally or sent by first class mail, postage prepaid, private courier or delivery service addressed as follows:

To GRANTOR: Joseph Bordessa and Alfred Bordessa
P.O. Box 751254
Petaluma, CA 94975

To DISTRICT: General Manager
Sonoma County Agricultural Preservation and Open Space District
747 Mendocino Avenue, Suite 100
Santa Rosa, CA 95401

Or to such other address as either party from time to time shall designate by written notice pursuant to this Section 8.

10.2 Effect Date of Notice. Notice shall be deemed given for all purposes as follows:

(a) When personally delivered to the recipient, notice is effective on delivery.

(b) When mailed first class postage prepaid to the last address designated by the recipient pursuant to Section 8.1, notice is effective one day following the date shown on the postmark of the envelope in which such notice is mailed or, in the event the postmark is not shown or available, then one day following the date of mailing. A written declaration of mailing executed under penalty of perjury by the GRANTOR or DISTRICT or an officer or employee thereof shall be sufficient to constitute proof of mailing.

(c) When mailed by certified mail with return receipt requested, notice is effective on receipt as confirmed by the return receipt.

(d) When delivered by overnight delivery with charges prepaid or charged to the sender's account, notice is effective on delivery as confirmed by the delivery service.

(e) When sent by telex or fax to the last telex or fax number of the recipient known to the party giving notice, notice is effective on receipt as long as (i) a duplicate copy of the notice is promptly given by first-class or certified mail or by overnight delivery or (ii) the receiving party delivers a written confirmation of receipt. Subject to the foregoing requirements, any notice given by telex or fax shall be considered to have been received on the next business day if it is received after 5 p.m. (recipient's time) or on a non-business day.

10.3 Refused or Undeliverable Notices. Any correctly addressed notice that is refused or undeliverable because of an act or omission of the party to be notified shall be considered to be effective as of the first date that the notice was refused, unclaimed, or considered undeliverable by the postal authorities, messenger, or overnight delivery service.

11. Amendment. If circumstances arise under which an amendment or modification of this Trail Easement would be appropriate, GRANTOR and DISTRICT shall be free to jointly amend this Trail Easement, provided that any amendment shall be consistent with the Public Access Purpose of this Trail Easement, and shall not affect the Trail Easement's perpetual duration and further provided that the Conservancy provides its prior written consent to the amendment. Any such amendment shall be in writing, executed by GRANTOR and DISTRICT, and recorded in the Office of the Sonoma County Recorder.

12. Assignment. The DISTRICT may assign this Trail Easement in whole or in part, but only to an entity that is a qualified entity at the time of transfer under Section 170(h) of the Internal Revenue Code, as amended (or any successor provision then applicable), and the applicable regulations promulgated thereunder, and is authorized to acquire and hold conservation easements under Section 815.3 of the California Civil Code (or any successor provision then applicable). As a condition of such transfer, DISTRICT shall require the transferee to expressly agree in writing to assume DISTRICT's obligations hereunder in order that the purposes of this Trail Easement shall continue to be carried out. The DISTRICT may not assign this Trail Easement without obtaining the prior written consent of the State of California through the Executive Officer of the Conservancy or its successor. Any assignment without such consent shall be void and of no effect. Such consent shall not be unreasonably withheld.

13. Third Party Beneficiary. This Trail Easement was acquired by DISTRICT pursuant, in part, to a grant of funds from the Conservancy, for the purpose of preserving the open space, natural resource, scenic, recreational and educational values of the Property, and no

use of the Property inconsistent with that purpose is permitted, except by specific act of the California Legislature. The DISTRICT is further obligated to use, manage, operate and maintain the Trail Easement as described in the "USE, MANAGEMENT, OPERATION AND MAINTENANCE" section of California State Coastal Conservancy Grant Agreement No. 11-063, an unrecorded agreement, an executed copy of which is on file at the office of DISTRICT and at the office of the Conservancy. DISTRICT shall regularly monitor the condition of the Property and the uses and practices on the Property to determine consistency with the purpose and terms of this Trail Easement. DISTRICT shall take all reasonable steps to ensure the safety and health of any persons, whether professionals, staff members, or volunteers, who enter the Property for the purposes of monitoring.

Upon a finding by the Conservancy at a noticed public hearing, following written notice to the DISTRICT and the GRANTOR and a reasonable opportunity to cure, that any of the essential terms of this Trail Easement have been violated; or that the existence of DISTRICT has terminated for any reason prior to an assignment of DISTRICT's interest in the Trail Easement in compliance with Section 10 of this Trail Easement; DISTRICT's right, title, and interest in this Trail Easement shall automatically vest in the State of California for the benefit of the Conservancy or its successor, upon acceptance of the Trail Easement and compliance with any legal requirements related to acceptance; provided, however that the State, through the Executive Officer of the Conservancy, or its successor, may designate another public agency or a nonprofit organization to accept the right, title and interest, in which case vesting shall be in that agency or organization rather than in the State. For purposes of this section the "essential terms of this Trail Easement" are those set forth in Sections 2, 3, 4, 6, and 9.

This Trail Easement (including any portion or interest in it) may not be used as security for any debt without the written approval of the DISTRICT and the State of California, acting through the Executive Officer of the Conservancy, or its successor.

The Conservancy is an express third-party beneficiary with respect to the provisions of this Trail Easement pertaining to the Conservancy, and may take all steps that it deems necessary to enforce its rights.

14. Applicable Law and Forum. This Trail Easement shall be construed and interpreted according to the substantive law of California, excluding the law of conflicts. Any action to enforce the provisions of this Trail Easement or for the breach thereof shall be brought and tried in the County of Sonoma.

15. Entire Agreement. This instrument sets forth the entire agreement of the parties with respect to this Trail Easement and supersedes all prior discussions, negotiations, understandings, or agreements relating to this Trail Easement, all of which are merged herein. No alteration or variation of this instrument shall be valid or binding unless contained in a written amendment prepared, executed and recorded in accordance with Section 9.

16. Severability. In the event any provision of this Trail Easement is determined by the appropriate court to be void and unenforceable, all remaining terms and conditions shall remain valid and binding. If the application of any provision of this Trail Easement is found to be invalid or unenforceable as to any particular person or circumstance, the application of such provisions to persons or circumstances, other than those as to which it is found to be invalid, shall not be affected thereby.

17. **Effective Date**. This Trail Easement shall be effective as of the date of its acceptance by DISTRICT pursuant to California Public Resources Code sections 5500 et seq.

IN WITNESS WHEREOF, GRANTOR and DISTRICT have executed this Trail Easement this 8th day of May, 2012.

GRANTOR:

By:_____
Joseph Bordessa, as Successor Co-Trustee of the Bruno Bordessa and Dorothy Bordessa Revocable Intervivos Trust (created by Declaration of Trust dated June 12, 2000)

By:_____
Alfred Bordessa, as Successor Co-Trustee of the Bruno Bordessa and Dorothy Bordessa Revocable Intervivos Trust (created by Declaration of Trust dated June 12, 2000)

DISTRICT:

SONOMA COUNTY AGRICULTURAL PRESERVATION AND OPEN SPACE DISTRICT

By:_____
President of the Board of Directors

ATTEST: Veronica A. Ferguson by M. Arellano
_____, County Clerk of the Board of Directors

TRAIL EASEMENT

State of California)
County of Sonoma)

On May 8, 2012 before me,
Kathy Nelsen, Notary Public (here insert name and title of the officer),
personally appeared Joseph Bordessa and Alfred Bordessa,
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____ (Seal)

NCR-1 KATHY NELSEN NCR-1
COMM. #1926728
NOTARY PUBLIC - CALIFORNIA
SONOMA COUNTY
My Comm. Expires March 25, 2015

CERTIFICATE OF ACCEPTANCE
(Government Code Section 27281)
OF REAL PROPERTY BY THE
BOARD OF DIRECTORS OF THE
SONOMA COUNTY AGRICULTURAL PRESERVATION
AND OPEN SPACE DISTRICT

This is to certify that the interests in real property conveyed by the Trail Easement Agreement dated May 8, 2012, Alfred Bordessa and Joseph Bordessa, as Successor Trustees of the Bruno Bordessa and Dorothy Bordessa Revocable Intervivos Trust, created by Declaration of Trust dated June 12, 2002, to the Sonoma County Agricultural Preservation and Open Space District, a governmental agency formed pursuant to the provisions of Public Resources Code Section 5506.5, is hereby accepted by the President of the Board of Directors on behalf of the District pursuant to the authority conferred by Resolution No. 12-0129 of the Board of Directors, dated March 27, 2012 and the District consents to the recording thereof by its duly authorized officer.

Sonoma County Agricultural Preservation
and Open Space District

Dated: 5-8-12

By: _____
Shirlee Zane, President
Board of Directors

ATTEST:

Veronica A. Ferguson by M. Arellano
Clerk of the Board of Directors

CALIFORNIA ALL-PURPOSE CERTIFICATE OF ACKNOWLEDGMENT

State of California

County of Sonoma

On May 8, 2012 before me, Sandra L. Faus Notary Public,
(Here insert name and title of the officer)

personally appeared Shirlee Zane,

who proved to me on the basis of satisfactory evidence to be the person~~(s)~~ whose name~~(s)~~ is/~~are~~ subscribed to the within instrument and acknowledged to me that ~~he~~/she/~~they~~ executed the same in ~~his~~/her/~~their~~ authorized capacity~~(ies)~~, and that by ~~his~~/her/~~the~~ir signature~~(s)~~ on the instrument the person~~(s)~~, or the entity upon behalf of which the person~~(s)~~ acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

SANDRA L. FAUS
Commission # 1957686
Notary Public - California
Sonoma County
My Comm. Expires Oct 22, 2015

WITNESS my hand and official seal.

Sandra L Faus
Signature of Notary Public

(Notary Seal)

ADDITIONAL OPTIONAL INFORMATION

DESCRIPTION OF THE ATTACHED DOCUMENT

Trail Easement
(Title or description of attached document)

Bordessa
(Title or description of attached document continued)

Number of Pages 8 Document Date 5/8/12

SCAPOSD
(Additional information)

CAPACITY CLAIMED BY THE SIGNER

- ☐ Individual (s)
- ☐ Corporate Officer

(Title)

- ☐ Partner(s)
- ☐ Attorney-in-Fact
- ☐ Trustee(s)
- ☑ Other Board Chair

INSTRUCTIONS FOR COMPLETING THIS FORM

Any acknowledgment completed in California must contain verbiage exactly as appears above in the notary section or a separate acknowledgment form must be properly completed and attached to that document. The only exception is if a document is to be recorded outside of California. In such instances, any alternative acknowledgment verbiage as may be printed on such a document so long as the verbiage does not require the notary to do something that is illegal for a notary in California (i.e. certifying the authorized capacity of the signer). Please check the document carefully for proper notarial wording and attach this form if required.

- State and County information must be the State and County where the document signer(s) personally appeared before the notary public for acknowledgment.
- Date of notarization must be the date that the signer(s) personally appeared which must also be the same date the acknowledgment is completed.
- The notary public must print his or her name as it appears within his or her commission followed by a comma and then your title (notary public).
- Print the name(s) of document signer(s) who personally appear at the time of notarization.
- Indicate the correct singular or plural forms by crossing off incorrect forms (i.e. ~~he~~/she/~~they,~~ is /~~are~~) or circling the correct forms. Failure to correctly indicate this information may lead to rejection of document recording.
- The notary seal impression must be clear and photographically reproducible. Impression must not cover text or lines. If seal impression smudges, re-seal if a sufficient area permits, otherwise complete a different acknowledgment form.
- Signature of the notary public must match the signature on file with the office of the county clerk.
  - Additional information is not required but could help to ensure this acknowledgment is not misused or attached to a different document.
  - Indicate title or type of attached document, number of pages and date.
  - Indicate the capacity claimed by the signer. If the claimed capacity is a corporate officer, indicate the title (i.e. CEO, CFO, Secretary).
- Securely attach this document to the signed document

Escrow No.: 12-**490119808Z**-KN
Locate No.: CAFNT0949-0949-0001-490119808Z
Title No.: 12-**490119808Z**

EXHIBIT "A"

The land referred to herein is situated in the State of California, County of Sonoma, Unincorporated Area, and is described as follows:

All of that certain land lying and being in Townships 5 and 6 North, Range 10 West, M.D.M., in the County of Sonoma, State of California , and particularly described as follows:

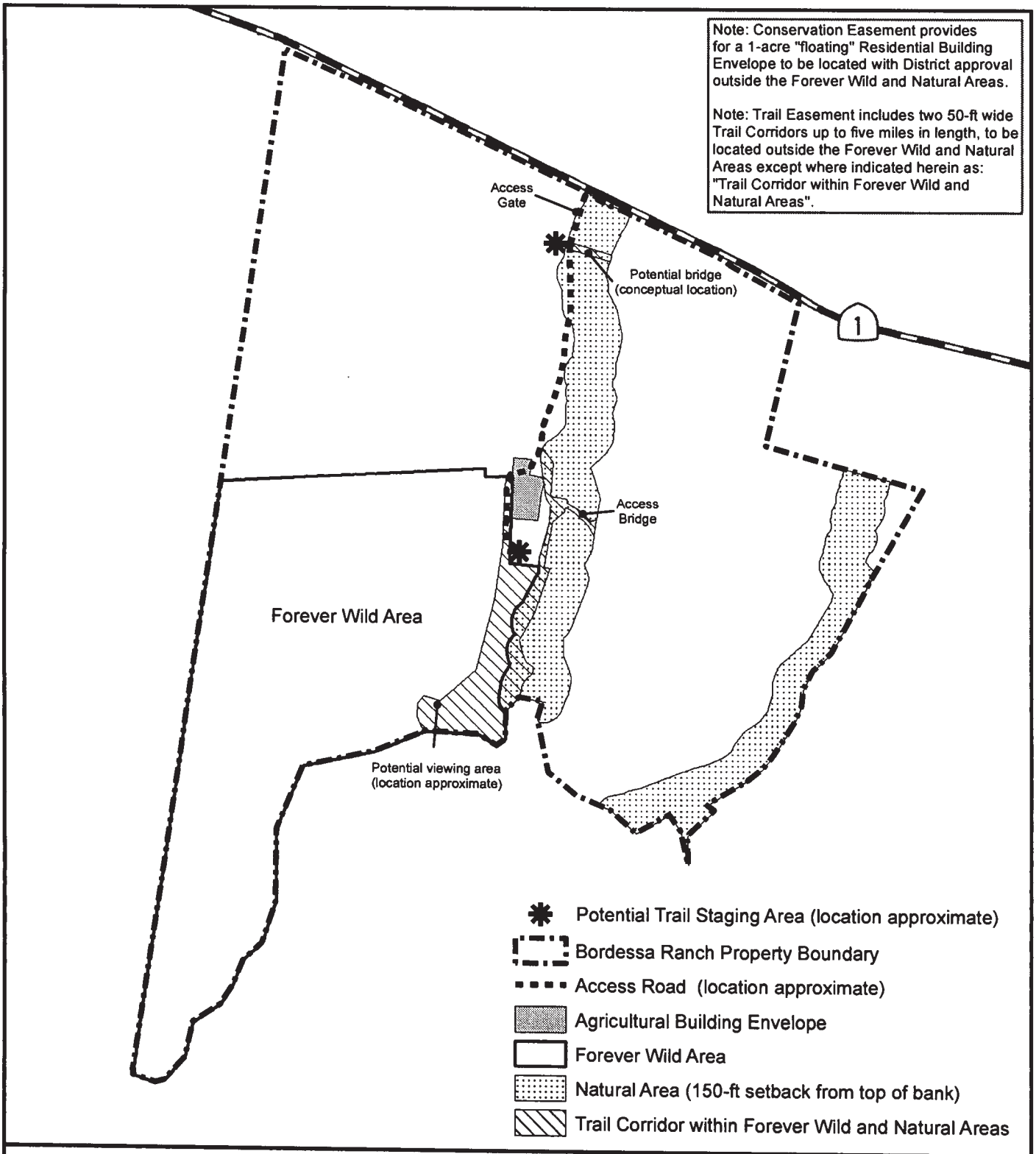
BEGINNING at a point in the center of the County road leading from Valley Ford to Bodega Bay at the Southwest corner of that certain 634.12 acre tract of land shown and designated upon the plat entitled "Map of survey made for heirs of Hollis Hitchcock in Rancho Estero Americano and Rancho Canada De Pogolimi", said Plat being on file in Book 16 of Maps, page 11, Sonoma County Records, said point of beginning is further described as bearing South 30.0 feet from a granite monument marked "L 12", thence from said point of beginning S. 76° 35'W. along the center line of said County Road 579.4 feet to a point from which an iron pipe monument bears S. 21° 37' W. 30.3 feet; thence S.21° 37'W. 4762.2 feet to a point on the line of high tide of the Estero Americano, and from which an iron pipe monument bears N. 21°37'E.20.0 feet; thence Westerly along the northerly bank of said Estero Americano following the meanderings of the line of high tide to a point from which an iron pipe monument bears N.7° 53'E.23.0 feet; thence leaving the line of high tide N.7°53'E.2589.0 feet; thence N.7° 42'E. 1943.8 feet; thence N. 8° 01'E. 2270.7 feet; thence N.7° 47' E. 974.3 feet to a point in the center of the heretofore mentioned County Road; thence in a southeasterly direction along the center of said County Road to the point of beginning.

EXCEPTING THEREFROM, the following land described as follows:

A tract of land in the Rancho Estero Americano, in Townships 5 and 6 North, Range 10 West, M.D.M., and particularly described as follows:
BEGINNING at a point in the center of the county road leading from Valley Ford to Bodega Bay at the Southwest corner of that certain 634.12 acre tract of land shown and designated upon the plat entitled "Map of survey made for heirs of Hollis Hitchcock in Rancho Estero Americano and Rancho Canada De Pogolimi", said Plat being on file in Book 16 of Maps, page 11, Sonoma County Records, said point of beginning is further described as bearing South 30.0 feet and S36° 35W.579.40 feet from a granite monument marked "L12"; thence from said point of beginning along the center line of said road, N76°40'40" W.2713.74 feet and N.57°42'W.370.747 feet; thence leaving said roadway, S.12°25'14" W.896.094 feet, S.13°21'39"W.287.985 feet, S.74°32'30"E. 1199.43 feet, S.28°55'17"W.795.94 feet, S.27°20'19"W.177.028 feet, S.28°38'W.419.78 feet, S.44°26'30"W.186.55 feet, S.27°34'30"W.160.87 feet, S.5°04'30"W.124.74 feet, S.23°18'30"W.138.05 feet, S.32°52'W.272.42 feet, S.39°30'30"W.123.80 feet, S.49°56'W.140.54 feet, S.58°22'W.285.09 feet, S73°05'30"W.45.32 feet and S.60°08'W.20.604 feet to a point on the line of high tide of the Estero Americano; thence along said high water line, S.43°34'E.67.399 feet, S.45°23'W.264.4 feet, S.6°04'E.200.0 feet, S.23°16'E.345.0 feet, S.51°17'E.607.1 feet, S.54°19E.416.4 feet, S.86°56'E.561.0 feet and S.84°35'E.504.8 feet to a point which bears S.21°37'W.4762.2 feet from the point of beginning; thence N.21°37'E.4762.2 feet to the point of beginning.

APN: 026-030-011

Exhibit B



Bordessa Ranch Trail Easement

0 500 1,000 2,000 Feet

SONOMA COUNTY
AGRICULTURAL PRESERVATION AND OPEN SPACE DISTRICT

Map Date: April 2, 2012

Sources: Sonoma County GIS (roads, parcels); Digital Globe 2009 (imagery); SCAPOSD (CE Areas, stream channels).

This map is for illustrative purposes only and is not intended to be a definitive property description. The easement areas shown on this map are generated from digital vector data on file with the District; the vector data itself designates these areas. The southern and western boundaries of the Forever Wild Area extend to the property boundary.

N

J. Newell S:\GISProjects\Bordessa\PDFs\bordessa_Exhibit_B_to_Trail_Easement

12-20-2017 NOP Comment Letter -

Attachment C

2012049982
1
OFFICIAL RECORDS OF
SONOMA COUNTY
JANICE ATKINSON
30 PGS
FIDELITY NAT'L TITLE CO.
05/25/2012 08:00 TRD
RECORDING FEE: $0.00
PAID

RECORDING REQUESTED BY AND RETURN TO:

Sonoma County Agricultural
Preservation and Open Space District
575 Administration Drive, Room 102A
Santa Rosa, CA 95403

Free Recording per Gov't Code Sec 6103

AP #026-030-011

DEED AND AGREEMENT BY AND BETWEEN ALFRED BORDESSA AND JOSEPH BORDESSA, AS SUCCESSOR TRUSTEES OF THE BRUNO BORDESSA AND DOROTHY BORDESSA REVOCABLE INTERVIVOS TRUST AND THE SONOMA COUNTY AGRICULTURAL PRESERVATION AND OPEN SPACE DISTRICT CONVEYING A CONSERVATION EASEMENT AND ASSIGNING DEVELOPMENT RIGHTS

Alfred Bordessa and Joseph Bordessa, as Successor Trustees of the Bruno Bordessa and Dorothy Bordessa Revocable Intervivos Trust (created by Declaration of Trust dated June 12, 2000) (hereafter referred to as "GRANTOR") and the Sonoma County Agricultural Preservation and Open Space DISTRICT, a public agency formed pursuant to the provisions of Public Resources Code sections 5500 et seq. ("DISTRICT"), agree as follows:

RECITALS

A. GRANTOR is the owner in fee simple of that certain real property located in Sonoma County and more particularly described in Exhibit A, attached hereto and incorporated herein by this reference ("the Property").

B. In 1990 the voters of Sonoma County approved the creation of DISTRICT and the imposition of a transactions and use tax by the Sonoma County Open Space Authority ("the Authority"). The purpose for the creation of DISTRICT and the imposition of the tax by the Authority was to provide for the preservation of agriculture and open space through the acquisition of interests in appropriate properties from willing sellers. The District was created and the tax imposed in order to further the state policy for the preservation of agricultural and open space lands, to meet the mandatory requirements imposed on the County and each of its cities by Government Code sections 65560 et seq. and to advance the implementation of the open space elements of their respective general plans. In order to accomplish those purposes, DISTRICT and the Authority entered into a contract whereby, in consideration of the Authority's financing of DISTRICT's acquisitions, DISTRICT agreed to and did adopt an acquisition program that was in conformance with the Authority's voter approved Expenditure Plan. In 2006, the voters of Sonoma County approved an extension of the transaction and use tax and an update of the Expenditure Plan. The DISTRICT's acquisition program remains in full compliance with that updated voter-approved Expenditure Plan.

C. On March 27, 2012, DISTRICT's Board of Directors, pursuant to Government Code section 65402 and Sonoma County Ordinance No. 5180, determined, by its Resolution No. 12-0129, that the acquisition of a conservation easement in the Property was consistent with the Sonoma County General Plan (specifically the Plan's Open Space and Resource Conservation Element and the Agricultural Resources Element) because the Property is within a Scenic Landscape Unit, borders a scenic corridor and is very visible from the road. The Property has special status species, has sensitive status species habitat, marshes and wetlands, and riparian corridors, and it borders the Estero Americano, a critical habitat area. Under the Agricultural Resources Element the Property is identified for agricultural production, and has characteristics suitable for continued agricultural use. On December 1, 2011, the County's Fiscal Oversight Commission determined that the acquisition was consistent with its Expenditure Plan.

D. DISTRICT has the authority to acquire conservation easements by virtue of Public Resources Code section 5540 and possesses the ability and intent to enforce the terms of this Easement.

E. Concurrent with the recordation of this Conservation Easement, GRANTOR will record a trail easement ("Trail Easement") to DISTRICT to allow for public access to the Property as set forth therein.

F. GRANTOR intends, by selling this Conservation Easement and Trail Easement to DISTRICT at a price substantially less than its fair market value, to make a charitable contribution to DISTRICT in support of DISTRICT's efforts to preserve the Conservation Values of the Property, as defined below. DISTRICT acknowledges GRANTOR's charitable intent.

G. This Conservation Easement was acquired in part with funds provided by the State Coastal Conservancy (the "Conservancy"), an agency of the State of California, for the purposes of preserving the natural resource, open space, scenic, agricultural, and public access, recreation, and education values of the Property in perpetuity. These funds represent a substantial investment by the people of the State of California in the preservation of open space and natural resources, the long-term conservation of agricultural land, and the retention of land for these purposes in perpetuity. The rights vested herein in the State of California arise out of the State's statutory role in fostering the conservation of agricultural land, and the preservation of coastal open space and natural resources in California and its role as a contributor to, and a fiduciary for, the public investment represented here. The purpose of this Conservation Easement is recognized by and will serve the objectives of the Conservancy's enabling legislation, Division 21 (sections 31000, et seq.) of the California Public Resources Code.

THEREFORE, in consideration of the foregoing recitations and of the mutual covenants, terms, conditions, and restrictions herein set forth and other valuable consideration receipt of which is hereby acknowledged, GRANTOR and DISTRICT agree as follows:

EASEMENT

PART ONE: GRANT OF EASEMENT

1. Grant and Acceptance of Conservation Easement and Assignment of Development Rights. Pursuant to the common and statutory law of the State of California including the provisions of Civil Code sections 815 to 816, inclusive, GRANTOR hereby grants to DISTRICT and DISTRICT accepts a conservation easement in the Property in perpetuity ("the Easement"). GRANTOR hereby irrevocably assigns to DISTRICT all development rights associated with the Property, except those rights which are specifically reserved by GRANTOR through this Easement.

2. Conservation Values. The approximate 500-acre Property is located along the State Highway 1 scenic corridor and the Estero Americano west of Valley Ford. The Property is currently used for livestock grazing, and areas of the Property are well suited for continued agricultural use. The Property consists of rolling hills and open pasture land with two streams with native riparian vegetation, draining south into the Estero Americano. Critical resources on the Property (collectively "the Conservation Values"), include:

2.1 Natural Resources. The Property possesses sensitive natural resources, including two streams with native riparian vegetation, which flow south through the Property to the Estero Americano. Habitats on the property include coastal prairie, coastal scrub, and native riparian. The Property contains habitat for American Badger as well as for California red-legged frog. Short-eared Owls and Burrowing Owls use the Property during winter months and periods of migration, from approximately November through April. Although nesting on the Property by these owls has not been directly observed, there is evidence of such nesting on the Property. Protection of the Property as a wintering site is important for conservation of both species of owls. Additionally, the Property and the Estero Americano provide resources for an abundance of other species of birds, including a wide variety of raptors and sea birds.

2.2 Habitat Connectivity. The Property provides a corridor for wildlife movement along the Estero Americano, as well as to other adjacent open grasslands. In particular, the Property provides for connectivity between the Bodega area north of Highway 1 and the Estero Americano.

2.3 Open Space and Scenic Views. The Property is visible from the State Highway 1 corridor, as well as from Marin County, which is directly south of the Property across the Estero Americano, which makes up the Property's southern boundary. The Property is visible to recreational users in kayaks and canoes on the Estero Americano.

2.4 Agricultural Resources. The Property possesses physical and biotic features, including its soils, water and grasslands, that make portions of the Property well-suited for limited livestock grazing for production of food and fiber, and fire and vegetation management.

2.5 Recreation and Education. The Property provides opportunities for passive public outdoor recreational and educational uses, provided that such uses are compatible with the protection of the Property's natural resources.

3. Conservation Purpose. It is the purpose of this Easement to preserve and protect forever the Conservation Values of the Property, as described in Section 2. This purpose shall hereinafter be referred to as "the Conservation Purpose of this Easement." GRANTOR and DISTRICT intend that this Easement will confine the use of the Property to activities that are consistent with the Conservation Purpose of this Easement and will prohibit and prevent any use of the Property that will materially impair or interfere with the Conservation Values of the Property. GRANTOR and DISTRICT intend that all Conservation Values of the Property will be fully preserved and protected in perpetuity. In the event, however, that the preservation and protection of one Conservation Value becomes irreconcilably inconsistent with the preservation and protection of another Conservation Value, the following priorities shall be followed, with the Conservation Values of higher priority listed before the Conservation Values of lower priority: preservation and protection of natural resources shall be the first priority, habitat connectivity shall be the second priority, scenic and open space resources shall be the third priority, agricultural resources shall be the fourth priority, and recreation and education shall be the fifth priority.

PART TWO: RESERVED AND RESTRICTED RIGHTS

4. Affirmative Rights of DISTRICT. DISTRICT shall have the following affirmative rights under this Easement:

4.1 Protecting Conservation Values. DISTRICT shall have the right to preserve, protect and document in perpetuity the Conservation Values of the Property.

4.2 Property Inspections. DISTRICT shall have the right to enter upon the Property and to inspect, observe, and study the Property for the purposes of (i) identifying the current activities and uses thereon and the condition thereof, (ii) monitoring the activities and uses thereon to determine whether they are consistent with the terms and Conservation Purpose of this Easement, (iii) enforcing the terms of this Easement, and (iv) exercising its other rights under this Easement. Such entry shall be permitted at least once a year at reasonable times, upon twenty-four hours' prior notice to GRANTOR, and shall be made in a manner that will not unreasonably interfere with GRANTOR's use and quiet enjoyment of the Property pursuant to the terms and conditions of this Easement. Each entry shall be for only so long a duration as is reasonably necessary to achieve the purposes of this Section 4.2, but shall not necessarily be limited to a single physical entry during a single twenty-four hour period. Notwithstanding the foregoing, should DISTRICT's General Manager have a reasonable belief that GRANTOR is in breach of this Easement, DISTRICT shall have the right at any time, upon twenty-four hours' prior notice to GRANTOR, to enter upon the Property for the purpose of determining whether such breach has occurred. The rights of entry provided by this Section 4.2 shall extend to the officers, agents, consultants, and volunteers of DISTRICT, and to the Conservancy. The DISTRICT shall provide notice to the Conservancy of any periodic or other monitoring of the Property and copies of any written findings or reports. On request of the Conservancy, Conservancy staff shall be permitted to accompany the DISTRICT on any monitoring visit.

4.3 Enforcement. DISTRICT shall have the right to enforce the rights herein granted and to prevent or stop, by any legal means, any activity or use on the Property that is inconsistent

with the terms, conditions or Conservation Purpose of this Easement and to require restoration of such areas or features as may be damaged by such activities or uses.

4.4 Approval of Certain Uses. DISTRICT shall have the right to review and approve proposed uses and activities on the Property as more specifically set forth in Section 5, and in accordance with Section 6.

4.5 District Signage. DISTRICT shall have the right to erect and maintain a sign or other appropriate marker in a location on the Property acceptable to GRANTOR, visible from a public road, bearing information indicating that the Property is protected by DISTRICT and acknowledging the sources of DISTRICT funding for the acquisition of this Easement. The wording of the information shall be determined by DISTRICT with consent of GRANTOR. No sign shall exceed thirty-two (32) square feet in size. DISTRICT shall be responsible for all costs relating to approval, erecting and maintaining such sign or marker.

5. GRANTOR's Reserved and Restricted Rights. GRANTOR shall confine the use of the Property to activities and uses that are consistent with the Conservation Purpose of this Easement. Any activity or use that is inconsistent with the Conservation Purpose of this Easement is prohibited. Without limiting the generality of the foregoing, the following activities and uses are expressly reserved, restricted or prohibited as set forth below. GRANTOR and DISTRICT acknowledge that the following list does not constitute an exhaustive recital of consistent and inconsistent activities and uses, but rather (i) establishes specific allowed activities and uses, (ii) establishes specific prohibited activities and uses, and (iii) provides guidance for determining the consistency of similar activities and uses with this Easement, in accordance with the procedure set forth in Section 6.

5.1 General Requirements for All Uses.

5.1.1 Compliance with Governmental Regulations. All activities and uses permitted under this Easement shall be subject to and undertaken in accordance with all applicable federal, state, and local statutes, ordinances, rules, and regulations.

5.1.2 Compliance with Terms, Conditions and Conservation Purpose of this Easement. All activities and uses permitted under this Easement shall be undertaken in a manner consistent with the terms, conditions and Conservation Purpose of this Easement.

5.1.3 Protection of Conservation Values. All activities and uses permitted under this Easement shall be undertaken in a manner reasonably designed to minimize adverse impacts to the Conservation Values.

5.1.4 Protection of Soil and Water. No activity or use permitted under this Easement shall be undertaken in a manner that results in significant soil degradation or pollution, or significant degradation or pollution of any surface or subsurface waters.

5.1.5 Prior Approval. Whenever in this Section 5, DISTRICT's prior approval is required, such approval shall be obtained in accordance with Section 6 of this Easement.

5.2. Rangeland Management Plan. Within two years of the execution of this Easement GRANTOR shall develop and submit to the DISTRICT and the Conservancy for their review and approval, a long-term comprehensive rangeland management plan for the Property, referred to as a Rangeland Management Plan (the "RMP"), which shall be consistent with the terms, conditions and Conservation Purpose of this Easement. The RMP shall set forth required rangeland best management practices to assure that all grazing practices are conducted in a manner that is beneficial to the conservation values of the Property, and shall include analysis and standards for appropriate levels of grazing within the "Forever Wild Area" and "Natural Areas," as designated on the Baseline Site Map in consideration of sensitive wildlife habitat and associated species. The RMP is subject to review and approval by the DISTRICT and the Conservancy, or their designees. Once the RMP is approved by the DISTRICT and the Conservancy, all of the uses and activities identified in the RMP ("approved RMP") shall be deemed to be consistent with the Conservation Easement, and no further approvals for those uses or activities will be required, provided however, that the DISTRICT may require the approved RMP to be revised periodically, if the DISTRICT determines that the uses provided therein are significantly impacting the Conservation Values of the Property. The DISTRICT and Conservancy shall exercise reasonable diligence in reviewing the RMP, and each shall either approve or disapprove of the RMP within two months of the date the RMP is submitted for review. In the event the RMP is disapproved by either the DISTRICT or the Conservancy, the disapproving agency shall specify the areas of disapproval or requested revision. GRANTOR may then revise and re-submit the RMP to the DISTRICT and the Conservancy, with the same review and comment procedures and timelines identified above to be followed until the RMP is approved. Prior to approval of the RMP, GRANTOR may maintain current grazing levels on the Property.

5.3 Land Uses. Use of the Property is restricted solely to residential, agricultural, natural resource protection and enhancement, fire and vegetation management uses, and recreational and educational as defined in this Section 5.3. Commercial or industrial use of or activity on the Property is prohibited except as reserved in Section 5.3.3 and 5.3.5.

5.3.1 Residential Use. GRANTOR reserves the right to reside on the Property.

5.3.2 Natural Resource Protection and Enhancement. GRANTOR reserves the right to protect, restore and enhance the natural resources on the Property, including within and outside the "Forever Wild Area" and the "Natural Areas." Activities may include, but are not limited to the following: conducting scientific research, bank and soil stabilization practices, enhancement of water quality, native plants and wildlife habitat, vegetation management including grazing, prescriptive burning, thinning, planting and brush removal, and other activities to enhance the natural resources of the Property and to promote biodiversity. All activities shall be conducted in accordance with sound, generally accepted conservation practices and all applicable laws, ordinances and regulations.

5.3.2.1 Coastal Prairie and Grassland Management Activities. In addition to the activities described above, GRANTOR reserves the right to conduct grassland management activities on the Property for the purpose of enhancing the coastal prairie and inland grasslands in accordance with the approved RMP. Coastal Prairie and

Grassland Management activities may include grazing, prescriptive burning, and other methodologies as identified and described in the approved RMP.

5.3.3 Agricultural Use. GRANTOR reserves the right to engage in limited agricultural uses of the Property in accordance with sound, generally accepted agricultural and soil conservation practices, provided however that no agricultural use shall be conducted in a manner that significantly impairs the long-term agricultural productive capacity or open space character or negatively impacts the natural resources of the Property.

5.3.3.1 In connection with permitted agricultural uses, GRANTOR reserves the right to use government approved agrichemicals, including but not limited to, fertilizers and biocides, in those amounts and with that frequency of application necessary to accomplish reasonable agricultural purposes and consistent with government regulations and guidelines and GRANTOR's approved RMP. Agrichemicals shall not be used in the "Forever Wild Area" and "Natural Areas" of the Property, as designated on the Baseline Site Map.

5.3.3.2 For the purposes of this Easement, "limited agricultural use" shall be defined as grazing, breeding, pasturing and raising of livestock of every nature and description for the production of food and fiber, and/or for fire and vegetation management, provided that all such grazing, breeding, pasturing and raising of livestock shall comply with the provisions of Sections 5.6.1 and 5.6.2 and with GRANTOR's approved RMP; breeding and raising bees, poultry and other fowl; storing and selling, including direct retail sale to the public of products harvested and produced on the Property.

5.3.4 Recreational and Educational Use. GRANTOR reserves the right to use the Property for non-commercial low-intensity outdoor recreational and environmental educational purposes, such as hiking, nature study and other such uses similar in nature and intensity, which do not adversely impact the Conservation Values of this Easement. GRANTOR reserves the right to engage in personal, non-commercial hunting of non-native animals on the Property as allowed in Section 5.6.7.4.

5.3.5 Commercial Use. GRANTOR reserves the right to use the Property for: i) agricultural use as defined in Section 5.3.3; ii) home occupation(s) within permitted residential buildings; and iii) other ancillary commercial uses consistent with the Conservation Purpose of this Easement, subject to prior written approval by the District.

5.4 Subdivision and Parcels. GRANTOR and DISTRICT acknowledge and agree that the Property, in its entirety, is now and shall always remain under common ownership, except as provided in Section 5.4.1 below. GRANTOR acknowledges and agrees that, notwithstanding the existence of subordinate legal parcels, assessor's parcels or historic parcels, no portion of the Property may be sold or conveyed separate from the Property as a whole except as expressly provided in subsections 5.4.1 below. "Common ownership" means, each owner shall have an undivided ownership interest in the Property as a whole. This provision does not prohibit more than one individual or entity from having an ownership interest; nor does it restrict leasing or encumbering the Property.

5.4.1. Subdivision. GRANTOR shall not divide the Property, or any of its constituent parcels whether by subdivision, conveyance, lot line adjustment, or any other means, nor shall GRANTOR gain or seek to gain recognition, by certificate of compliance or otherwise, of additional parcels which may have previously been created on the Property by prior patent or deed conveyances, subdivisions, or surveys, nor shall GRANTOR place or convey any portion of the Property into ownership separate from the whole of the Property. This prohibition against division of the Property shall be inapplicable to:

5.4.1.1 Conveyance to Government or Non-Profit Entity. Subject to prior written approval by DISTRICT, GRANTOR may voluntarily convey a portion of the Property to a government or non-profit entity exclusively for conservation or public access purposes.

5.4.1.2 Leases. GRANTOR reserves the right to lease a portion(s) of the Property for the permitted uses described in Section 5.3.

5.4.2. Assessor and Historic Parcels. GRANTOR acknowledges and agrees that the Property currently contains one assessor's parcel as shown on the current Sonoma County Assessment Roll. GRANTOR acknowledges and agrees that assessors parcels are drawn, and assessor's parcel numbers are assigned for tax administrative purposes only and do not constitute separate legal parcels. GRANTOR further acknowledges that one or more additional historic parcels may exist on the Property, previously created by patent or deed conveyances, subdivisions, lot line adjustments, surveys, recorded or unrecorded maps or other documents. GRANTOR waives all rights to recognition of such historic parcels, whether through certificate of compliance under the Subdivision Map Act or otherwise.

5.5 Structures and Improvements. Placement, construction and reconstruction of structures or other improvements on the Property are prohibited except as provided for within this Section 5.5. All structures or other improvements allowed by Sections 5.5.1 through 5.5.5, whether existing at the time of this Easement or placed subsequent to this Easement shall be located within two Building Envelopes, the 2-acre Agricultural Building Envelope, as shown on the Baseline Site Map, and a 1-acre Residential Building Envelope, which location will be designated by GRANTOR, subject to prior written approval of DISTRICT. DISTRICT's approval shall be based on its determination that the designated location is consistent with the terms, conditions and Conservation Purpose of this Easement and with the terms, conditions and the Public Access Purpose of the Trail Easement. At no time shall there be more than two Building Envelopes on the Property. No structures or improvements shall be constructed in the "Forever Wild Area" and the "Natural Areas" except as provided for in Section 5.6.1 and 5.6.2 of this Easement and as provided for in the Trail Easement.

5.5.1 Maintenance, Repair or Replacement of Existing Structures and Improvements. GRANTOR may maintain, repair, remove or replace structures and improvements existing at the date hereof or constructed subsequently pursuant to the provisions of Section 5.5, as follows:

5.5.1.1 If the maintenance, repair or replacement does not increase the height of the structure or improvement, increase the land surface area it occupies or change its location or function, no notice to or approval by DISTRICT shall be required.

5.5.1.2 Any maintenance, repair or replacement that increases the height of the structure or improvement, increases the land surface area it occupies, or changes its location or function, shall be treated as new construction and shall be subject to provisions of Sections 5.5.2 through 5.5.10.

5.5.2 Primary Residences. Subject to prior written notice to DISTRICT, GRANTOR may place or construct within the designated 1-acre Residential Building Envelope, one primary residence, provided that such residence shall not exceed 24 feet in height measured from the average of the highest and lowest point of the building footprint to the topmost point of the roof nor be greater than 3,000 square feet in size, exclusive of garage, which garage shall not exceed 1,200 square feet in size and 24 feet in height. In no case shall there be more than one primary residence located on the Property. At such time that a new primary residence is constructed, GRANTOR shall remove any existing primary residence or re-designate and maintain it as a structure accessory to the residential or agricultural use in accordance with Section 5.5.3, 5.5.4 or 5.5.5, as applicable. DISTRICT agrees that the existing 'bunkhouse' on the Property may be removed or re-designated as a structure accessory to the residential or agricultural use, provided that it remains within one of the two Building Envelopes.

5.5.3 Structures Accessory to the Residential Use. Subject to prior written notice to DISTRICT, GRANTOR may place or construct additional accessory structures and improvements reasonably related to the permitted residential use of the Property including, without limitation, guest house, garage, shed, swimming pool and other similar improvements. The total cumulative square footage of the structures accessory to residential use shall not exceed 3,000 square feet. No single structure shall exceed 1,000 square feet. All such structures must be placed or constructed within the 1-acre Residential Building Envelope.

5.5.4 Residential Agricultural Structures. Subject to prior written notice to DISTRICT, GRANTOR may place or construct within the 2-acre designated Agricultural Building Envelope, agricultural residences including farm worker housing, and farm family housing, provided that no such residence shall exceed 24 feet in height measured from the average of the highest and lowest point of the building footprint to the topmost point of the roof nor be greater than 2,000 square feet in size, exclusive of garage, which garage shall not exceed 750 square feet in size.

5.5.5 Structures Accessory to the Agricultural Use. Subject to prior written notice to DISTRICT, GRANTOR may place or construct within the 2-acre designated Agricultural Building Envelope accessory structures and improvements reasonably necessary for the permitted agricultural use of the Property, including, without limitation, barns, corrals, and one lighted horse arena not to exceed 90 feet by 180 feet in size to be used for personal use only. Agricultural structures may not be higher than 40 feet.

5.5.6 Improvements for Recreational and Educational Uses. All recreational and educational improvements shall be located, designed and constructed in a manner to limit (a) soil erosion, (b) impairment of wetlands, streams and water quality, (c) damage to native plant

communities and wildlife habitat, (d) damage to scenic resources, and (e) damage to cultural resources. All such improvements shall require prior written approval of DISTRICT. DISTRICT's approval shall be based on the determination that said recreational and educational improvements comply with this Section 5.5.6 and are compatible with protection of the Conservation Values of this Easement.

5.5.7 Roads. Subject to prior written approval of DISTRICT, GRANTOR may construct new roads and reconstruct, relocate or expand existing roads provided that such roads (i) are directly required for uses and activities allowed herein, and (ii) are the minimum necessary for such uses and activities. The existing access road may be relocated within the "Natural Area" and the "Forever Wild Area," only if resource studies show that such relocation would reduce impacts to or enhance the natural resources of the Property. Roads shall be constructed and maintained so as to minimize erosion and sedimentation and ensure proper drainage, utilizing Best Management Practices for roads as recommended by the California Department of Fish and Game or other similar or successor entity. Roads constructed subsequent to this Easement may not be paved with asphalt, concrete or other impervious surface unless such paving is required by any federal, state or local law, code, ordinance or regulation. Roads that are abandoned, permanently closed and/or decommissioned shall be re-vegetated with native species, stabilized and ensured of proper drainage.

5.5.8 Bridge. Subject to prior written approval of DISTRICT, GRANTOR may maintain, construct, reconstruct or expand the one existing bridge, which crosses the western stream and its' "Natural Area" on the Property, in the same or similar location. The bridge shall be maintained, constructed, reconstructed or expanded in such a manner as to minimize erosion and sedimentation and ensure proper drainage, utilizing Best Management Practices for bridges as recommended by the California Department of Fish and Game or other similar or successor entity.

5.5.9 Fences and Gates. GRANTOR may construct, place and erect fencing and gates only as necessary for agricultural uses, natural resources protection and management or uses accessory to the residential use of the Property. Fencing must be the minimum necessary for such use. All fencing and gates must i) preserve the scenic values of the Property; ii) not impede wildlife movement except in cases where necessary to protect the allowed agricultural and residential uses described in this Easement; and iii) comply with the DISTRICT's then current standards for fences and gates on conservation lands. Notwithstanding the provisions of Section 5.5.1.1, in the event of destruction or deterioration of any fences and gates, whether existing at the date hereof or constructed subsequently pursuant to the provisions of this Easement, GRANTOR may maintain and/or replace such fencing and gates only in accordance with the provisions of this Section 5.5.9. In the event any fence or gate, or portion thereof, becomes obsolete or unnecessary for the uses described in this Section 5.5.9, GRANTOR shall remove such fencing or gate from the Property.

5.5.10 Utilities and Energy Resources. Subject to prior written approval of DISTRICT, GRANTOR may expand existing or develop or construct new utilities outside of the "Natural Areas" and the "Forever Wild Area," including but not limited to electric power, septic or sewer, communication lines, and water storage and delivery systems, including domestic and agricultural wells, provided that such utilities are directly required for permitted uses on the

Property and are reasonably scaled to serve only those uses. No utilities of any kind shall be placed within the "Natural Areas" or the "Forever Wild Area," provided however, that the one existing well and its associated delivery system, consisting of a pump and enclosure, and underground pipes, may remain in its current location within the "Forever Wild Area," pursuant to the provisions of Section 5.6.1. For protection of wildlife on the Property, wind mills and wind turbines are not permitted on the Property. GRANTOR may, without notice to or approval of DISTRICT, place or construct solar panels on the roofs of existing structures or any future additional structures placed on the Property pursuant to Sections 5.5.1 through 5.5.5, provided that such solar panels do not cause the structure or improvement to exceed the height limitations set forth in those sections.

5.5.11 Signs. GRANTOR reserves the right to construct a maximum of two on-site advertising signs in connection with the allowed uses herein. No sign shall exceed thirty-two (32) square feet in size nor be artificially illuminated. GRANTOR reserves the right to construct additional internal directional signs that do not exceed two (2) square feet in size. Signs advocating candidates or issues that will be presented to voters in a public election are allowed, provided that such signs do not exceed then existing state and local regulations for political signs, and that such signs are removed within ten (10) days after the date of election.

5.6. Land and Resource Management.

Management of the Property shall be consistent with the Conservation Purpose of this Easement, and a Rangeland Management Plan, approved by the District and the Conservancy, pursuant to Section 6 and Section 7 of this Easement.

5.6.1 Forever Wild Area. The "Forever Wild Area," on the Property is established to protect habitat for species of special concern, including Burrowing Owls, Short-eared Owls and American Badgers, as shown on the Baseline Site Map. In the future, if other areas on the Property are inhabited by Burrowing Owls, Short-eared Owls and American Badgers, GRANTOR shall take reasonable steps so that these areas will comply with the management prescribed below and these areas may, if agreed to by GRANTOR, also be designated "Forever Wild Areas." GRANTOR shall fence the boundary of the "Forever Wild Area," if necessary to protect the habitat and resources for Burrowing Owls, Short-eared Owls and American Badgers. No structures or improvements of any kind shall be built in the "Forever Wild Area," including recreational trails or uses, except a segment of trail, a viewing area with related appurtenances, and a segment of an associated access road may be located within the "Forever Wild Area" in accordance with the provisions of the Trail Easement, and as designated on its Exhibit B. The one existing well and its associated delivery system may be located in the "Forever Wild Area," pursuant to 5.5.10. No off road vehicle access shall occur during ground nesting season for owls, provided, however, that in case of well failure, whether temporary or permanent, GRANTOR may access the "Forever Wild Area" by vehicle at any time for necessary repair or replacement. Limited livestock grazing may be allowed in the "Forever Wild Area," if necessary and recommended by the approved RMP.

5.6.2 Natural Areas. The "Natural Areas" are established to restore native riparian plants along all streams on the Property, to stabilize bank and soil erosion, and to prevent sedimentation of the streams. GRANTOR shall seek funding and if awarded shall install and maintain native

riparian plantings within the 150 foot setback from top of bank on all streams for restoration of the "Natural Areas." GRANTOR may install riparian fencing along or near the 150 foot setback from top of bank on all streams, if said fencing is necessary and recommended by the approved RMP. All riparian planting and fencing shall be undertaken in consultation with a Resource Conservation District or other similar or successor entity. The approved RMP will stipulate appropriate livestock grazing prescriptions within the 150 foot riparian setback from the streams on the Property, and all grazing shall comply with those stipulations. No structures or improvements shall be constructed in the "Natural Areas," except a segment of trail and a segment of an associated access road may be located within the "Natural Areas" in accordance with the provisions of the Trail Easement, and as designated on its Exhibit B.

5.6.3 Surface Alteration. Alteration of the contour of the Property in any manner whatsoever is prohibited, including, but not limited to, excavation, removal or importation of soil, sand, gravel, rock, peat or sod, except as reasonably necessary in connection with the uses allowed under Section 5 of this Easement. In connection with allowed uses, movement of over 50 cubic yards is subject to prior DISTRICT approval.

5.6.4 Water Resources. Draining, filling, dredging, diking, damming or other alteration, development or manipulation of watercourses, subsurface water, springs, ponds and wetlands is prohibited except as reasonably necessary in connection with (i) the maintenance, replacement, development and expansion of water storage and delivery systems allowed under Section 5, and (ii) the restoration and enhancement of natural resources allowed under Section 5.

5.6.5 Mineral Exploration. Exploration for, or development and extraction of, geothermal resources, minerals and hydrocarbons by any surface or sub-surface mining or any other method is prohibited.

5.6.6 Fire Management. GRANTOR reserves the right to undertake vegetation management activities for the purpose of fire control. The requirement for notice under this Section 5.6.6 may be satisfied by the submission of an annual fire management plan to the District for approval. Fire management methods are limited to:

5.6.6.1 Brush removal and limited grazing of the Property, consistent with the approved RMP pursuant to Section 5.2, or other methods of similar nature and intensity, without need for notice to or approval from DISTRICT.

5.6.6.2 Subject to prior written notice to DISTRICT, prescriptive burning undertaken in a manner consistent with the standards and requirements of the local fire protection agency having jurisdiction.

5.6.6.3 In addition to leasing rights reserved under Section 5.4.1.2, GRANTOR reserves the right to lease a portion of the Property for limited livestock grazing for vegetation and fire management or in connection with native plant restoration and enhancement, in compliance with GRANTOR's approved RMP.

5.6.7 Restoration and Enhancement. GRANTOR reserves the right to undertake conservation and restoration of biotic and natural resources, including, but not limited to, bank

and soil stabilization, practices to reduce erosion, enhancement of water quality and plant and wildlife habitat, and activities which promote biodiversity in accordance with sound, generally accepted conservation practices.

5.6.7.1 Native Tree Removal. Harvesting, cutting, removal or destruction of any native trees is prohibited, except as reasonably necessary (i) to control insects and disease, (ii) to prevent personal injury and property damage, (iii) for the purpose of fire management, in accordance with Section 5.6.6; and (iv) for natural resource management, including native seed collection and plant propagation for use on the Property as set forth in Section 5.3.2 of this Easement.

5.6.7.2 Native Vegetation Removal. Removal or destruction of any native vegetation is prohibited, except as reasonably necessary (i) within footprint of permitted structures and improvements, (ii) to control insects and disease, (iii) to prevent personal injury and property damage, (iv) for the purpose of fire management, in accordance with Section 5.6.6; and (v) for natural resource management, including native seed collection and plant propagation for use on the Property as set forth in Section 5.3.2 of this Easement.

5.6.7.3 Native Animal Removal. Killing, hunting, trapping, injuring or removing native animals is prohibited except (i) under imminent threat to human life or safety; and (ii) as reasonably necessary to promote or sustain biodiversity in accordance with restoration and enhancement activities in connection with Section 5.3.2, using selective control techniques consistent with the policies of the Sonoma County Agricultural Commissioner and other governmental entities having jurisdiction.

5.6.7.4 Non-Native Plant and Animal Removal. GRANTOR reserves the right to remove or control invasive, non-native plant and animal species (i) to further the Conservation Purpose of this Easement; (ii) to foster the growth of native species and promote biodiversity; (iii) to control insects and disease; (iv) to prevent personal injury and property damage; (v) for the purpose of fire management, in accordance with Section 5.6.6; (vi) for natural resource management as set forth in Section 5.3.2, 5.6.1 and 5.6.2, and (vii) as reasonably necessary within footprint of permitted structures and improvements. Techniques used shall minimize harm to native wildlife and plants and shall be in accordance with all applicable laws.

5.7 Off-road Motorized Vehicle Use. Use of motorized vehicles off roadways is prohibited, except for the minimal use when necessary in connection with allowed agriculture, conservation or wildlife management activities, for emergency and fire control purposes, and as further restricted in Section 5.6.1.

5.8 Dumping. Dumping, releasing, burning or other disposal of wastes, refuse, debris, non-operative motorized vehicles or hazardous substances is prohibited except that agricultural products and by-products generated on the Property may be disposed on site, consistent with sound generally accepted agricultural practices.

5.9 Outdoor Storage. Outdoor storage of work materials in areas that may be visible from public roadways is prohibited except as follows:

5.9.1 Storage of Materials Related to Allowed Uses. GRANTOR may store vehicles, building materials, machinery or agricultural supplies and products reasonably necessary for permitted uses so long as such storage is consistent with sound generally accepted agricultural practices and provided such storage shall be located so as to minimize visual impacts.

5.9.2 Storage of Construction Materials. GRANTOR may store construction and other work materials needed during construction of permitted structures and improvements on the Property while work is in progress and for a period not to exceed thirty (30) days after completion or abandonment of construction. Construction shall be deemed abandoned if work ceases for a period of 180 days.

5.10 Easements. GRANTOR may continue the use of existing easements of record granted prior to this Easement. The granting of new temporary or permanent easements, and the modification or amendment of existing easements is prohibited without the prior approval of the DISTRICT. It is the duty of GRANTOR to prevent the use of the Property by third parties that may result in the creation of prescriptive rights.

5.11. Public Access to the Property. The parties acknowledge that the Trail Easement to be recorded concurrent with this Easement will allow for public access to the Property as set forth therein. Nothing contained in this Easement, however, shall be construed as granting, permitting or affording the public access to any portion of the Property or as limiting or precluding GRANTOR's right to exclude the public from the Property. Nothing in this Easement shall be construed to preclude GRANTOR's right to grant access to third parties across the Property, provided that such access is allowed in a reasonable manner and is consistent with the Conservation Purpose of this Easement and so long as such access is undertaken subject to the terms and conditions of this Easement.

PART THREE: PROCEDURES AND REMEDIES

6. Notice and Approval Procedures. Some uses permitted by this Easement require that prior written notice be given by GRANTOR to DISTRICT, while other uses permitted by this Easement require the prior written approval of DISTRICT. Unless and until such notice is given or approval is obtained in accordance with this Section 6 and with Section 19, any such activity or use shall be deemed to be prohibited on the Property. GRANTOR shall use the following procedure to provide notice to DISTRICT or to obtain DISTRICT's approval. All notices and requests for approval shall include all necessary information to permit DISTRICT to make an informed judgment as to the consistency of the GRANTOR's request with the terms, conditions and Conservation Purpose of this Easement. Forms for notices and requests for approval shall be available at DISTRICT's offices.

6.1 Uses/Activities Requiring Notice to DISTRICT. For any activity or use that requires prior written notice to DISTRICT, GRANTOR shall deliver such notice to DISTRICT at least forty-five (45) days prior to the commencement of such activity or use. That forty-five (45)

day time period provides DISTRICT an opportunity to evaluate whether the proposed activity or use is consistent with the terms, conditions and Conservation Purpose of this Easement before the activity or use is begun.

6.2 Uses/Activities Requiring Prior Approval from DISTRICT. For any activity or use that requires prior written approval from DISTRICT, GRANTOR shall submit a request for such approval ("GRANTOR's request") at least forty-five (45) days prior to the intended commencement of such activity or use. DISTRICT shall have forty-five (45) days from the receipt of a complete request for approval to review the request and to approve, conditionally approve, disapprove or notify GRANTOR of any objection thereto. Disapproval or objection, if any, shall be based on DISTRICT's determination that the proposed activity or use is inconsistent with the terms, conditions or Conservation Purpose of this Easement or that GRANTOR's request is incomplete or contains material inaccuracies. If, in DISTRICT's judgment, the proposed activity or use would not be consistent with the terms, conditions or Conservation Purpose of this Easement or the request is incomplete or contains material inaccuracies, DISTRICT's notice to GRANTOR shall inform GRANTOR of the reasons for DISTRICT's disapproval or objection. Only upon DISTRICT's express written approval, given by DISTRICT's General Manager, may the proposed activity or use be commenced, and then only in accordance with the terms and conditions of the DISTRICT's approval.

6.3 DISTRICT's Failure to Respond. Should DISTRICT fail to respond as provided in Section 6.2 to GRANTOR's request for approval within forty-five (45) days of the receipt of GRANTOR's request, GRANTOR may, after giving DISTRICT ten (10) days written notice by registered or certified mail, commence an action in a court of competent jurisdiction to compel DISTRICT to respond to GRANTOR's request. In the event that such legal action becomes necessary to compel DISTRICT to respond and GRANTOR prevails in that action, DISTRICT shall reimburse GRANTOR for all reasonable attorney fees incurred in that action. In the alternative, GRANTOR may commence a proceeding in arbitration under Section 13.

6.4 Uses Not Expressly Addressed; DISTRICT's Approval. In the event GRANTOR desires to commence an activity or use on the Property that is neither expressly reserved nor expressly prohibited in Section 5, GRANTOR shall seek DISTRICT's prior written approval of such activity or use in accordance with the procedure set forth in Section 6.2. The exercise of any activity or use not expressly reserved in Section 5 may constitute a breach of this Easement and may be subject to the provisions of Section 11.

7. Approvals. Whenever in this Easement the consent or approval of one party is required to an act of the other party, such consent or approval shall not be unreasonably withheld, conditioned or delayed.

8. Costs and Liabilities Related to the Property.

8.1 Maintenance of the Property. GRANTOR agrees to bear all costs and liabilities of any kind related to the operation, upkeep, and maintenance of the Property and does hereby indemnify and hold DISTRICT harmless therefrom. Without limiting the foregoing, GRANTOR agrees to pay any and all real property taxes, fees, exactions and assessments levied or imposed by local, state or federal authorities on the Property. GRANTOR shall be solely responsible for

any costs related to the maintenance of general liability insurance covering acts on the Property. Except as specifically set forth in Section 9.2 below, DISTRICT shall have no responsibility whatever for the operation of the Property, the monitoring of hazardous conditions thereon, or the protection of GRANTOR, the public, or any third parties from risks relating to conditions on the Property. Except as otherwise provided in Section 9.1, GRANTOR hereby agrees to indemnify and hold DISTRICT harmless from and against any damage, liability, claim, or expense, including attorneys' fees, relating to such matters.

8.2 Hazardous Materials.

8.2.1 No District Obligation or Liability. Notwithstanding any other provision of this Easement to the contrary, the parties do not intend and this Easement shall not be construed such that it creates in DISTRICT or the Conservancy:

a) The obligations or liabilities of an "owner" or "operator" as those words are defined and used in environmental laws, as defined below, including, but not limited to, the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended (42 United States Code, sections 9601 et seq.) ("CERCLA");

b) The obligations or liabilities of a person described in 42 United States Code section 9607(a)(3) or any successor statute then in effect;

c) The right to investigate and remediate any hazardous materials, as defined below, on or associated with the Property; or

d) Any control over GRANTOR's ability to investigate and remediate any hazardous materials, as defined below, on or associated with the Property.

8.2.2 Warranty of Compliance. GRANTOR represents, warrants, and covenants to DISTRICT that GRANTOR's use of the Property shall comply with all environmental laws, as defined below.

8.2.3 Definitions. For the purposes of this Easement:

a) The term "hazardous materials" includes, but is not limited to, any flammable explosives, radioactive materials, hazardous materials, hazardous wastes, hazardous or toxic substances, or related materials defined in CERCLA, the Hazardous Materials Transportation Act, as amended (49 United States Code sections 1801 et seq.), the Resource Conservation and Recovery Act of 1976, as amended (42 United States Code sections 6901 et seq.), sections 25117 and 25316 of the California Health & Safety Code, and in the regulations adopted and publications promulgated pursuant to them, or any other federal, state, or local environmental laws, ordinances, rules, or regulations concerning the environment, industrial hygiene or public health or safety now in effect or enacted after this date of this Easement.

b) The term "environmental laws" includes, but is not limited to, any federal, state, local or administrative agency statute, regulation, rule, ordinance, order or requirement relating to environmental conditions or hazardous materials.

9. Indemnification.

9.1 GRANTOR's Indemnity. GRANTOR shall hold harmless, indemnify, and defend DISTRICT, its agents, employees, volunteers, successors and assigns, and the State of California from and against all damages, liabilities, claims and expenses, including reasonable attorneys' fees, arising from or in any way connected with (i) injury to or the death of any person, or physical damage to any property resulting from any act, omission, condition or other matter related to or occurring on or about the Property, except to the extent that such damage, liability, claim or expense is the result of the negligence, gross negligence, or intentional misconduct of DISTRICT (it being the intent of this provision to limit GRANTOR's indemnity to the proportionate part of DISTRICT's damage, liability, claim or expense for which GRANTOR is responsible); and (ii) the obligations specified in Section 8. In the event of any claim, demand, or legal complaint against DISTRICT, the right to the indemnification provided by this Section 9.1 shall not apply to any cost, expense, penalty, settlement payment, or judgment, including attorneys' fees, incurred prior to DISTRICT's written notice of such claim, demand, or legal complaint to GRANTOR, unless GRANTOR has acquired knowledge of the matter by other means, nor to any costs, expenses, or settlement payment, including attorneys' fees, incurred subsequent to that notice unless such cost, expense, or settlement payment shall be approved in writing by GRANTOR, which approval shall not be unreasonably withheld.

9.2 DISTRICT's Indemnity. DISTRICT shall hold harmless, indemnify, and defend GRANTOR, its heirs, devisees, successors and assigns, from and against all damages, liabilities, claims and expenses, including reasonable attorneys' fees, arising from or in any way connected with injury to or the death of any person, or physical damage to any property, resulting from any act, omission, condition, or other matter related to or occurring on or about the Property and attributable to DISTRICT, except to the extent that such damage, liability, claim or expense is the result of the negligence, gross negligence, or intentional misconduct of GRANTOR (it being the intent of this provision to limit DISTRICT's indemnity to the proportionate part of GRANTOR's damage, liability, claim or expense for which DISTRICT is responsible). In the event of any claim, demand, or legal complaint against GRANTOR, the right to the indemnification provided by this Section 9.2 shall not apply to any cost, expense, penalty, settlement payment, or judgment, including attorneys' fees, incurred prior to GRANTOR's written notice of such claim, demand, or legal complaint to DISTRICT, nor to any costs, expenses, or settlement payment, including attorneys' fees, incurred subsequent to that notice unless such cost, expense, or settlement payment shall be approved in writing by DISTRICT, which approval shall not be unreasonably withheld. DISTRICT hereby also agrees to hold harmless, indemnify and defend GRANTOR from and against all damages, liabilities, claims and expenses, including attorneys' fees, asserted against GRANTOR by any officer, agent, employee, or volunteer of DISTRICT, for personal injury and/or property damage arising out of any inspection or visit to the Property by any such officer, agent, employee or volunteer acting on behalf of DISTRICT, except to the extent that such injury is attributable to the negligence, intentional act or willful misconduct of GRANTOR.

10. Baseline Documentation for Enforcement. In order to establish the present condition of the Property, DISTRICT has prepared a Baseline Documentation Report which will be maintained on file with DISTRICT and which is intended to serve as an objective information baseline for monitoring compliance with the terms of this Easement. A copy of the Baseline Documentation Report has been provided to GRANTOR. The parties agree that the Baseline Documentation Report provides an accurate representation of the Property at the time of the execution of this Easement.

11. Remedies for Breach.

11.1 DISTRICT's Remedies. In the event of a violation or threatened violation by GRANTOR of any term, condition or restriction contained in this Easement, DISTRICT may, following notice to GRANTOR, institute a suit to enjoin and/or recover damages for such violation and/or to require the restoration of the Property to the condition that existed prior to such violation. The DISTRICT's notice to GRANTOR shall contain a general description of the condition claimed by DISTRICT to be a violation and shall contain a reasonable and specific cure period by which the violation is to cease and the Property is to be restored to the condition that existed prior to the violation. The notice shall be provided in accordance with Section 19. If DISTRICT reasonably determines that circumstances require immediate action to prevent or mitigate significant damage to the Conservation Values protected by this Easement, DISTRICT (a) may pursue any and all remedies available under law without waiting for the cure period to expire, and (b) shall have the right, upon the giving of 24 hours' notice, to enter the Property for the purpose of assessing damage or threat to the Conservation Values protected by this Easement and determining the nature of curative or mitigation actions that should be taken. DISTRICT's rights under this Section 11 shall apply equally in the event of either actual or threatened violations of the terms of this Easement. GRANTOR agrees that DISTRICT's remedies at law for any violation of the terms of this Easement are inadequate and that DISTRICT shall be entitled to the injunctive relief described herein, both prohibitive and mandatory and including specific performance, in addition to such other relief, including damages, to which DISTRICT may be entitled, without the necessity of proving either actual damages or the inadequacy of otherwise available legal remedies.

11.2 DISTRICT's Discretion. Enforcement of the terms of this Easement shall be at the sole discretion of DISTRICT, and any forbearance by DISTRICT to exercise its rights under this Easement in the event of any violation or threatened violation of any term of this Easement shall not be deemed or construed to be a waiver by DISTRICT of such term or of any subsequent violation or threatened violation of the same or any other term of this Easement. Any failure by DISTRICT to act shall not be deemed a waiver or forfeiture of DISTRICT's right to enforce any term, condition, or covenant of this Easement in the future.

11.3 Liquidated Damages. Inasmuch as the actual damages that would result from the loss or deprivation of the Conservation Values of the Property caused by a violation or threatened violation by GRANTOR of the terms of this Easement are uncertain and would be impractical or extremely difficult to measure, GRANTOR and DISTRICT agree that the damages allowed by Civil Code section 815.7(c) shall be measured as follows:

a) For an improvement prohibited by this Easement, an amount equal to the product of (i) the market value of the improvement, (ii) the length of time that the improvement exists on the Property (in terms of years or portion thereof), and (iii) the then current annual interest rate for post judgment interest; and

b) For an activity or change in use prohibited by this Easement, whether or not it involves an improvement, an amount equal to any economic gain realized by GRANTOR because of the activity or change in use; and

c) For an activity or change in use prohibited by this Easement, whether or not it involves an improvement and where there is no measurable economic gain realized by GRANTOR, the product of (i) the cost of restoration, as set forth in a written estimate by a qualified person selected by DISTRICT, (ii) the length of time that the prohibited activity or use continues (in terms of years or portion thereof), and (iii) the then current annual interest rate for post judgment interest.

11.4 GRANTOR's Compliance. If DISTRICT, in the notice to GRANTOR, demands that GRANTOR remove an improvement, discontinue a use or both and claims the damages allowed by Civil Code section 815.7(c), then GRANTOR may mitigate damages by fully complying with DISTRICT's notice within the cure period provided therein. If GRANTOR so complies, then in the event of litigation arising out of the notice, brought either by GRANTOR or by DISTRICT, if GRANTOR prevails, then GRANTOR shall be entitled to economic damages, if any, resulting from its compliance with DISTRICT's notice. Neither DISTRICT nor GRANTOR shall be entitled to damages where DISTRICT has not claimed damages in its notice.

11.5 Remedies Nonexclusive. The remedies set forth in this Section 11 are in addition to, and are not intended to displace, any other remedy available to either party as provided by this Easement, Civil Code sections 815 et seq. or any other applicable local, state or federal law.

11.6 Existing Conditions. There are one or more existing Notices of Violation issued by the County of Sonoma relating to structures or improvements on the Property, and fencing, trenching and piping was installed at the Property without permits. GRANTOR shall abate, remedy or legalize these conditions with reasonable diligence after this Easement is recorded.

12. Acts Beyond GRANTOR's Control. Nothing contained in this Easement shall be construed to entitle DISTRICT to bring any action against GRANTOR for any injury to or change in the Property resulting from causes beyond GRANTOR's control, including, but not limited to, fire, flood, storm, and earth movement, or a tortious or criminal act of a third party which GRANTOR could not have prevented, or from any prudent action taken by GRANTOR under emergency conditions to prevent, abate, or mitigate significant injury to the Property resulting from such causes so long as such action, to the extent that GRANTOR has control, is designed and carried out in such a way as to further the Conservation Purpose of this Easement.

13. Arbitration. If a dispute arises between the parties concerning the consistency of any activity or use, or any proposed activity or use, with the terms, conditions or Conservation Purpose of this Easement, or any other matter arising under or in connection with this Easement

or its interpretation, either party, with the written consent of the other, may refer the dispute to arbitration by a request made in writing upon the other. Provided that GRANTOR agrees not to proceed with any activity or use that is the subject of the dispute pending resolution of the dispute, the parties shall select a single arbitrator to hear the matter. If the parties are unable to agree on the selection of a single arbitrator, then each party shall name one arbitrator and the two arbitrators thus selected shall select a third arbitrator who shall be a retired United States District Court or California Superior Court judge; provided, however, if either party fails to select an arbitrator within fourteen (14) days of delivery of the request for arbitration, or if the two arbitrators fail to select a third arbitrator within fourteen (14) days after the appointment of the second arbitrator, then in each such instance, a proper court, on petition of any party, shall appoint the second or third arbitrator or both, as the case may be, in accordance with California Code of Civil Procedure sections 1280 et seq., or any successor statutes then in effect. The arbitration shall be conducted in accordance with said statute, including, without limitation, the provisions of Section 1283.05 of the Code of Civil Procedure which are incorporated into, made a part of, and made applicable to any arbitration pursuant to this Section. The Conservation Purpose of this Easement, the terms and conditions of this Easement, and the applicable laws of the State of California shall be the bases for determination and resolution, and a judgment of the arbitration award may be entered in any court having jurisdiction thereof. The prevailing party shall be entitled, in addition to such other relief as may be granted, to a reasonable sum as and for all its costs and expenses related to such arbitration, including, but not limited to, the fees and expenses of the arbitrators, but excluding attorneys' fees, which sum shall be determined by the arbitrators and any court of competent jurisdiction that may be called upon to enforce or review the award. That is, each side shall bear its own attorneys' fees.

14. Extinguishment and Condemnation.

14.1. Extinguishment. Subject to the requirements and limitations of California Public Resources Code section 5540, or successor statute then in effect, if circumstances arise in the future that render the Conservation Purpose of this Easement impossible to accomplish, this Easement can only be terminated or extinguished, whether in whole or in part, by judicial proceedings in a court of competent jurisdiction, and the amount of the compensation to which DISTRICT shall be entitled from any sale, exchange or involuntary conversion of all or any portion of the Property after such termination or extinguishment, shall be determined, unless otherwise provided by California law at the time, in accordance with Section 14.2. If, pursuant to this section, the DISTRICT is entitled to receive any proceeds, the District shall provide the Conservancy a share of the proceeds proportionate with its contribution towards the purchase price of this Conservation Easement. The rest of the proceeds paid to DISTRICT shall be used by DISTRICT for the purpose of the preservation of agriculture and open space within Sonoma County.

14.2 Property Interest and Fair Market Values. This Easement constitutes a real property interest immediately vested in DISTRICT. For the purpose of this Section 14, the parties stipulate that the fair market value of the Easement at the time of extinguishment or condemnation (hereinafter "Easement Value') shall be determined by multiplying (i) the fair market value of the Property, unencumbered by the Easement, at the time of extinguishment or condemnation (minus any increase in value attributable to improvements made on the Property after the date of this Easement) (hereinafter "Unencumbered Property Value") by (ii) the ratio of

the value of the Easement at the time of this grant to the value of the Property, unencumbered by the Easement, at the time of this grant. The values at the time of this grant shall be those values established by GRANTOR's qualified appraisal (prepared in accordance with applicable Treasury Regulations) for federal income tax purposes. The ratio of the Easement Value to the Unencumbered Property Value shall remain constant, and on a subsequent sale, exchange, or involuntary conversion of all or any portion of the Property pursuant to the provisions of Sections 14.1 or 14.3, DISTRICT shall be entitled to a portion of the proceeds equal to such proceeds multiplied by the ratio of the Easement Value to the Unencumbered Property Value. For purposes of calculations under this Section, "improvements made on the Property after the date of this Easement" shall not include improvements made or funded by DISTRICT or improvements that constitute a breach of this Easement.

14.3 Condemnation. If all or any part of the Property is taken by exercise of the power of eminent domain or acquired by purchase in lieu of condemnation; whether by public, corporate, or other authority, so as to terminate this Easement in whole or in part, either GRANTOR or DISTRICT (or both, on such conditions as they may agree) may commence appropriate actions to recover the full value of the Property (or portion thereof) subject to the condemnation or in-lieu purchase and all direct or incidental damages resulting therefrom. Any expense incurred by GRANTOR or DISTRICT in any such action shall first be reimbursed out of the recovered proceeds; the remainder of such proceeds shall be divided between GRANTOR and DISTRICT in proportion to their interests in the Property, as established by Section 14.2. If, pursuant to this section, the DISTRICT is entitled to receive any proceeds, the District shall provide the Conservancy a share of the proceeds proportionate with its contribution towards the purchase price of this Easement.

PART FOUR: MISCELLANEOUS

15. Interpretation and Construction. To the extent that this Easement may be uncertain or ambiguous such that it requires interpretation or construction, then it shall be interpreted and construed in such a way that best promotes the Conservation Purpose of this Easement.

16. Easement to Bind Successors. The Easement herein granted shall be a burden upon and shall continue as a restrictive covenant and equitable servitude running in perpetuity with the Property and shall bind GRANTOR, GRANTOR's heirs, personal representatives, lessees, executors, successors, including but not limited to purchasers at tax sales, assigns, and all persons claiming under them forever. The parties intend that this Easement shall benefit and burden, as the case may be, their respective successors, assigns, heirs, executors, administrators, agents, officers, employees, and all other persons claiming by or through them pursuant to the common and statutory law of the State of California. Further, the parties agree and intend that this Easement creates an easement encompassed within the meaning of the phrase "easements constituting servitudes upon or burdens to the property," as that phrase is used in California Revenue & Taxation Code section 3712(d), or any successor statute then in effect, such that a purchaser at a tax sale will take title to the Property subject to this Easement.

17. Subsequent Deeds and Leases. GRANTOR agrees that a clear reference to this Easement will be made in any subsequent deed, or other legal instrument, by means of which any

interest in the Property (including, but not limited to, a leasehold interest) is conveyed and that GRANTOR will attach a copy of this Easement to any such instrument. GRANTOR further agrees to give written notice to DISTRICT of the conveyance of any interest in the Property at least ten (10) days prior to any such conveyance. These obligations of GRANTOR shall not be construed as a waiver or relinquishment by DISTRICT of rights created in favor of DISTRICT by Section 16 of this Easement and the failure of GRANTOR to perform any act required by this Section 17 shall not impair the validity of this Easement or limit its enforceability in any way.

18. Warranty of Ownership. GRANTOR warrants that it is the owner in fee simple of the Property, and that on the date it executed this Easement the Property is not, subject to any deeds of trust.

19. Notices.

19.1 Method of Delivery. Except as otherwise expressly provided herein, all notices, (including requests, demands, approvals or communications) under this Easement shall be in writing and either served personally or sent by first class mail, postage prepaid, private courier or delivery service or telecopy addressed as follows:

To GRANTOR: Joseph Bordessa and Alfred Bordessa
PO Box 751254
Petaluma, CA 94975

To DISTRICT: General Manager
Sonoma County Agricultural Preservation and Open Space District
747 Mendocino Avenue, Suite 100
Santa Rosa, CA 95401

Or to such other address as either party from time to time shall designate by written notice pursuant to this Section 19.

19.2 Effect Date of Notice. Notice shall be deemed given for all purposes as follows:

a) When personally delivered to the recipient, notice is effective on delivery.

b) When mailed first class postage prepaid to the last address designated by the recipient pursuant to Section 19.1, notice is effective one day following the date shown on the postmark of the envelope in which such notice is mailed or, in the event the postmark is not shown or available, then one day following the date of mailing. A written declaration of mailing executed under penalty of perjury by the GRANTOR or DISTRICT or an officer or employee thereof shall be sufficient to constitute proof of mailing.

c) When mailed by certified mail with return receipt requested, notice is effective on receipt as confirmed by the return receipt.

d) When delivered by overnight delivery with charges prepaid or charged to the sender's account, notice is effective on delivery as confirmed by the delivery service.

e) When sent by telex or fax to the last telex or fax number of the recipient known to the party giving notice, notice is effective on receipt as long as (i) a duplicate copy of the notice is promptly given by first-class or certified mail or by overnight delivery or (ii) the receiving party delivers a written confirmation of receipt. Subject to the foregoing requirements, any notice given by telex or fax shall be considered to have been received on the next business day if it is received after 5 p.m. (recipient's time) or on a non-business day.

19.3 Refused or Undeliverable Notices. Any correctly addressed notice that is refused or undeliverable because of an act or omission of the party to be notified shall be considered to be effective as of the first date that the notice was refused, unclaimed, or considered undeliverable by the postal authorities, messenger, or overnight delivery service.

20. Amendment. If circumstances arise under which an amendment or modification of this Easement would be appropriate, GRANTOR and DISTRICT shall be free to jointly amend this Easement, provided that any amendment shall be consistent with the Conservation Purpose of this Easement, shall ensure protection of the Conservation Values of the Property, and shall not affect the Easement's perpetual duration and further provided that the Conservancy provides its prior written consent to the amendment. Any such amendment shall be in writing, executed by GRANTOR and DISTRICT, and recorded in the Office of the Sonoma County Recorder.

21. No Forfeiture. Nothing contained in this Easement shall result in a forfeiture or reversion of GRANTOR's title in any respect.

22. Termination of Rights and Obligations. A party's rights and obligations under this Easement shall terminate upon transfer of the party's interest in the Property, except that liability for acts or omissions occurring prior to transfer shall survive transfer.

23. Enforceable Restriction. This Easement and each and every term contained herein is intended for the benefit of the public and constitutes an enforceable restriction pursuant to the provisions of Article XIII, section 8 of the California Constitution, California Public Resources Code section 5540, and California Revenue and Taxation Code section 420 et seq., or any successor constitutional provisions or statutes then in effect.

24. Applicable Law and Forum. This Easement shall be construed and interpreted according to the substantive law of California, excluding the law of conflicts. Any action to enforce the provisions of this Easement or for the breach thereof shall be brought and tried in the County of Sonoma.

25. Pronoun Number and Gender. Whenever used herein, unless the provision or context otherwise requires, the singular number shall include the plural and the plural the singular, and the masculine gender shall include the feminine and neuter.

26. GRANTOR and DISTRICT. Wherever used herein, the terms GRANTOR, and any pronouns used in place thereof, shall mean and include the above-named GRANTOR and its heirs, lessees, executors, successors, and assigns, including any persons claiming under them. Wherever used herein, the terms DISTRICT, and any pronouns used in place thereof, shall mean and include the above-named DISTRICT, and its successors and assigns.

27. DISTRICT's General Manager. Wherever used herein, the term DISTRICT's General Manager, and any pronoun used in place thereof, shall mean and include the General Manager of DISTRICT and his duly authorized representatives.

28. Fees and Charges. DISTRICT shall have the right to establish and impose reasonable fees and charges on GRANTOR for inspections, approvals, and other services performed by DISTRICT pursuant to this Easement. Such fees and charges shall not exceed the reasonable costs of providing such services.

29. Entire Agreement. This instrument sets forth the entire agreement of the parties with respect to this Easement and supersedes all prior discussions, negotiations, understandings, or agreements relating to this Easement, all of which are merged herein. No alteration or variation of this instrument shall be valid or binding unless contained in a written amendment prepared, executed and recorded in accordance with Section 20.

30. Severability. In the event any provision of this Easement is determined by the appropriate court to be void and unenforceable, all remaining terms and conditions shall remain valid and binding. If the application of any provision of this Easement is found to be invalid or unenforceable as to any particular person or circumstance, the application of such provisions to persons or circumstances, other than those as to which it is found to be invalid, shall not be affected thereby.

31. Estoppel Certificates. DISTRICT shall, at any time during the existence of this Easement, upon not less than thirty (30) days' prior written notice from GRANTOR, execute and deliver to GRANTOR a statement in writing certifying that this Easement is unmodified and in full force and effect (or, if modified, stating the date of execution and date of recording of the respective amendment) and acknowledging that there is not, to DISTRICT's knowledge, any default by GRANTOR hereunder, or, if DISTRICT alleges a default by GRANTOR, specifying such default. DISTRICT's obligation to deliver the statement of certification is conditioned on GRANTOR's reimbursing DISTRICT for all costs and expenses reasonably and necessarily incurred in its preparation as determined by DISTRICT's General Manager.

32. Execution. GRANTOR shall execute this Easement, cause the same to be acknowledged, and deliver said executed and acknowledged instrument to DISTRICT in such form as to permit its acceptance by DISTRICT and recordation in the Office of the Sonoma County Recorder.

33. No Liens, Encumbrances, or Conveyances. GRANTOR warrants that after it has executed this Easement, it will not record any lien, encumbrance, or otherwise convey any right, title, or interest in and to the Property until such time as this Easement has been accepted and recorded by DISTRICT.

34. Effective Date. This Easement shall be effective as of the date of its acceptance by DISTRICT pursuant to California Public Resources Code sections 5500 et seq.

35. Third Party Beneficiary/Assignment. The Conservancy is a third party beneficiary of this Easement. This Easement was acquired by District pursuant, in part, to a grant of funds from the Conservancy, for the purpose of preserving the open space, natural resource, scenic, and agricultural values of the Property, and no use of the Property inconsistent with that purpose is permitted, except by specific act of the California Legislature. DISTRICT shall regularly monitor the condition of the Property and the uses and practices on the Property to determine consistency with the purpose and terms of this Easement. DISTRICT shall take all reasonable steps to ensure the safety and health of any persons, whether professionals, staff members, or volunteers, who enter the Property for the purposes of monitoring.

Upon a finding by the Conservancy at a noticed public hearing and supported by clear and convincing evidence, following written notice to the DISTRICT and the GRANTOR and a reasonable opportunity to cure, that any of the essential terms of this Easement have been violated; or that the existence of DISTRICT has terminated for any reason prior to an assignment of DISTRICT's interest in the Easement in compliance with this Easement; then DISTRICT's right, title, and interest in this Easement shall automatically vest in the State of California for the benefit of the Conservancy or its successor, upon acceptance of the Easement and compliance with any legal requirements related to acceptance; provided, however that the State, through the Executive Officer of the Conservancy, or its successor, may designate another public agency or a nonprofit organization to accept the right, title and interest, in which case vesting shall be in that agency or organization rather than in the State. For purposes of this Section 35 the "essential terms of this Easement" are those set forth in Sections 4.2, 5.2, 8.2.1, 9.1, 14.1, 14.3, 20, and 35.

The DISTRICT may not assign this Easement without obtaining the prior written consent of the State of California through the Executive Officer of the Conservancy or its successor. Any assignment without such consent shall be void and of no effect. Such consent shall not be unreasonably withheld. This Easement (including any portion or interest in it) may not be used as security for any debt without the written approval of the DISTRICT and the State of California, acting through the Executive Officer of the Conservancy, or its successor.

IN WITNESS WHEREOF, GRANTOR and DISTRICT have executed this Easement this 8th day of May, 2012.

GRANTOR:

By: _____

Joseph Bordessa, as Successor Co-Trustee of the Bruno Bordessa and Dorothy Bordessa Revocable Intervivos Trust (created by Declaration of Trust dated June 12, 2000

By: _____
Alfred Bordessa, as Successor Co-Trustee of the Bruno Bordessa and Dorothy Bordessa Revocable Intervivos Trust (created by Declaration of Trust dated June 12, 2000

DISTRICT:

SONOMA COUNTY AGRICULTURAL PRESERVATION AND OPEN SPACE DISTRICT

By _____
President of the Board of Directors

ATTEST:

Veronica A. Ferguson by M. Arellano
_____, County Clerk of the Board of Directors

DEED AND AGREEMENT

State of California)
County of Sonoma)

On May 8, 2012 before me,
Kathy Nelsen, Notary Public (here insert name and title of the officer),
personally appeared Joseph Bordessa and Alfred Bordessa,
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____ (Seal)



CERTIFICATE OF ACCEPTANCE
(Government Code Section 27281)
OF REAL PROPERTY BY THE
BOARD OF DIRECTORS OF THE
SONOMA COUNTY AGRICULTURAL PRESERVATION
AND OPEN SPACE DISTRICT

This is to certify that the interests in real property conveyed by the Conservation Easement Agreement dated May 8, 2012, Alfred Bordessa and Joseph Bordessa, as Successor Trustees of the Bruno Bordessa and Dorothy Bordessa Revocable Intervivos Trust, created by Declaration of Trust dated June 12, 2002, to the Sonoma County Agricultural Preservation and Open Space District, a governmental agency formed pursuant to the provisions of Public Resources Code Section 5506.5, is hereby accepted by the President of the Board of Directors on behalf of the District pursuant to the authority conferred by Resolution No. 12-0129 of the Board of Directors, dated March 27, 2012 and the District consents to the recording thereof by its duly authorized officer.

Sonoma County Agricultural Preservation
and Open Space District

Dated: 5-8-12

By: _____
Shirlee Zane, President
Board of Directors

ATTEST:

Veronica A. Ferguson by M. Arellano
Clerk of the Board of Directors

CALIFORNIA ALL-PURPOSE CERTIFICATE OF ACKNOWLEDGMENT

State of California

County of Sonoma

On May 8, 2012 before me, Sandra L. Faus Notary Public,
(Here insert name and title of the officer)

personally appeared Shirlee Zane,

who proved to me on the basis of satisfactory evidence to be the person~~(s)~~ whose name~~(s)~~ is/~~are~~ subscribed to the within instrument and acknowledged to me that ~~he~~/she/~~they~~ executed the same in ~~his~~/her/~~their~~ authorized capacity~~(ies)~~, and that by ~~his~~/her/~~their~~ signature~~(s)~~ on the instrument the person~~(s)~~, or the entity upon behalf of which the person~~(s)~~ acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Sandra L Faus
Signature of Notary Public

SANDRA L. FAUS
Commission # 1957686
Notary Public - California
Sonoma County
My Comm. Expires Oct 22, 2015

(Notary Seal)

ADDITIONAL OPTIONAL INFORMATION

DESCRIPTION OF THE ATTACHED DOCUMENT

Deed & Agreement
(Title or description of attached document)

Bordessa
(Title or description of attached document continued)

Number of Pages 26 Document Date 5/8/12

SCAPOSD
(Additional information)

CAPACITY CLAIMED BY THE SIGNER

- ☐ Individual (s)
- ☐ Corporate Officer

(Title)

- ☐ Partner(s)
- ☐ Attorney-in-Fact
- ☐ Trustee(s)
- ☑ Other Board Chair

INSTRUCTIONS FOR COMPLETING THIS FORM

Any acknowledgment completed in California must contain verbiage exactly as appears above in the notary section or a separate acknowledgment form must be properly completed and attached to that document. The only exception is if a document is to be recorded outside of California. In such instances, any alternative acknowledgment verbiage as may be printed on such a document so long as the verbiage does not require the notary to do something that is illegal for a notary in California (i.e. certifying the authorized capacity of the signer). Please check the document carefully for proper notarial wording and attach this form if required.

- State and County information must be the State and County where the document signer(s) personally appeared before the notary public for acknowledgment.
- Date of notarization must be the date that the signer(s) personally appeared which must also be the same date the acknowledgment is completed.
- The notary public must print his or her name as it appears within his or her commission followed by a comma and then your title (notary public).
- Print the name(s) of document signer(s) who personally appear at the time of notarization.
- Indicate the correct singular or plural forms by crossing off incorrect forms (i.e. ~~he/she/they~~, is /~~are~~) or circling the correct forms. Failure to correctly indicate this information may lead to rejection of document recording.
- The notary seal impression must be clear and photographically reproducible. Impression must not cover text or lines. If seal impression smudges, re-seal if a sufficient area permits, otherwise complete a different acknowledgment form.
- Signature of the notary public must match the signature on file with the office of the county clerk.
  - Additional information is not required but could help to ensure this acknowledgment is not misused or attached to a different document.
  - Indicate title or type of attached document, number of pages and date.
  - Indicate the capacity claimed by the signer. If the claimed capacity is a corporate officer, indicate the title (i.e. CEO, CFO, Secretary).
- Securely attach this document to the signed document

Escrow No.: 12-**490119808Z**-KN
Locate No.: CAFNT0949-0949-0001-490119808Z
Title No.: 12-**490119808Z**

EXHIBIT "A"

The land referred to herein is situated in the State of California, County of Sonoma, Unincorporated Area, and is described as follows:

All of that certain land lying and being in Townships 5 and 6 North, Range 10 West, M.D.M., in the County of Sonoma, State of California , and particularly described as follows:

BEGINNING at a point in the center of the County road leading from Valley Ford to Bodega Bay at the Southwest corner of that certain 634.12 acre tract of land shown and designated upon the plat entitled "Map of survey made for heirs of Hollis Hitchcock in Rancho Estero Americano and Rancho Canada De Pogolimi", said Plat being on file in Book 16 of Maps, page 11, Sonoma County Records, said point of beginning is further described as bearing South 30.0 feet from a granite monument marked "L 12", thence from said point of beginning S. 76° 35'W. along the center line of said County Road 579.4 feet to a point from which an iron pipe monument bears S. 21° 37' W. 30.3 feet; thence S.21° 37'W. 4762.2 feet to a point on the line of high tide of the Estero Americano, and from which an iron pipe monument bears N. 21°37'E.20.0 feet; thence Westerly along the northerly bank of said Estero Americano following the meanderings of the line of high tide to a point from which an iron pipe monument bears N.7° 53'E.23.0 feet; thence leaving the line of high tide N.7°53'E.2589.0 feet; thence N.7° 42'E. 1943.8 feet; thence N. 8° 01'E. 2270.7 feet; thence N.7° 47' E. 974.3 feet to a point in the center of the heretofore mentioned County Road; thence in a southeasterly direction along the center of said County Road to the point of beginning.

EXCEPTING THEREFROM, the following land described as follows:

A tract of land in the Rancho Estero Americano, in Townships 5 and 6 North, Range 10 West, M.D.M., and particularly described as follows:
BEGINNING at a point in the center of the county road leading from Valley Ford to Bodega Bay at the Southwest corner of that certain 634.12 acre tract of land shown and designated upon the plat entitled "Map of survey made for heirs of Hollis Hitchcock in Rancho Estero Americano and Rancho Canada De Pogolimi", said Plat being on file in Book 16 of Maps, page 11, Sonoma County Records, said point of beginning is further described as bearing South 30.0 feet and S36° 35W.579.40 feet from a granite monument marked "L12"; thence from said point of beginning along the center line of said road, N76°40'40" W.2713.74 feet and N.57°42'W.370.747 feet; thence leaving said roadway, S.12°25'14" W.896.094 feet, S.13°21'39"W.287.985 feet, S.74°32'30"E. 1199.43 feet, S.28°55'17"W.795.94 feet, S.27°20'19"W.177.028 feet, S.28°38'W.419.78 feet, S.44°26'30"W.186.55 feet, S.27°34'30"W.160.87 feet, S.5°04'30"W.124.74 feet, S.23°18'30"W.138.05 feet, S.32°52'W.272.42 feet, S.39°30'30"W.123.80 feet, S.49°56'W.140.54 feet, S.58°22'W.285.09 feet, S73°05'30"W.45.32 feet and S.60°08'W.20.604 feet to a point on the line of high tide of the Estero Americano; thence along said high water line, S.43°34'E.67.399 feet, S.45°23'W.264.4 feet, S.6°04'E.200.0 feet, S.23°16'E.345.0 feet, S.51°17'E.607.1 feet, S.54°19E.416.4 feet, S.86°56'E.561.0 feet and S.84°35'E.504.8 feet to a point which bears S.21°37'W.4762.2 feet from the point of beginning; thence N.21°37'E.4762.2 feet to the point of beginning.

APN: 026-030-011

From: Rebecca Spaletta <rspaletta@gmail.com>
Date: December 20, 2017 at 11:10:46 PM PST
To: richard.stabler@sonoma-county.org
Cc: Bill.Keene@sonoma-county.org, chelsea.holup@sonoma-county.org
Subject: RE: Estero Project Comment Letter

Dear Mr Rich Stabler and team,

Thank you for the opportunity to comment on the Estero Trail Project. The Estero Americano is a special place; pristine and home to a variety of wildlife and domestic agricultural animals, surrounded by a rural picturesque landscape.

My name is Rebecca Spaletta-Ahlers. I am a local resident in Valley Ford. I work in the artisan cheese industry with a background in agriculture and transportation. My husband is a local firefighter in Marin and has been in the industry for about 20 years.

My family owns the property on the Marin side of the Estero; on the ocean side. We operate a small cow-calf operation raising Angus and Herefords, using the rolling hills for grazing. The cool coastal climate is perfect home for our cattle. The temperature stays pretty consistent throughout the year except for a small heat-wave during Indian Summer. The grasses stay greener due to the early morning due allowing for a longer grazing season. The only downfall is the treacherous winds which 30 mph seems common. The farm is home to my grandfather and to our retired herdsman and his family. The farm is also home to many deer, coyote, badgers, and migratory birds.

I am in favor of low-intensity public trails with vista views; however, I am not in favor of public access to the Estero Americano. If there must be access, it should be supervised by an educated and responsible docent or park ranger acting as an actual escort on the water. The access must be supervised, not only to prevent trespassing and illegal camping, but to help protect the ecology and natural resources of the surrounding area. Since our property borders the Ocean and has a few areas protected from the wind; we receive the brunt of the trespassers on the Estero. We find trash, spent fire pits, and torn down 'No Trespassing' signs. When trespassers are approached they are often aggressive and combative.

Since the Estero is home to some delicate species, there should be great care taken close to the waters edge. The location of the proposed public access point to the Estero is extremely shallow when the sand bar at the Ocean's end is closed and marsh like or muddy when the bar is open. This location should be studied over a course of 2 – 3 years, looking at each season of the year. This will help give better insight to how the seasons affect the water level and natural resources.

Emergency services and response time should be taken into consideration when opening up the Estero for additional public access. There is only one ambulance in the area with a response time of at least 20 minutes. If there is another call, the next ambulance would need to come from Sebastopol. The winds can be unpredictable and extremely powerful. Kayakers on the Estero risk overturning and being unable to paddle to safety. Kayakers have come upon our property and asked for assistance.

Fire Danger is a real threat to any agricultural operation and family home in a rural area. Response times may take 20 – 45 minutes. There are only a couple fire engines in the area with a full-time staff. The other engines are manned by a volunteer crew which may not be fully staffed and/or

trained. Looking at the recent Sonoma and current Southern California Fires, fire prevention should be a priority. Fires can overtake a home and a rural landscape within minutes. A single fire can devastate an entire agricultural operation which is the livelihood of many of the families in the area.

Illegal campfires and smoking increase with unsupervised visitors and public access to the Estero. The designated wilderness areas in the Estero Project area would benefit from low-intensity limited grazing to keep brush and grass level below dangerous levels.

Highway One is a favorite route for travelers including RVers. The traffic among Highway One on the weekends is quite heavy. With the speed limit at 55 and no turning lanes, the highway may pose a danger to those turning into the project area. More research should be done on the traffic conditions during peak season and travel days. I fear a car passing an RV might hit a car stopped waiting to turn or a car pulling out of the park to head north. Measures should be taken to prevent potentially deadly accidents.

I recommend limiting the hours of operation to daylight hours and considering operating on a seasonal basis. This will help reduce the possibility of trespassing, illegal campfires, and help reduce any negative impacts to the natural resources and ecology of the Estero Americano. I also recommend no access to the Estero American for the same reasons.

I would also like to recommend restricting pets on the proposed trails and project area(s). Pets can carry diseases which may devastate surrounding agricultural operations. Loose pets can threaten or injure other animals including wildlife.

I am more than happy to help answer any questions you may have. Please feel free to reach out to me if you need additional information.

Thank you,

Rebecca Spaletta - Ahlers

(I've attached previous letters for your reference)

Opposition to Proposed Trail Easement to the Estero Americano on the Bordessa Property

We support any landowner who willingly and voluntarily wants to sell an agricultural easement and receive just compensation for it, but we oppose any easement that will increase public access and trespassing on a large number of neighboring agricultural properties beyond that of the subject property.

California Farm Bureau Federation opposes public recreational trails on agricultural lands because trails "increase the likelihood of theft, vandalism, ecoterrorism, bioterrorism and create other problems for neighboring agricultural lands;"[1]

Public access harms and disrupts agriculture operations through the destruction of fences and gates, risks to hikers from livestock, damage to fragile biological resources, poaching, illegal use of firearms, fire, predation loss of sheep, cattle and wildlife to dogs, and the introduction of noxious, invasive, non-native plants as well as increasing the risk of the introduction of devastating disease such as foot-and-mouth. [2]

Affected landowners should have been notified of this proposed easement, but were not. We request a postponement of any final decision to allow for adequate notification to be provided to all landowners of property along the entire length of both the Marin and the Sonoma sides of the Estero, to give them time to comment.

The negative impacts of this easement will affect many agricultural lands, not just the Bordessa property. When kayakers disembark from their boats and walk above the mean high tide line along the banks of the Estero and on the beach above the mean high tide line of the ocean, *they are trespassing on private property, much of which is in active agricultural production*. The landowners, families and agricultural leaseholders of these private agricultural properties have a number of concerns about this trespassing. Here are just a few:

Private Agricultural Property Issues

1) Liability. Ranchers and ag operators are exposed to lawsuits resulting from any type of injury sustained by members of the public while on their land. Uneven terrain, barbed wire fences, agricultural equipment and structures, and the presence of cows protective of their calves and the aggression of bulls are just some of the risks. Regardless of state indemnity statutes, public access increases private landowners' and agricultural producers' liability for any type of accidental injury including falling off steep cliffs and rocks or injury by bulls, cows and rams;

2) Damage to crops, terrain and livestock. Trampling feet, dragged boats and unleashed dogs can erode and ruin grazing lands, destroy crops and injure and disturb the farm animals;

3) Damage to infrastructure. Trespassers have damaged fences and gates by climbing over them, and some have vandalized ag accessory structures and stolen equipment;

4) Risk of fire. Bonfires and campfires without permits are strictly illegal and very dangerous on these lands, but people have obviously set them anyway. The Fire Marshall stipulates that any fires on private property is illegal without an operational permit and the consent of the owner or his agent, and on State property a permit from the appropriate government agency is also required.[3] Simply put, a grass fire on these grazing ranches could destroy an ag operation;

5) Risk of the introduction of devastating disease such as foot-and-mouth. People can transmit organisms on the bottom of their shoes that can wipe out entire herds of cows and sheep and destroy the community's economy [more to come from the ag commissioners];

6) Trespassing is against the law! The California State Legislature recently increased fines for trespassing on agricultural properties. Landowners historically give permission to those to whom they choose to provide access, and that permission is always tied to limits and conditions including "no camping" and "no fires." We object to

[1] California Farm Bureau Federation Policies 2012 – No. 153 Recreation
[2] Marin County Farm Bureau position paper to Marin County Planning Commission, 3/4/07
[3] 2007 California Fire Code 105.6.37 Open Burning

any and all kayaking and boating activities on the Estero where boaters disembark upon our private working ranches, and to hikes along the shoreline and at the mouth where people are on our private properties.

Who Will Monitor?
Who is going to be responsible and liable for monitoring the public's activities if kayakers and boaters have expanded public access? The Sonoma Land Trust claims to monitor and limit activities on the waters of the Estero Americano. When they sponsor kayak races, participants are instructed beforehand to stay off private property and pick up any trash they come across. Even so, during the larger races, landowners and their farmworkers have felt it necessary to stand at the edges of their properties along the Estero holding "No Trespassing" signs to guard their lands.

California Farm Bureau Federation policy states that "Local government must be responsible for mitigating impacts and compensate landowners if public river access occurs next to agricultural lands creating damages such as, but not limited to, trespassing, theft, vandalism, and crop loss."[4]

Inconsistency with Conservancy's Enabling Legislation and Local Coastal Program Policies
We believe that the review of legislation and policies contained in the Coastal Conservancy Staff Recommendation[5] does not adequately reflect the prioritization of agricultural sustainability or of private property rights.

Consistency with Sonoma and Marin General Plans and Local Coastal Programs

1. As stated in the 1981 Marin County Local Coastal Program Unit II (LCP), "Land uses which enhance public recreational opportunities are given priority over other developments except agriculture and coastal-dependent industry;"[6]

2. The Sonoma County General Plan 2020 (GP 2020) calls for the provision for trail locations that are "convenient to urban areas…while not impacting agricultural uses;"[7]

3. According to the Marin LCP, "The downward trend in agricultural land acreages in West Marin is due primarily to the expansion of public parklands...;"[8]

4. As stated in the Marin LCP, "Clearly, where physical constraints, hazards or resources would interfere with or be damaged by public access, such access should be limited or avoided. Section 30212 of the Coastal Act recognizes these limitations by providing that public access in new development projects need not be provided where it would be inconsistent with public safety or the protection of fragile coastal resources;"[9]

CEQA Compliance [see Tito's suggestion]

Legal Status of the Estero Americano
The Estero Americano is part of the Gulf of the Farallon National Marine Sanctuary and is not included in the list of streams and waters declared as Navigable public ways.[10]

[If the Bordessa property is in Williamson Act]
Consistency with the Williamson Act
According to Government Code Section 51243(a), Williamson Act stipulates that every contract shall "provide for the exclusion of uses other than agricultural, and other than those compatible with agricultural uses, for the duration of the contract." An open, public trail system that crosses Williamson Act contracted land is not only incompatible with agricultural uses, but is also detrimental to agricultural uses. Therefore, approving such a trail would directly conflict with state law and would be subject to legal challenge.

[If the Bordessa property is in the Coastal Zone and subject to Coastal Act law]
Consistency with the California Coastal Act

[4] California Farm Bureau Federation Policies 2012 – No. 153 Recreation
[5] COASTAL CONSERVANCY Staff Recommendation November 10, 2011

[6] Marin County Local Coastal Program Unit II , Certified by State Coastal Commission April 1, 1981 – pg. 24
[7] Sonoma County General Plan 2020, Planning Commission Recommended Draft, Open Space and Resource Conservation Element, Objective OSRC-17.1
[8] Marin County Local Coastal Program Unit II , Certified by State Coastal Commission April 1, 1981 – pg. 85
[9] Marin County Local Coastal Program Unit II, Certified by State Coastal Commission April 1, 1981 – pg. 10
[10] HARBORS AND NAVIGATION CODE SECTION 100-107

1. The California Coastal Act provides an exception to public access requirements if "agriculture would be adversely affected;"[11]

2. The California Coastal Act states that public access along the coast must be "consistent with sound resources conservation principles and constitutionally protected rights of private property owners;"[12]

3. The California Coastal Act states that public access goals must be advanced "in a reasonable manner that considers the equities and that balances the rights of the individual property owner with the public's right to access;"[13]

4. According to the California Coastal Act, "The maximum amount of prime agricultural land shall be maintained in agricultural production to assure the protection of the areas' agricultural economy…;"[14]

5. The mouths of the Estero de San Antonio and Estero Americano both meet the definition of "Environmentally sensitive areas" as defined by the California Coastal Act;[15]

Errors in the Legislators' Letters of Support

The letters of support from state and local legislators[16] all contain a crucial error, indicating a lack of understanding of the facts of this easement. Each of the October, 2011 letters to California Coastal Conservancy Chair Douglas Bosco, with the exception of the letter from The Sonoma County Regional Parks Director, incorrectly states that the proposed trail easement on the Bordessa property would "create the only opportunity to offer public access to the Estero Americano in Sonoma County." This is absolutely not true. Kayakers and other boaters have had access for years, most of them putting in near a highway bridge west of the ranching community of Valley Ford. Additionally, the public now has access on the Sonoma Land Trust's 127-acre Estero Americano Preserve. The Preserve was acquired in 1997 and 2001 in partnership with California State Coastal Conservancy and the Sonoma County Agricultural Preservation and Open Space District. It seems disingenuous and suspicious that a State Senator, two Assemblymembers and the County Supervisor representing that district would make this false assertion in their letters of support for a trail easement.

Easement Purchase Price Too Low

We also believe that the $1,313 per acre price being offered to the Bordessas is well below market rate for easement purchases in the region. In Marin County, recent Marin Agricultural Land Trust (MALT) easements,[17] which were affirmative agricultural easements without public access components, have been around $2,300 per acre. A recent public access easement purchase is appraised at $30,747 per acre[18]. A recent conservation easement by NRCS went for $11,828 per acre[19]. In Sonoma County, an easement purchase by SCAPOSD closed at $9,967 per acre[20] while another was for $10,204 per acre,[21] as just a few examples.

[11] California Coastal Act of 1976, Section 30212 (a)(3) New development projects
[12] California Coastal Act of 1976, Section 30001.5 Legislative findings and declarations; goals
[13] California Coastal Act of 1976, Section 30214(b) Implementation of public access policies; legislative intent
[14] California Coastal Act of 1976, Section 30241 Prime agricultural land; maintenance in agricultural production
[15] California Coastal Act of 1976, Section 30107.5 Definitions: Environmentally sensitive area
[16] COASTAL CONSERVANCY Staff Recommendation November 10, 2011 Exhibit #4: Project Letters http://scc.ca.gov/webmaster/ftp/pdf/sccbb/2011/1111/20111110Board15_Bordessa_Ranch.pdf
[17] Corda $2,347 per acre; Thornton $2,270 per acre, as reported in the *Marin Independent Journal* 6/2/11 and *The Sonoma Marin Farm News* 6/11/11 respectively.
[18] Giacomini Open Space Preserve, as reported in *West Marin Citizen* 11/17/11
[19] Lawson's Landing, as reported in EAC Newsletter, Summer 2011
[20] Danielli, as reported in *The Sonoma Marin Farm News* 3/10/10
[21] Comozzi, as reported in *the San Francisco Chronicle* 9/6/10

Spaletta Family
PO Box 506
Valley Ford, CA 94972

Sonoma County Board of Supervisors
575 Administration Drive, Room 100A
Santa Rosa, CA 95403

RE: Project #11-026 – Bordessa Ranch Conservation and Public Access Easement Acquisition and Access Plan

January 30, 2012

To Whom It May Concern:

Our family has owned and operated a ranch along the Estero Americano since 1988. Our family has a fourth-generation cattle operation. Our family helped create the Estero Preservation Association which is a group of landowners along the Estero Americano in Marin and Sonoma County. The goal of the Estero Preservation Association is to help protect and preserve the Estero Americano and the surrounding agricultural lands. Our family has just recently become aware of the Public Access Easement on the Bordessa Ranch which is across the Estero from our ranch. We believe the increase in Public Access to the Estero and land surrounding the Estero will create more problems for the surrounding ranchers and pose threats to the Estero itself.

We believe an increase in Public Access will create a larger increase in trespassing. Trespassing is a serious threat to agriculture. Unkempt fires, loose pets, litter, broken fences or left open gates, introduction of disease and non-native species, and theft can be very harmful to agricultural operations. Camp and bon-fires are illegal without a permit and permission from the landowner. Wood is sometimes taken from fencing material to be used. Loose pets such as dogs chase and kill livestock. Litter is ingested by livestock and wildlife which is most often fatal. Loose livestock pose threats to neighboring ranchers or if livestock is loose on roads can pose serious dangers to unaware drivers. Diseases can eradicate an entire herd or crop. Foot-and-Mouth Disease can be easily spread from humans to livestock if not properly sanitized. Theft of equipment or supplies is always damaging to a ranching or farming operation.

Trespassers also hold agricultural landowners liable for any damages *they* sustain while on private property. The land surrounding the Estero is rocky, steep, and rough. Trespassers can get hurt easily from a fall while hiking. Cattle operators including ourselves keep bulls in fields surrounding the Estero. Not only bulls guarding their herd pose danger, but cows protecting their calves can harm humans if not cautious. Lawsuits resulting from any type of damages trespassers sustain are extremely harmful to an agricultural operation and in some cases can be detrimental.

The Estero Americano is a fragile and sensitive waterway. Many of the same threats to agriculture operations surrounding the Estero are also threats to the precious wildlife living in

and around the Estero. The California Department of Fish and Game identifies the Estero to contain some of the most Significant Habitat Areas. Wildlife in the Estero includes the North Western Pond Turtle, the Myrtle Silver Sport Butterfly, the California Red-Legged Frog, and the Tri-Colored Blackbird which are all listed as *Special Species*. *Federally Listed Endangered Species* such as the Tidewater Goby and Steel Head Trout live in the Estero. There are also several waterfowl and shorebirds which annually migrate to the Estero. Increase in public access will pose bigger threats from unkempt fires, introduction of diseases and non-native species, and loose pets.

As an agricultural operation we are very concerned who will be responsible for monitoring the public along the Estero Americano. We are constantly trying to do our part by posting signs and personally confronting trespassers on the outskirts of our property. However, we do not have the resources to constantly guard our property 24/7.

As a concerned landowner, we would like to know:

- How will the public know not to cross the boundary and trespass on private lands?
- Who will be there to stop those who simply ignore 'No Trespassing' signs?
- How will the public be educated on the surrounding wildlife and bio-security awareness to prevent the spread of disease and non-native species?
- How will local, state, and federal laws be enforced on the Bordessa Ranch and in the Estero Americano?
- Who will monitor the public after-hours to ensure there are no camping, illegal trespassing, fires, and under-age parties on the Bordessa Ranch and surrounding areas including the Estero Americano and private properties?
- Who will be responsible for any damages to the surrounding properties caused by the public?

We only had a short time to review the Bordessa Ranch Conservation and Public Access Easement Acquisition and Access Plan. We have several questions and concerns regarding this document:

- When is the Season for the Seasonal Boating listed in Plan Public Access? Are there specific dates set? How will the season be enforced?
- Regarding Exhibit #3 – *Upland Habitat Goals Biodiversity Portfolio Report:* The map in this exhibit does not list landowners' names surrounding the Bordessa Property. However, it does list some of the landowners along the Estero Americano. Why are the surrounding landowner names missing? Have the missing landowner names been notified of this Plan? We believe this map may be confusing and misleading.
- We believe that the surrounding agricultural operations do protect the integrity of the Estero Americano. Generations of Ranchers and Farmers along the Estero Americano along with the Gold Ridge RCD and its partners work together to overcome obstacles to produce and continue environmentally sustainable ranching and farming practices. Designating '138' acres of property on the Bordessa Ranch to be *'forever wild'* does not help protect the Estero's integrity if it is for Recreational Use by the Public. Forever Wild should mean that there is no Public Access. Public Access can harm a habitat if not monitored properly.

- Public Access through the Bordessa Ranch will not be the only access through to the Estero Americano as stated in Exhibit # 4. Currently there is public access for kayakers which launch their boats from the 'old county road' into the Estero on Franklin School House Road. Kayakers can also reach the Estero Americano through the mouth of the Estero from the Pacific Ocean. Surrounding land owners often give *educated* hikers permission while on *guided* tours to pass through their ranches and farms as well.
- The Bordessa Ranch is also not *one of the last remaining parcels... representing the local agricultural heritage of the region*. This statement is very misleading. Agricultural lands surround both sides of the Estero Americano. Many of the nearby ranches and farms are preserved in agriculture through programs such as Marin Agriculture Land Trust (MALT), Sonoma Land Trust, and the Williamson Act. These programs restrict industrial building, housing, and access to preserve agricultural land. Taking land out of Agriculture which this plan is set to do, does not preserve the agricultural heritage of the land. Taking land out of agricultural use reduces food production in an ever growing population. It is necessary to preserve as much land in Agriculture as possible.

  Section 31162(a) authorizes the Coastal Conservancy to improve public access in a manner that is *consistent with the rights of private property owners and will not have a significant adverse impact on agricultural operations and environmentally sensitive areas and wildlife*. Sonoma Land Trust conducts guided educational tours on their preserve which is along the Estero Americano. The public is only allowed on this property with permission and with a representative from Sonoma Land Trust.

Our family and neighboring landowners did not receive proper notice regarding the Bordessa Ranch Conservation and Public Access Easement Acquisition and Access Plan. This project has been underway for several years, but only recently has been made public. It is only fair to give enough notice for neighboring land owners and the community to review and comment on the Plan.

We support any landowner who would like to sell an agriculture easement to help support their family and operation. We oppose easements which will increase public access to fragile and sensitive waterways, wildlife, and neighboring agricultural properties beyond that of the subject property.

Sincerely,

The Spaletta Family
Valley Ford, CA

Rebecca Spaletta-Ahlers
PO Box 250
Valley Ford CA 94972

PRMD
Attn: Rich Stabler,
2550 Ventura Ave
Santa Rosa, CA 95403

RE: Estero Trail Plan and Designation of Estero Trail Corridors and Associated Staging Areas project

Dear Mr Rich Stabler and team,

Thank you for the opportunity to comment on the Estero Trail Project. The Estero Americano is a special place; pristine and home to a variety of wildlife and domestic agricultural animals, surrounded by a rural picturesque landscape.

My name is Rebecca Spaletta-Ahlers. I am a local resident in Valley Ford. I work in the artisan cheese industry with a background in agriculture and transportation. My husband is a local firefighter in Marin and has been in the industry for about 20 years.

My family owns the property on the Marin side of the Estero; on the ocean side. We operate a small cow-calf operation raising Angus and Herefords, using the rolling hills for grazing. The cool coastal climate is perfect home for our cattle. The temperature stays pretty consistent throughout the year except for a small heat-wave during Indian Summer. The grasses stay greener due to the early morning due allowing for a longer grazing season. The only downfall is the treacherous winds which 30 mph seems common. The farm is home to my grandfather and to our retired herdsman and his family. The farm is also home to many deer, coyote, badgers, and migratory birds.

I am in favor of low-intensity public trails with vista views; however, I am not in favor of public access to the Estero Americano. If there must be access, it should be supervised by an educated and responsible docent or park ranger acting as an actual escort on the water. The access must be supervised, not only to prevent trespassing and illegal camping, but to help protect the ecology and natural resources of the surrounding area. Since our property borders the Ocean and has a few areas protected from the wind; we receive the brunt of the trespassers on the Estero. We find trash, spent fire pits, and torn down 'No Trespassing' signs. When trespassers are approached they are often aggressive and combative.

Since the Estero is home to some delicate species, there should be great care taken close to the waters edge. The location of the proposed public access point to the Estero is extremely shallow when the sand bar at the Ocean's end is closed and marsh like or muddy when the bar is open. This location should be studied over a course of 2 – 3 years, looking at each season of the year. This will help give better insight to how the seasons affect the water level and natural resources.

Emergency services and response time should be taken into consideration when opening up the Estero for additional public access. There is only one ambulance in the area with a response time of at least 20 minutes. If there is another call, the next ambulance would need to come from Sebastopol. The winds

can be unpredictable and extremely powerful. Kayakers on the Estero risk overturning and being unable to paddle to safety. Kayakers have come upon our property and asked for assistance.

Fire Danger is a real threat to any agricultural operation and family home in a rural area. Response times may take 20 – 45 minutes. There are only a couple fire engines in the area with a full-time staff. The other engines are manned by a volunteer crew which may not be fully staffed and/or trained. Looking at the recent Sonoma and current Southern California Fires, fire prevention should be a priority. Fires can overtake a home and a rural landscape within minutes. A single fire can devastate an entire agricultural operation which is the livelihood of many of the families in the area.

Illegal campfires and smoking increase with unsupervised visitors and public access to the Estero. The designated wilderness areas in the Estero Project area would benefit from low-intensity limited grazing to keep brush and grass level below dangerous levels.

Highway One is a favorite route for travelers including RVers. The traffic among Highway One on the weekends is quite heavy. With the speed limit at 55 and no turning lanes, the highway may pose a danger to those turning into the project area. More research should be done on the traffic conditions during peak season and travel days. I fear a car passing an RV might hit a car stopped waiting to turn or a car pulling out of the park to head north. Measures should be taken to prevent potentially deadly accidents.

I recommend limiting the hours of operation to daylight hours and considering operating on a seasonal basis. This will help reduce the possibility of trespassing, illegal campfires, and help reduce any negative impacts to the natural resources and ecology of the Estero Americano. I also recommend no access to the Estero American for the same reasons.

I would also like to recommend restricting pets on the proposed trails and project area(s). Pets can carry diseases which may devastate surrounding agricultural operations. Loose pets can threaten or injure other animals including wildlife.

I am more than happy to help answer any questions you may have. Please feel free to reach out to me if you need additional information.

Thank you,

Rebecca Spaletta - Ahlers

-----Original Message-----
From: denny tibbetts comcast [mailto:tibbsx4@comcast.net]
Sent: December 19, 2017 4:55 PM
To: Rich Stabler <Rich.Stabler@sonoma-county.org>
Subject: Estero Trail and Designation of Estero Trail Corridors and Associated Staging Area Project NOP Comments

County of Sonoma
Permit and Resource Management Department
22550 Ventura Avenue
Santa Rosa, CA 94972

December 18, 2017

Dear Mr. Stabler,

We have been property owners on the Estero Americano for almost thirty years. First I would like to state how important the notice process is. I have been to meetings and written letters concerning this issue. Unfortunately I was not noticed about the meeting in Valley Ford on December 13th, and luckily, was informed by a neighbor in Marin county. Due to the short time I have to comment on this issue, I will attach prior letters that I have written in the past which express and support my concerns. Please enter them into the record.

My primary objection is the potential boat ramp component: I have serious concerns about the environmental impact this would have on the Estero Americano, how this could negatively impact the agricultural operations of neighboring ranches, as well as cause private property violations. My secondary concern is how effectively the trails and access will be monitored and maintained. Our county parks and rangers are currently over stressed financially as well as overburdened with staff requirement.

Your NOA suggest project alternatives which the EIR will evaluate:

Shorter Trail corridor/ and or elimination of one of the trails: The first meeting I attended at the firehouse in Bodega Bay dealt with this issue. Most of the participants at that meeting discussed how difficult it was to comment on trail alignment without ever having been on the property. That remains true today. It is important however to take into account maintenance and monitoring ability of agency. This should affect the number and length of trails.

Different trail management - I highly recommend the docent led tours. This would definitely control the monitoring issues that concern neighboring property owners. This approach is successfully used in the county, particularly in agricultural areas.

Elimination of specific recreation activities: We strongly support the elimination of the boat access component to the project.

Thank you for your consideration,

John and Denny Tibbetts
1550 Estero Ln. Bodega Bay, CA.
tibbsx4@comcast.net

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Warning: If you don't know this email sender or the email is unexpected, do not click any web links, attachments, and never give out your user ID or password.

November 6, 2016

Sheri J. Emerson
Stewardship Program Manager
Sonoma County Agricultural Preservation and Open Space District
747 Montecito Avenue, Suite 100
Santa Rosa, California 95401

Re: ESTERO TRAIL PROJECT – Mitigated Negative Declaration, Initial Study and Mitigated Monitoring Program – Opposition to Boat/Kayak Launch

Dear Ms. Emerson and SCAPOSD,

We are John and Denny Tibbetts. Our home and property is located on the Estero Americano in Sonoma County due west from where the Estero Trail on Bordessa Ranch is being proposed. Our property, the neighboring ranches and the Estero itself will be **negatively impacted** if you open up a Public Boat Launch on the Estero Americano. In review of the Mitigated Negative Declaration, the document proposes putting off environmental review of important aspects of the project, such as construction, into the future. Piecemealing this project is unacceptable. A project of this magnitude, to be constructed in such a sensitive area, will have obvious significant effects that require an EIR.

We strongly request that you **permanently** remove the boating component of the Estero Trail Project. We have gone to meetings, written letters, made phone calls to the Open Space District, Rich Stabler, PRMD and our elected officials to express our opposition to this Boat Launch/ Ramp on the Bordessa Ranch. This has been a very controversial issue from the start, evidenced by the fact that two of our Sonoma County five supervisors voted **against** this project with concerns:

1. Harming the environmentally sensitive habitat of the Estero by providing Unmanaged access
2. The fiscal impact on county resources
3. Layering an agricultural easement with public access

The Estero Americano itself is a unique and relatively undisturbed fjord-like coastal estuary that is one of the most biologically dynamic areas on the entire California Coast. It provides important habitat for migratory waterfowl and shorebirds as well as many special status species. In addition, much of the land surrounding the Estero is coastal prairie, which is considered an **"Environmental Sensitive Habitat Area"** by the California Coastal Commission because it supports the highest plant diversity among North American grasslands.

The Estero Americano Watershed Management Plan, prepared by Goldridge Resource Conservation District has stated in their report that much of the Estero American is designated an impaired stream-way as defined by the Federal Water Resource Statute Section 303(d). Goldridge also contends that the mudflats, open

water and extensive marsh area of the estuary provide important foraging habitat for migratory waterfowl and shorebirds, and resident long-legged wading birds. The eelgrass beds provide critically important habitat for many species of fish and water birds. Where do these facts weigh into the equation? Have the proper studies been conducted to allow this course of action.

The Estero Americano is listed as Critical Coastal Area #20 on a list of 100 plus areas by the California Coastal Commission and is part of the CCA Program. It is now part of the State Marine Recreational Management Area, adopted in 2010, which protects and prohibits the take, of all living marine resources (with the exception of fowl hunting in season). I can not allow my five year old grandson to throw in a fishing line on my own property, yet the Open Space District is proposing to stake the area with poles and construction mats for people to walk on, and carry or drag their boats across the mudflats to a boat dock for launch. How is this possibly compatible with the Estero's critical habitat designation? How is this consistent with sound resource conservation principles and good management practices? This pristine environment cannot be sustained with additional public boating access. More importantly, it is not needed. Public boat launch access already exists on the Estero nearby off Hwy 1 in Valley Ford. The Estero Americano is also part of the Gulf of the Farallon National Marine Sanctuary and is not included in the list of streams and waters declared as Navigable public ways. (Harbors and Navigation code 100-7). Increased public access here may also be detrimental to the Marine Sanctuary.

Goldridge states in their Management Plan that tidal circulation in the Estero Americano extends over four miles inland. Therefore what the Open Space District is proposing at the Bordessa Ranch will affect most all of Estero, including the location of the Estero Trail Project, as well as many Marin and Sonoma property owners. Marin County Local Coastal Program allows only for restoration or scientific study in or near the Estero – **NO DEVELOPMENT.** This was amended by the Marin County Board of Supervisors and approved by the California Coastal Commission. Allowing this type of development on the Estero in Sonoma County is a dangerous precedent. We, and our neighbors in Marin, have great cause for concern.

We respectfully request that you permanently remove the boat, canoe and kayak launch component from the Estero Trail Project. We further request that our letter of opposition be entered into the public record in response to the Mitigated Negative Declaration, Initial Study and Mitigated Monitoring Program, prepared by PRMD and Rich Stabler for Sonoma County Open Space District. We also agree with, and incorporate by reference, the comment letters submitted by MCFB and SCFB.

Thank you for your consideration,

Denny and John Tibbetts
Estero Ln. Bodega Bay, California 94923

December 1, 2014

Rich Stabler
Senior Environmental Specialist
Sonoma County Permit and Resource Management Department (PRMD)
2550 Ventura Avenue
Santa Rosa, California, 95404

Re: ESTERO TRAIL PROJECT
Opposed to boat, canoe, and kayak launching on the Estero American

Dear Mr. Stabler and PRMD,

I am attaching my letter to the Marin County Farm Bureau letter. I completely support their views on opposition to boat, canoe and kayak launching from the Bordessa Ranch.

My husband and I are property owners on Estero Lane. We have two parcels of land adjacent to the Sonoma Land Trust Preserve, one that directly fronts the estero across from the Marin side Duck's Bill. We are very sensitive to and share all the rancher's concerns of potential damage to crops, terrain, livestock, fire danger and exposure to lawsuits.

The regional parks have had insufficient funds to maintain and provide services at many of their parks. We have great concerns about who will monitor the increased public access. These are facts – things we have witnessed just in the past 4 months.
* EVERY single time we walk at the estero, we collect garbage. I can only assume the amounts will increase.
* In August the Sonoma Land Trust Preserve gate was completely destroyed - posts and all. I will enclose a picture. We had to replace and reinforce the gate. Their picnic table was also stolen. In the past, they have had a canoe stolen.
* This past September- October, I have seen three different groups of kayakers (none of them were part of Sonoma Land Trust or Land Path's organized events) pull their boats up on our property to picnic and explore.
* The weekend of November 15-16, there was a group of kayakers camping at the mouth of the estero above the mean tide line of the ocean. They also had built a fire. They told us that they quite often stop and picnic on the way down to the beach.
* An incident that happened over a year ago was very disturbing. Some uninvited hikers climbed the locked gate, walked down to the estero with dogs, took the Land Trust 's canoe across the estero to hike on the Marin Spaletta ranch, leaving the dogs unattended on the Sonoma side. At the time this occurred, there was livestock on the preserve property. These are just a few examples.

The California Coastal Act states that policies must be "carried out in a reasonable manner that considers the equities and balances the rights of the individual property owner with the public's constitutional rights of access… . " Existing access

to the estero from outside Valley Ford, as well as the controlled limited access of Sonoma Land Trust Preserve does provide access. I believe that increasing that access to the estero on the Bordessa Ranch will infringe on the rights of the neighboring property owners.

The mouth of the Estero and the Estero Americano itself are both environmentally sensitive areas as defined by the California Coastal Act. It is also part of the Farallon National Marine Sanctuary and is not included in the list of streams and waters declared as Navigable public ways. I believe increased public access has great potential of being detrimental to the Marine Sanctuary, upsetting the balance of this sensitive area.

The Bottom Line is The Estero Americano is a completely unique place, serene, rich with amazing life. Increasing the access will completely change the balance.

I hope you seriously consider the views of the Marin County Farm Board, all the neighboring ranchers and my family – that you remove the boat, canoe and kayak component from the Estero Trail Project. I further request that the letter of opposition be entered into the public record for all hearings on this matter.

Thank you for your consideration,

Denny Tibbetts
1550 Estero. Lane
Bodega Bay, Ca. 94923
tibbsx4@comcast.net

APPENDIX B

Air Quality and GHG Model Outputs and Supplemental Information

CalEEMod Version: CalEEMod.2016.3.2

Date: 9/10/2019 6:51 AM

Estero Trail Project
Bay Area AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	1.50	Acre	1.50	0.00	0
User Defined Recreational	3.55	User Defined Unit	3.55	154,464.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Estero Trail Project. BAAQMD.

Land Use - Construction of two 5-foot-wide trail corridors totaling approximately 5-miles.1.5 acres for parking and 0.66 acre for access road.

Construction Phase - Construction would occur from approximately May through October.

Off-road Equipment - No construction equipment, assumed use of handtools.

Off-road Equipment - No construction equipment, assumed use of handtools.

Off-road Equipment - No construction equipment, assumed use of handtools.

Off-road Equipment - No construction equipment, assumed use of handtools.

Off-road Equipment - Updated per applicant.

Off-road Equipment - Updated per applicant.

Off-road Equipment - Updated per applicant.

Off-road Equipment - Updated per applicant.

Off-road Equipment - Updated per applicant.

Off-road Equipment - Updated per applicant.

Off-road Equipment - Updated per applicant.

Off-road Equipment - Updated per applicant.

Off-road Equipment - Updated per applicant.

Off-road Equipment - No construction equipment, assumed use of handtools.

Off-road Equipment - Updated per applicant.

Off-road Equipment - No construction equipment, assumed use of handtools.

Off-road Equipment - No construction equipment, assumed use of handtools.

Trips and VMT - Updated trips per applicant.

On-road Fugitive Dust - Assumed 90% of trips would be on unpaved roads.

Grading - Assumed balanced onsite.

Architectural Coating - Not required for trail construction.

Vehicle Trips - Modeling construction only.

Vehicle Emission Factors - Modeling construction only.

Vehicle Emission Factors - Modeling construction only.

Vehicle Emission Factors - Modeling construction only.

Road Dust - Modeling construction only.

Woodstoves - Modeling construction only.

Consumer Products - Modeling construction only.

Area Coating - Modeling construction only.

Landscape Equipment - Modeling construction only.

Energy Use - Modeling construction only.

Water And Wastewater - Modeling construction only.

Solid Waste - Modeling construction only.

Construction Off-road Equipment Mitigation - Comply with BAAQMD fugitive dust BMPs - water exposed area twice daily and vehicle speed of 15 mph on unpaved roads.

Fleet Mix - Modeling construction only.

Table Name	Column Name	Default Value	New Value
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tblAreaCoating	Area_Nonresidential_Interior	231696	79596
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tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
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tblConstructionPhase	NumDays	20.00	66.00
tblConstructionPhase	NumDays	20.00	43.00
tblConstructionPhase	NumDays	230.00	15.00
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tblConstructionPhase	NumDays	10.00	5.00
tblConstructionPhase	NumDays	10.00	63.00
tblConstructionPhase	NumDays	20.00	109.00
tblConstructionPhase	NumDays	230.00	15.00
tblConstructionPhase	NumDays	230.00	15.00
tblConstructionPhase	NumDays	20.00	5.00
tblConstructionPhase	NumDays	10.00	5.00
tblConstructionPhase	NumDays	20.00	5.00
tblConstructionPhase	NumDays	230.00	15.00
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tblGrading	AcresOfGrading	33.00	22.50
tblGrading	AcresOfGrading	21.50	16.13
tblGrading	AcresOfGrading	0.00	2.50
tblGrading	AcresOfGrading	54.50	40.88
tblGrading	AcresOfGrading	0.00	2.50
tblGrading	AcresOfGrading	2.50	1.88
tblGrading	AcresOfGrading	0.00	1.00
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tblLandUse	LandUseSquareFeet	0.00	154,464.00

tblLandUse	LotAcreage	0.00	3.55
tblOffRoadEquipment	HorsePower	212.00	150.00
tblOffRoadEquipment	HorsePower	212.00	150.00
tblOffRoadEquipment	HorsePower	212.00	150.00
tblOffRoadEquipment	HorsePower	212.00	150.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
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tblOnRoadDust	VendorPercentPave	100.00	90.00
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tblOnRoadDust	WorkerPercentPave	100.00	90.00
tblOnRoadDust	WorkerPercentPave	100.00	90.00
tblOnRoadDust	WorkerPercentPave	100.00	90.00
tblOnRoadDust	WorkerPercentPave	100.00	90.00

tblOnRoadDust	WorkerPercentPave	100.00	90.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
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tblTripsAndVMT	VendorTripNumber	25.00	2.00
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tblTripsAndVMT	WorkerTripNumber	5.00	4.00
tblTripsAndVMT	WorkerTripNumber	65.00	6.00
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tblTripsAndVMT	WorkerTripNumber	5.00	4.00
tblTripsAndVMT	WorkerTripNumber	0.00	2.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.0505	0.5054	0.4077	5.9000e-004	0.3941	0.0292	0.4233	0.0400	0.0269	0.0669	0.0000	51.9177	51.9177	0.0162	0.0000	52.3238
2021	0.0408	0.3853	0.3401	5.0000e-004	0.4012	0.0217	0.4229	0.0406	0.0199	0.0606	0.0000	44.3405	44.3405	0.0137	0.0000	44.6821
2022	0.0339	0.3305	0.3301	4.9000e-004	0.3804	0.0182	0.3986	0.0385	0.0167	0.0552	0.0000	43.4645	43.4645	0.0135	0.0000	43.8007
2023	0.0131	0.0894	0.0829	1.7000e-004	0.2585	4.1300e-003	0.2627	0.0261	3.8800e-003	0.0300	0.0000	15.3019	15.3019	3.0500e-003	0.0000	15.3782
Maximum	**0.0505**	**0.5054**	**0.4077**	**5.9000e-004**	**0.4012**	**0.0292**	**0.4233**	**0.0406**	**0.0269**	**0.0669**	**0.0000**	**51.9177**	**51.9177**	**0.0162**	**0.0000**	**52.3238**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.0505	0.5054	0.4077	5.9000e-004	0.2345	0.0292	0.2638	0.0239	0.0269	0.0508	0.0000	51.9176	51.9176	0.0162	0.0000	52.3237
2021	0.0408	0.3853	0.3401	5.0000e-004	0.2421	0.0217	0.2638	0.0246	0.0199	0.0445	0.0000	44.3405	44.3405	0.0137	0.0000	44.6821
2022	0.0339	0.3305	0.3301	4.9000e-004	0.2302	0.0182	0.2483	0.0234	0.0167	0.0401	0.0000	43.4644	43.4644	0.0135	0.0000	43.8006
2023	0.0131	0.0894	0.0829	1.7000e-004	0.1584	4.1300e-003	0.1625	0.0161	3.8800e-003	0.0199	0.0000	15.3019	15.3019	3.0500e-003	0.0000	15.3782
Maximum	**0.0505**	**0.5054**	**0.4077**	**5.9000e-004**	**0.2421**	**0.0292**	**0.2638**	**0.0246**	**0.0269**	**0.0508**	**0.0000**	**51.9176**	**51.9176**	**0.0162**	**0.0000**	**52.3237**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**39.67**	**0.00**	**37.75**	**39.49**	**0.00**	**26.96**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation 1	Site Preparation	5/1/2020	7/31/2020	5	66	clearing and grubbing
2	Grading 1	Grading	8/1/2020	11/2/2020	5	66	
3	Grading 2	Grading	5/1/2021	6/30/2021	5	43	
4	Building Construction 1	Building Construction	7/1/2021	7/21/2021	5	15	wet crossings/foot bridges installation
5	Paving 1	Paving	7/22/2021	7/28/2021	5	5	gravel base parking lot
6	Site Preparation 2	Site Preparation	7/29/2021	8/4/2021	5	5	signage, fencing, seating, etc.
7	Site Preparation 3	Site Preparation	8/5/2021	11/1/2021	5	63	clearing and grubbing
8	Grading 3	Grading	5/1/2022	9/29/2022	5	109	
9	Building Construction 2	Building Construction	10/1/2022	10/21/2022	5	15	wet crossings/foot bridges installation
10	Building Construction 3	Building Construction	5/1/2023	5/19/2023	5	15	Installation of surface protection mats
11	Paving 2	Paving	5/21/2023	5/26/2023	5	5	gravel base parking lot
12	Site Preparation 4	Site Preparation	5/28/2023	6/2/2023	5	5	signage, fencing, seating, etc.
13	Grading 4	Grading	6/4/2023	6/9/2023	5	5	
14	Building Construction 4	Building Construction	6/11/2023	6/30/2023	5	15	construction of main road access bridge
15	Paving 3	Paving	7/2/2023	7/5/2023	5	3	
16	Site Preparation 5	Site Preparation	7/7/2023	7/10/2023	5	2	signage, fencing, seating, etc.

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 1.5

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation 1	Crawler Tractors	1	8.00	150	0.43
Site Preparation 1	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading 1	Crawler Tractors	1	8.00	150	0.43
Grading 1	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading 2	Crawler Tractors	1	8.00	150	0.43
Grading 2	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction 1	Cranes	0	0.00	231	0.29
Paving 1	Crawler Tractors	1	8.00	150	0.43
Paving 1	Rollers	1	8.00	80	0.38
Site Preparation 2	Graders	0	0.00	187	0.41
Site Preparation 3	Crawler Tractors	1	8.00	150	0.43
Site Preparation 3	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading 3	Crawler Tractors	1	8.00	150	0.43
Grading 3	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction 2	Cranes	0	0.00	231	0.29
Building Construction 3	Pumps	0	0.00	84	0.74
Paving 2	Crawler Tractors	1	8.00	150	0.43
Paving 2	Rollers	1	8.00	80	0.38
Site Preparation 4	Graders	0	0.00	187	0.41
Grading 4	Crawler Tractors	1	8.00	150	0.43
Grading 4	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction 4	Cranes	1	8.00	231	0.29
Building Construction 4	Pumps	1	8.00	84	0.74
Paving 3	Crawler Tractors	1	8.00	150	0.43
Paving 3	Rollers	1	8.00	80	0.38
Site Preparation 5	Graders	0	0.00	187	0.41

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation 1	2	4.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading 1	2	4.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading 2	2	4.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 1	0	6.00	2.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving 1	2	4.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation 2	0	2.00	2.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation 3	2	4.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading 3	2	4.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 2	0	6.00	2.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 3	0	8.00	4.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving 2	2	4.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation 4	0	2.00	2.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading 4	2	4.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 4	2	8.00	4.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving 3	2	4.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation 5	0	2.00	2.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation 1 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0342	0.0000	0.0342	3.6900e-003	0.0000	3.6900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0248	0.2524	0.2006	2.8000e-004		0.0146	0.0146		0.0134	0.0134	0.0000	25.0450	25.0450	8.1000e-003	0.0000	25.2475
Total	**0.0248**	**0.2524**	**0.2006**	**2.8000e-004**	**0.0342**	**0.0146**	**0.0488**	**3.6900e-003**	**0.0134**	**0.0171**	**0.0000**	**25.0450**	**25.0450**	**8.1000e-003**	**0.0000**	**25.2475**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	3.1000e-004	3.2400e-003	1.0000e-005	0.1740	1.0000e-005	0.1740	0.0175	1.0000e-005	0.0175	0.0000	0.9138	0.9138	2.0000e-005	0.0000	0.9144
Total	**4.4000e-004**	**3.1000e-004**	**3.2400e-003**	**1.0000e-005**	**0.1740**	**1.0000e-005**	**0.1740**	**0.0175**	**1.0000e-005**	**0.0175**	**0.0000**	**0.9138**	**0.9138**	**2.0000e-005**	**0.0000**	**0.9144**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0154	0.0000	0.0154	1.6600e-003	0.0000	1.6600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0248	0.2524	0.2006	2.8000e-004		0.0146	0.0146		0.0134	0.0134	0.0000	25.0450	25.0450	8.1000e-003	0.0000	25.2475
Total	**0.0248**	**0.2524**	**0.2006**	**2.8000e-004**	**0.0154**	**0.0146**	**0.0300**	**1.6600e-003**	**0.0134**	**0.0151**	**0.0000**	**25.0450**	**25.0450**	**8.1000e-003**	**0.0000**	**25.2475**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	3.1000e-004	3.2400e-003	1.0000e-005	0.1069	1.0000e-005	0.1069	0.0108	1.0000e-005	0.0108	0.0000	0.9138	0.9138	2.0000e-005	0.0000	0.9144
Total	**4.4000e-004**	**3.1000e-004**	**3.2400e-003**	**1.0000e-005**	**0.1069**	**1.0000e-005**	**0.1069**	**0.0108**	**1.0000e-005**	**0.0108**	**0.0000**	**0.9138**	**0.9138**	**2.0000e-005**	**0.0000**	**0.9144**

3.3 Grading 1 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0119	0.0000	0.0119	1.2900e-003	0.0000	1.2900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0248	0.2524	0.2006	2.8000e-004		0.0146	0.0146		0.0134	0.0134	0.0000	25.0450	25.0450	8.1000e-003	0.0000	25.2475
Total	**0.0248**	**0.2524**	**0.2006**	**2.8000e-004**	**0.0119**	**0.0146**	**0.0265**	**1.2900e-003**	**0.0134**	**0.0147**	**0.0000**	**25.0450**	**25.0450**	**8.1000e-003**	**0.0000**	**25.2475**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	3.1000e-004	3.2400e-003	1.0000e-005	0.1740	1.0000e-005	0.1740	0.0175	1.0000e-005	0.0175	0.0000	0.9138	0.9138	2.0000e-005	0.0000	0.9144
Total	**4.4000e-004**	**3.1000e-004**	**3.2400e-003**	**1.0000e-005**	**0.1740**	**1.0000e-005**	**0.1740**	**0.0175**	**1.0000e-005**	**0.0175**	**0.0000**	**0.9138**	**0.9138**	**2.0000e-005**	**0.0000**	**0.9144**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.3700e-003	0.0000	5.3700e-003	5.8000e-004	0.0000	5.8000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0248	0.2524	0.2006	2.8000e-004		0.0146	0.0146		0.0134	0.0134	0.0000	25.0450	25.0450	8.1000e-003	0.0000	25.2475
Total	**0.0248**	**0.2524**	**0.2006**	**2.8000e-004**	**5.3700e-003**	**0.0146**	**0.0200**	**5.8000e-004**	**0.0134**	**0.0140**	**0.0000**	**25.0450**	**25.0450**	**8.1000e-003**	**0.0000**	**25.2475**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	3.1000e-004	3.2400e-003	1.0000e-005	0.1069	1.0000e-005	0.1069	0.0108	1.0000e-005	0.0108	0.0000	0.9138	0.9138	2.0000e-005	0.0000	0.9144
Total	**4.4000e-004**	**3.1000e-004**	**3.2400e-003**	**1.0000e-005**	**0.1069**	**1.0000e-005**	**0.1069**	**0.0108**	**1.0000e-005**	**0.0108**	**0.0000**	**0.9138**	**0.9138**	**2.0000e-005**	**0.0000**	**0.9144**

3.4 Grading 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					8.5500e-003	0.0000	8.5500e-003	9.2000e-004	0.0000	9.2000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0147	0.1483	0.1296	1.9000e-004		8.3800e-003	8.3800e-003		7.7100e-003	7.7100e-003	0.0000	16.3288	16.3288	5.2800e-003	0.0000	16.4608
Total	**0.0147**	**0.1483**	**0.1296**	**1.9000e-004**	**8.5500e-003**	**8.3800e-003**	**0.0169**	**9.2000e-004**	**7.7100e-003**	**8.6300e-003**	**0.0000**	**16.3288**	**16.3288**	**5.2800e-003**	**0.0000**	**16.4608**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6000e-004	1.8000e-004	1.9300e-003	1.0000e-005	0.1133	0.0000	0.1134	0.0114	0.0000	0.0114	0.0000	0.5745	0.5745	1.0000e-005	0.0000	0.5748
Total	**2.6000e-004**	**1.8000e-004**	**1.9300e-003**	**1.0000e-005**	**0.1133**	**0.0000**	**0.1134**	**0.0114**	**0.0000**	**0.0114**	**0.0000**	**0.5745**	**0.5745**	**1.0000e-005**	**0.0000**	**0.5748**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.8500e-003	0.0000	3.8500e-003	4.2000e-004	0.0000	4.2000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0147	0.1483	0.1296	1.9000e-004		8.3800e-003	8.3800e-003		7.7100e-003	7.7100e-003	0.0000	16.3288	16.3288	5.2800e-003	0.0000	16.4608
Total	**0.0147**	**0.1483**	**0.1296**	**1.9000e-004**	**3.8500e-003**	**8.3800e-003**	**0.0122**	**4.2000e-004**	**7.7100e-003**	**8.1300e-003**	**0.0000**	**16.3288**	**16.3288**	**5.2800e-003**	**0.0000**	**16.4608**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6000e-004	1.8000e-004	1.9300e-003	1.0000e-005	0.0696	0.0000	0.0696	7.0400e-003	0.0000	7.0500e-003	0.0000	0.5745	0.5745	1.0000e-005	0.0000	0.5748
Total	**2.6000e-004**	**1.8000e-004**	**1.9300e-003**	**1.0000e-005**	**0.0696**	**0.0000**	**0.0696**	**7.0400e-003**	**0.0000**	**7.0500e-003**	**0.0000**	**0.5745**	**0.5745**	**1.0000e-005**	**0.0000**	**0.5748**

3.5 Building Construction 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.0000e-005	1.5000e-003	3.7000e-004	0.0000	0.0121	0.0000	0.0121	1.2200e-003	0.0000	1.2300e-003	0.0000	0.3590	0.3590	2.0000e-005	0.0000	0.3595
Worker	1.4000e-004	1.0000e-004	1.0100e-003	0.0000	0.0593	0.0000	0.0593	5.9700e-003	0.0000	5.9700e-003	0.0000	0.3006	0.3006	1.0000e-005	0.0000	0.3008
Total	**1.9000e-004**	**1.6000e-003**	**1.3800e-003**	**0.0000**	**0.0714**	**0.0000**	**0.0714**	**7.1900e-003**	**0.0000**	**7.2000e-003**	**0.0000**	**0.6596**	**0.6596**	**3.0000e-005**	**0.0000**	**0.6602**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.0000e-005	1.5000e-003	3.7000e-004	0.0000	7.4400e-003	0.0000	7.4400e-003	7.6000e-004	0.0000	7.6000e-004	0.0000	0.3590	0.3590	2.0000e-005	0.0000	0.3595
Worker	1.4000e-004	1.0000e-004	1.0100e-003	0.0000	0.0364	0.0000	0.0364	3.6900e-003	0.0000	3.6900e-003	0.0000	0.3006	0.3006	1.0000e-005	0.0000	0.3008
Total	**1.9000e-004**	**1.6000e-003**	**1.3800e-003**	**0.0000**	**0.0439**	**0.0000**	**0.0439**	**4.4500e-003**	**0.0000**	**4.4500e-003**	**0.0000**	**0.6596**	**0.6596**	**3.0000e-005**	**0.0000**	**0.6602**

3.6 Paving 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.7100e-003	0.0173	0.0141	2.0000e-005		9.9000e-004	9.9000e-004		9.1000e-004	9.1000e-004	0.0000	1.7925	1.7925	5.8000e-004	0.0000	1.8070
Paving	1.9700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.6800e-003**	**0.0173**	**0.0141**	**2.0000e-005**		**9.9000e-004**	**9.9000e-004**		**9.1000e-004**	**9.1000e-004**	**0.0000**	**1.7925**	**1.7925**	**5.8000e-004**	**0.0000**	**1.8070**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.2000e-004	0.0000	0.0132	0.0000	0.0132	1.3300e-003	0.0000	1.3300e-003	0.0000	0.0668	0.0668	0.0000	0.0000	0.0668
Total	**3.0000e-005**	**2.0000e-005**	**2.2000e-004**	**0.0000**	**0.0132**	**0.0000**	**0.0132**	**1.3300e-003**	**0.0000**	**1.3300e-003**	**0.0000**	**0.0668**	**0.0668**	**0.0000**	**0.0000**	**0.0668**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.7100e-003	0.0173	0.0141	2.0000e-005		9.9000e-004	9.9000e-004		9.1000e-004	9.1000e-004	0.0000	1.7925	1.7925	5.8000e-004	0.0000	1.8070
Paving	1.9700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.6800e-003**	**0.0173**	**0.0141**	**2.0000e-005**		**9.9000e-004**	**9.9000e-004**		**9.1000e-004**	**9.1000e-004**	**0.0000**	**1.7925**	**1.7925**	**5.8000e-004**	**0.0000**	**1.8070**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.2000e-004	0.0000	8.1000e-003	0.0000	8.1000e-003	8.2000e-004	0.0000	8.2000e-004	0.0000	0.0668	0.0668	0.0000	0.0000	0.0668
Total	**3.0000e-005**	**2.0000e-005**	**2.2000e-004**	**0.0000**	**8.1000e-003**	**0.0000**	**8.1000e-003**	**8.2000e-004**	**0.0000**	**8.2000e-004**	**0.0000**	**0.0668**	**0.0668**	**0.0000**	**0.0000**	**0.0668**

3.7 Site Preparation 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.3300e-003	0.0000	1.3300e-003	1.4000e-004	0.0000	1.4000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.3300e-003**	**0.0000**	**1.3300e-003**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0000e-005	5.0000e-004	1.2000e-004	0.0000	4.0300e-003	0.0000	4.0300e-003	4.1000e-004	0.0000	4.1000e-004	0.0000	0.1197	0.1197	1.0000e-005	0.0000	0.1198
Worker	2.0000e-005	1.0000e-005	1.1000e-004	0.0000	6.5900e-003	0.0000	6.5900e-003	6.6000e-004	0.0000	6.6000e-004	0.0000	0.0334	0.0334	0.0000	0.0000	0.0334
Total	**4.0000e-005**	**5.1000e-004**	**2.3000e-004**	**0.0000**	**0.0106**	**0.0000**	**0.0106**	**1.0700e-003**	**0.0000**	**1.0700e-003**	**0.0000**	**0.1531**	**0.1531**	**1.0000e-005**	**0.0000**	**0.1533**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					6.0000e-004	0.0000	6.0000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**6.0000e-004**	**0.0000**	**6.0000e-004**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0000e-005	5.0000e-004	1.2000e-004	0.0000	2.4800e-003	0.0000	2.4800e-003	2.5000e-004	0.0000	2.5000e-004	0.0000	0.1197	0.1197	1.0000e-005	0.0000	0.1198
Worker	2.0000e-005	1.0000e-005	1.1000e-004	0.0000	4.0500e-003	0.0000	4.0500e-003	4.1000e-004	0.0000	4.1000e-004	0.0000	0.0334	0.0334	0.0000	0.0000	0.0334
Total	**4.0000e-005**	**5.1000e-004**	**2.3000e-004**	**0.0000**	**6.5300e-003**	**0.0000**	**6.5300e-003**	**6.6000e-004**	**0.0000**	**6.6000e-004**	**0.0000**	**0.1531**	**0.1531**	**1.0000e-005**	**0.0000**	**0.1533**

3.8 Site Preparation 3 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0167	0.0000	0.0167	1.8000e-003	0.0000	1.8000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0215	0.2172	0.1898	2.7000e-004		0.0123	0.0123		0.0113	0.0113	0.0000	23.9236	23.9236	7.7400e-003	0.0000	24.1170
Total	**0.0215**	**0.2172**	**0.1898**	**2.7000e-004**	**0.0167**	**0.0123**	**0.0290**	**1.8000e-003**	**0.0113**	**0.0131**	**0.0000**	**23.9236**	**23.9236**	**7.7400e-003**	**0.0000**	**24.1170**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9000e-004	2.7000e-004	2.8300e-003	1.0000e-005	0.1661	1.0000e-005	0.1661	0.0167	1.0000e-005	0.0167	0.0000	0.8417	0.8417	2.0000e-005	0.0000	0.8421
Total	**3.9000e-004**	**2.7000e-004**	**2.8300e-003**	**1.0000e-005**	**0.1661**	**1.0000e-005**	**0.1661**	**0.0167**	**1.0000e-005**	**0.0167**	**0.0000**	**0.8417**	**0.8417**	**2.0000e-005**	**0.0000**	**0.8421**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.5200e-003	0.0000	7.5200e-003	8.1000e-004	0.0000	8.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0215	0.2172	0.1898	2.7000e-004		0.0123	0.0123		0.0113	0.0113	0.0000	23.9235	23.9235	7.7400e-003	0.0000	24.1170
Total	**0.0215**	**0.2172**	**0.1898**	**2.7000e-004**	**7.5200e-003**	**0.0123**	**0.0198**	**8.1000e-004**	**0.0113**	**0.0121**	**0.0000**	**23.9235**	**23.9235**	**7.7400e-003**	**0.0000**	**24.1170**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9000e-004	2.7000e-004	2.8300e-003	1.0000e-005	0.1020	1.0000e-005	0.1020	0.0103	1.0000e-005	0.0103	0.0000	0.8417	0.8417	2.0000e-005	0.0000	0.8421
Total	**3.9000e-004**	**2.7000e-004**	**2.8300e-003**	**1.0000e-005**	**0.1020**	**1.0000e-005**	**0.1020**	**0.0103**	**1.0000e-005**	**0.0103**	**0.0000**	**0.8417**	**0.8417**	**2.0000e-005**	**0.0000**	**0.8421**

3.9 Grading 3 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0217	0.0000	0.0217	2.3400e-003	0.0000	2.3400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0331	0.3286	0.3243	4.7000e-004		0.0182	0.0182		0.0167	0.0167	0.0000	41.4166	41.4166	0.0134	0.0000	41.7514
Total	**0.0331**	**0.3286**	**0.3243**	**4.7000e-004**	**0.0217**	**0.0182**	**0.0398**	**2.3400e-003**	**0.0167**	**0.0191**	**0.0000**	**41.4166**	**41.4166**	**0.0134**	**0.0000**	**41.7514**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.2000e-004	4.1000e-004	4.4900e-003	2.0000e-005	0.2873	1.0000e-005	0.2873	0.0289	1.0000e-005	0.0289	0.0000	1.4028	1.4028	3.0000e-005	0.0000	1.4036
Total	**6.2000e-004**	**4.1000e-004**	**4.4900e-003**	**2.0000e-005**	**0.2873**	**1.0000e-005**	**0.2873**	**0.0289**	**1.0000e-005**	**0.0289**	**0.0000**	**1.4028**	**1.4028**	**3.0000e-005**	**0.0000**	**1.4036**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					9.7500e-003	0.0000	9.7500e-003	1.0500e-003	0.0000	1.0500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0331	0.3286	0.3243	4.7000e-004		0.0182	0.0182		0.0167	0.0167	0.0000	41.4165	41.4165	0.0134	0.0000	41.7514
Total	**0.0331**	**0.3286**	**0.3243**	**4.7000e-004**	**9.7500e-003**	**0.0182**	**0.0279**	**1.0500e-003**	**0.0167**	**0.0178**	**0.0000**	**41.4165**	**41.4165**	**0.0134**	**0.0000**	**41.7514**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.2000e-004	4.1000e-004	4.4900e-003	2.0000e-005	0.1765	1.0000e-005	0.1765	0.0179	1.0000e-005	0.0179	0.0000	1.4028	1.4028	3.0000e-005	0.0000	1.4036
Total	**6.2000e-004**	**4.1000e-004**	**4.4900e-003**	**2.0000e-005**	**0.1765**	**1.0000e-005**	**0.1765**	**0.0179**	**1.0000e-005**	**0.0179**	**0.0000**	**1.4028**	**1.4028**	**3.0000e-005**	**0.0000**	**1.4036**

3.10 Building Construction 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.0000e-005	1.4200e-003	3.5000e-004	0.0000	0.0121	0.0000	0.0121	1.2200e-003	0.0000	1.2300e-003	0.0000	0.3555	0.3555	2.0000e-005	0.0000	0.3560
Worker	1.3000e-004	9.0000e-005	9.3000e-004	0.0000	0.0593	0.0000	0.0593	5.9700e-003	0.0000	5.9700e-003	0.0000	0.2896	0.2896	1.0000e-005	0.0000	0.2897
Total	**1.7000e-004**	**1.5100e-003**	**1.2800e-003**	**0.0000**	**0.0714**	**0.0000**	**0.0714**	**7.1900e-003**	**0.0000**	**7.2000e-003**	**0.0000**	**0.6451**	**0.6451**	**3.0000e-005**	**0.0000**	**0.6457**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.0000e-005	1.4200e-003	3.5000e-004	0.0000	7.4400e-003	0.0000	7.4400e-003	7.6000e-004	0.0000	7.6000e-004	0.0000	0.3555	0.3555	2.0000e-005	0.0000	0.3560
Worker	1.3000e-004	9.0000e-005	9.3000e-004	0.0000	0.0364	0.0000	0.0364	3.6900e-003	0.0000	3.6900e-003	0.0000	0.2896	0.2896	1.0000e-005	0.0000	0.2897
Total	**1.7000e-004**	**1.5100e-003**	**1.2800e-003**	**0.0000**	**0.0439**	**0.0000**	**0.0439**	**4.4500e-003**	**0.0000**	**4.4500e-003**	**0.0000**	**0.6451**	**0.6451**	**3.0000e-005**	**0.0000**	**0.6457**

3.11 Building Construction 3 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.0000e-005	2.2100e-003	6.3000e-004	1.0000e-005	0.0242	0.0000	0.0242	2.4500e-003	0.0000	2.4500e-003	0.0000	0.6910	0.6910	3.0000e-005	0.0000	0.6917
Worker	1.6000e-004	1.0000e-004	1.1400e-003	0.0000	0.0791	0.0000	0.0791	7.9600e-003	0.0000	7.9700e-003	0.0000	0.3713	0.3713	1.0000e-005	0.0000	0.3715
Total	**2.2000e-004**	**2.3100e-003**	**1.7700e-003**	**1.0000e-005**	**0.1033**	**0.0000**	**0.1033**	**0.0104**	**0.0000**	**0.0104**	**0.0000**	**1.0623**	**1.0623**	**4.0000e-005**	**0.0000**	**1.0632**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.0000e-005	2.2100e-003	6.3000e-004	1.0000e-005	0.0149	0.0000	0.0149	1.5100e-003	0.0000	1.5200e-003	0.0000	0.6910	0.6910	3.0000e-005	0.0000	0.6917
Worker	1.6000e-004	1.0000e-004	1.1400e-003	0.0000	0.0486	0.0000	0.0486	4.9100e-003	0.0000	4.9200e-003	0.0000	0.3713	0.3713	1.0000e-005	0.0000	0.3715
Total	**2.2000e-004**	**2.3100e-003**	**1.7700e-003**	**1.0000e-005**	**0.0635**	**0.0000**	**0.0635**	**6.4200e-003**	**0.0000**	**6.4400e-003**	**0.0000**	**1.0623**	**1.0623**	**4.0000e-005**	**0.0000**	**1.0632**

3.12 Paving 2 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.3700e-003	0.0135	0.0138	2.0000e-005		7.5000e-004	7.5000e-004		6.9000e-004	6.9000e-004	0.0000	1.7935	1.7935	5.8000e-004	0.0000	1.8080
Paving	1.9700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.3400e-003**	**0.0135**	**0.0138**	**2.0000e-005**		**7.5000e-004**	**7.5000e-004**		**6.9000e-004**	**6.9000e-004**	**0.0000**	**1.7935**	**1.7935**	**5.8000e-004**	**0.0000**	**1.8080**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	1.9000e-004	0.0000	0.0132	0.0000	0.0132	1.3300e-003	0.0000	1.3300e-003	0.0000	0.0619	0.0619	0.0000	0.0000	0.0619
Total	**3.0000e-005**	**2.0000e-005**	**1.9000e-004**	**0.0000**	**0.0132**	**0.0000**	**0.0132**	**1.3300e-003**	**0.0000**	**1.3300e-003**	**0.0000**	**0.0619**	**0.0619**	**0.0000**	**0.0000**	**0.0619**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.3700e-003	0.0135	0.0138	2.0000e-005		7.5000e-004	7.5000e-004		6.9000e-004	6.9000e-004	0.0000	1.7935	1.7935	5.8000e-004	0.0000	1.8080
Paving	1.9700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.3400e-003**	**0.0135**	**0.0138**	**2.0000e-005**		**7.5000e-004**	**7.5000e-004**		**6.9000e-004**	**6.9000e-004**	**0.0000**	**1.7935**	**1.7935**	**5.8000e-004**	**0.0000**	**1.8080**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	1.9000e-004	0.0000	8.1000e-003	0.0000	8.1000e-003	8.2000e-004	0.0000	8.2000e-004	0.0000	0.0619	0.0619	0.0000	0.0000	0.0619
Total	**3.0000e-005**	**2.0000e-005**	**1.9000e-004**	**0.0000**	**8.1000e-003**	**0.0000**	**8.1000e-003**	**8.2000e-004**	**0.0000**	**8.2000e-004**	**0.0000**	**0.0619**	**0.0619**	**0.0000**	**0.0000**	**0.0619**

3.13 Site Preparation 4 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.3300e-003	0.0000	1.3300e-003	1.4000e-004	0.0000	1.4000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.3300e-003**	**0.0000**	**1.3300e-003**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0000e-005	3.7000e-004	1.0000e-004	0.0000	4.0300e-003	0.0000	4.0300e-003	4.1000e-004	0.0000	4.1000e-004	0.0000	0.1152	0.1152	0.0000	0.0000	0.1153
Worker	1.0000e-005	1.0000e-005	9.0000e-005	0.0000	6.5900e-003	0.0000	6.5900e-003	6.6000e-004	0.0000	6.6000e-004	0.0000	0.0309	0.0309	0.0000	0.0000	0.0310
Total	**2.0000e-005**	**3.8000e-004**	**1.9000e-004**	**0.0000**	**0.0106**	**0.0000**	**0.0106**	**1.0700e-003**	**0.0000**	**1.0700e-003**	**0.0000**	**0.1461**	**0.1461**	**0.0000**	**0.0000**	**0.1462**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					6.0000e-004	0.0000	6.0000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**6.0000e-004**	**0.0000**	**6.0000e-004**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0000e-005	3.7000e-004	1.0000e-004	0.0000	2.4800e-003	0.0000	2.4800e-003	2.5000e-004	0.0000	2.5000e-004	0.0000	0.1152	0.1152	0.0000	0.0000	0.1153
Worker	1.0000e-005	1.0000e-005	9.0000e-005	0.0000	4.0500e-003	0.0000	4.0500e-003	4.1000e-004	0.0000	4.1000e-004	0.0000	0.0309	0.0309	0.0000	0.0000	0.0310
Total	**2.0000e-005**	**3.8000e-004**	**1.9000e-004**	**0.0000**	**6.5300e-003**	**0.0000**	**6.5300e-003**	**6.6000e-004**	**0.0000**	**6.6000e-004**	**0.0000**	**0.1461**	**0.1461**	**0.0000**	**0.0000**	**0.1462**

3.14 Grading 4 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0000e-003	0.0000	1.0000e-003	1.1000e-004	0.0000	1.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3700e-003	0.0133	0.0148	2.0000e-005		7.2000e-004	7.2000e-004		6.6000e-004	6.6000e-004	0.0000	1.9012	1.9012	6.1000e-004	0.0000	1.9165
Total	**1.3700e-003**	**0.0133**	**0.0148**	**2.0000e-005**	**1.0000e-003**	**7.2000e-004**	**1.7200e-003**	**1.1000e-004**	**6.6000e-004**	**7.7000e-004**	**0.0000**	**1.9012**	**1.9012**	**6.1000e-004**	**0.0000**	**1.9165**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	1.9000e-004	0.0000	0.0132	0.0000	0.0132	1.3300e-003	0.0000	1.3300e-003	0.0000	0.0619	0.0619	0.0000	0.0000	0.0619
Total	**3.0000e-005**	**2.0000e-005**	**1.9000e-004**	**0.0000**	**0.0132**	**0.0000**	**0.0132**	**1.3300e-003**	**0.0000**	**1.3300e-003**	**0.0000**	**0.0619**	**0.0619**	**0.0000**	**0.0000**	**0.0619**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.5000e-004	0.0000	4.5000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3700e-003	0.0133	0.0148	2.0000e-005		7.2000e-004	7.2000e-004		6.6000e-004	6.6000e-004	0.0000	1.9012	1.9012	6.1000e-004	0.0000	1.9165
Total	**1.3700e-003**	**0.0133**	**0.0148**	**2.0000e-005**	**4.5000e-004**	**7.2000e-004**	**1.1700e-003**	**5.0000e-005**	**6.6000e-004**	**7.1000e-004**	**0.0000**	**1.9012**	**1.9012**	**6.1000e-004**	**0.0000**	**1.9165**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	1.9000e-004	0.0000	8.1000e-003	0.0000	8.1000e-003	8.2000e-004	0.0000	8.2000e-004	0.0000	0.0619	0.0619	0.0000	0.0000	0.0619
Total	**3.0000e-005**	**2.0000e-005**	**1.9000e-004**	**0.0000**	**8.1000e-003**	**0.0000**	**8.1000e-003**	**8.2000e-004**	**0.0000**	**8.2000e-004**	**0.0000**	**0.0619**	**0.0619**	**0.0000**	**0.0000**	**0.0619**

3.15 Building Construction 4 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.0900e-003	0.0493	0.0417	9.0000e-005		2.2100e-003	2.2100e-003		2.1100e-003	2.1100e-003	0.0000	8.0412	8.0412	1.4200e-003	0.0000	8.0768
Total	**5.0900e-003**	**0.0493**	**0.0417**	**9.0000e-005**		**2.2100e-003**	**2.2100e-003**		**2.1100e-003**	**2.1100e-003**	**0.0000**	**8.0412**	**8.0412**	**1.4200e-003**	**0.0000**	**8.0768**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.0000e-005	2.2100e-003	6.3000e-004	1.0000e-005	0.0242	0.0000	0.0242	2.4500e-003	0.0000	2.4500e-003	0.0000	0.6910	0.6910	3.0000e-005	0.0000	0.6917
Worker	1.6000e-004	1.0000e-004	1.1400e-003	0.0000	0.0791	0.0000	0.0791	7.9600e-003	0.0000	7.9700e-003	0.0000	0.3713	0.3713	1.0000e-005	0.0000	0.3715
Total	**2.2000e-004**	**2.3100e-003**	**1.7700e-003**	**1.0000e-005**	**0.1033**	**0.0000**	**0.1033**	**0.0104**	**0.0000**	**0.0104**	**0.0000**	**1.0623**	**1.0623**	**4.0000e-005**	**0.0000**	**1.0632**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.0900e-003	0.0493	0.0417	9.0000e-005		2.2100e-003	2.2100e-003		2.1100e-003	2.1100e-003	0.0000	8.0412	8.0412	1.4200e-003	0.0000	8.0768
Total	**5.0900e-003**	**0.0493**	**0.0417**	**9.0000e-005**		**2.2100e-003**	**2.2100e-003**		**2.1100e-003**	**2.1100e-003**	**0.0000**	**8.0412**	**8.0412**	**1.4200e-003**	**0.0000**	**8.0768**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.0000e-005	2.2100e-003	6.3000e-004	1.0000e-005	0.0149	0.0000	0.0149	1.5100e-003	0.0000	1.5200e-003	0.0000	0.6910	0.6910	3.0000e-005	0.0000	0.6917
Worker	1.6000e-004	1.0000e-004	1.1400e-003	0.0000	0.0486	0.0000	0.0486	4.9100e-003	0.0000	4.9200e-003	0.0000	0.3713	0.3713	1.0000e-005	0.0000	0.3715
Total	**2.2000e-004**	**2.3100e-003**	**1.7700e-003**	**1.0000e-005**	**0.0635**	**0.0000**	**0.0635**	**6.4200e-003**	**0.0000**	**6.4400e-003**	**0.0000**	**1.0623**	**1.0623**	**4.0000e-005**	**0.0000**	**1.0632**

3.16 Paving 3 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.2000e-004	8.1000e-003	8.3000e-003	1.0000e-005		4.5000e-004	4.5000e-004		4.1000e-004	4.1000e-004	0.0000	1.0761	1.0761	3.5000e-004	0.0000	1.0848
Paving	1.9700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.7900e-003**	**8.1000e-003**	**8.3000e-003**	**1.0000e-005**		**4.5000e-004**	**4.5000e-004**		**4.1000e-004**	**4.1000e-004**	**0.0000**	**1.0761**	**1.0761**	**3.5000e-004**	**0.0000**	**1.0848**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-005	1.0000e-005	1.1000e-004	0.0000	7.9100e-003	0.0000	7.9100e-003	8.0000e-004	0.0000	8.0000e-004	0.0000	0.0371	0.0371	0.0000	0.0000	0.0372
Total	**2.0000e-005**	**1.0000e-005**	**1.1000e-004**	**0.0000**	**7.9100e-003**	**0.0000**	**7.9100e-003**	**8.0000e-004**	**0.0000**	**8.0000e-004**	**0.0000**	**0.0371**	**0.0371**	**0.0000**	**0.0000**	**0.0372**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.2000e-004	8.1000e-003	8.3000e-003	1.0000e-005		4.5000e-004	4.5000e-004		4.1000e-004	4.1000e-004	0.0000	1.0761	1.0761	3.5000e-004	0.0000	1.0848
Paving	1.9700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.7900e-003**	**8.1000e-003**	**8.3000e-003**	**1.0000e-005**		**4.5000e-004**	**4.5000e-004**		**4.1000e-004**	**4.1000e-004**	**0.0000**	**1.0761**	**1.0761**	**3.5000e-004**	**0.0000**	**1.0848**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-005	1.0000e-005	1.1000e-004	0.0000	4.8600e-003	0.0000	4.8600e-003	4.9000e-004	0.0000	4.9000e-004	0.0000	0.0371	0.0371	0.0000	0.0000	0.0372
Total	**2.0000e-005**	**1.0000e-005**	**1.1000e-004**	**0.0000**	**4.8600e-003**	**0.0000**	**4.8600e-003**	**4.9000e-004**	**0.0000**	**4.9000e-004**	**0.0000**	**0.0371**	**0.0371**	**0.0000**	**0.0000**	**0.0372**

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Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.3000e-004	0.0000	5.3000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**5.3000e-004**	**0.0000**	**5.3000e-004**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	1.5000e-004	4.0000e-005	0.0000	1.6100e-003	0.0000	1.6100e-003	1.6000e-004	0.0000	1.6000e-004	0.0000	0.0461	0.0461	0.0000	0.0000	0.0461
Worker	1.0000e-005	0.0000	4.0000e-005	0.0000	2.6400e-003	0.0000	2.6400e-003	2.7000e-004	0.0000	2.7000e-004	0.0000	0.0124	0.0124	0.0000	0.0000	0.0124
Total	**1.0000e-005**	**1.5000e-004**	**8.0000e-005**	**0.0000**	**4.2500e-003**	**0.0000**	**4.2500e-003**	**4.3000e-004**	**0.0000**	**4.3000e-004**	**0.0000**	**0.0584**	**0.0584**	**0.0000**	**0.0000**	**0.0585**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.4000e-004	0.0000	2.4000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.4000e-004**	**0.0000**	**2.4000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	1.5000e-004	4.0000e-005	0.0000	9.9000e-004	0.0000	9.9000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.0461	0.0461	0.0000	0.0000	0.0461
Worker	1.0000e-005	0.0000	4.0000e-005	0.0000	1.6200e-003	0.0000	1.6200e-003	1.6000e-004	0.0000	1.6000e-004	0.0000	0.0124	0.0124	0.0000	0.0000	0.0124
Total	**1.0000e-005**	**1.5000e-004**	**8.0000e-005**	**0.0000**	**2.6100e-003**	**0.0000**	**2.6100e-003**	**2.6000e-004**	**0.0000**	**2.6000e-004**	**0.0000**	**0.0584**	**0.0584**	**0.0000**	**0.0000**	**0.0585**

CalEEMod Version: CalEEMod.2016.3.2

Date: 9/10/2019 6:54 AM

Estero Trail Project
Bay Area AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	1.50	Acre	1.50	0.00	0
User Defined Recreational	3.55	User Defined Unit	3.55	154,464.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Estero Trail Project. BAAQMD.

Land Use - Construction of two 5-foot-wide trail corridors totaling approximately 5-miles.1.5 acres for parking and 0.66 acre for access road.

Construction Phase - Construction would occur from approximately May through October.

Off-road Equipment - No construction equipment, assumed use of handtools.

Off-road Equipment - No construction equipment, assumed use of handtools.

Off-road Equipment - No construction equipment, assumed use of handtools.

Off-road Equipment - No construction equipment, assumed use of handtools.

Off-road Equipment - Updated per applicant.

Off-road Equipment - Updated per applicant.

Off-road Equipment - Updated per applicant.

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Off-road Equipment - Updated per applicant.

Off-road Equipment - No construction equipment, assumed use of handtools.

Off-road Equipment - Updated per applicant.

Off-road Equipment - No construction equipment, assumed use of handtools.

Off-road Equipment - No construction equipment, assumed use of handtools.

Trips and VMT - Updated trips per applicant.

On-road Fugitive Dust - Assumed 90% of trips would be on unpaved roads.

Grading - Assumed balanced onsite.

Architectural Coating - Not required for trail construction.

Vehicle Trips - Modeling construction only.

Vehicle Emission Factors - Modeling construction only.

Vehicle Emission Factors - Modeling construction only.

Vehicle Emission Factors - Modeling construction only.

Road Dust - Modeling construction only.

Woodstoves - Modeling construction only.

Consumer Products - Modeling construction only.

Area Coating - Modeling construction only.

Landscape Equipment - Modeling construction only.

Energy Use - Modeling construction only.

Water And Wastewater - Modeling construction only.

Solid Waste - Modeling construction only.

Construction Off-road Equipment Mitigation - Comply with BAAQMD fugitive dust BMPs - water exposed area twice daily and vehicle speed of 15 mph on unpaved roads.

Fleet Mix - Modeling construction only.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Exterior	77232	26532
tblAreaCoating	Area_Nonresidential_Interior	231696	79596
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	0.5
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	230.00	15.00
tblConstructionPhase	NumDays	230.00	15.00
tblConstructionPhase	NumDays	230.00	15.00
tblConstructionPhase	NumDays	230.00	15.00
tblConstructionPhase	NumDays	20.00	5.00
tblConstructionPhase	NumDays	20.00	66.00
tblConstructionPhase	NumDays	20.00	43.00
tblConstructionPhase	NumDays	20.00	109.00
tblConstructionPhase	NumDays	20.00	5.00
tblConstructionPhase	NumDays	20.00	3.00
tblConstructionPhase	NumDays	20.00	5.00
tblConstructionPhase	NumDays	10.00	66.00
tblConstructionPhase	NumDays	10.00	5.00
tblConstructionPhase	NumDays	10.00	2.00
tblConstructionPhase	NumDays	10.00	5.00
tblConstructionPhase	NumDays	10.00	63.00
tblGrading	AcresOfGrading	2.50	1.88
tblGrading	AcresOfGrading	33.00	22.50
tblGrading	AcresOfGrading	21.50	16.13
tblGrading	AcresOfGrading	54.50	40.88
tblGrading	AcresOfGrading	33.00	64.50
tblGrading	AcresOfGrading	0.00	2.50
tblGrading	AcresOfGrading	0.00	1.00
tblGrading	AcresOfGrading	0.00	2.50
tblLandUse	LandUseSquareFeet	65,340.00	0.00

tblLandUse	LandUseSquareFeet	0.00	154,464.00
tblLandUse	LotAcreage	0.00	3.55
tblOffRoadEquipment	HorsePower	212.00	150.00
tblOffRoadEquipment	HorsePower	212.00	150.00
tblOffRoadEquipment	HorsePower	212.00	150.00
tblOffRoadEquipment	HorsePower	212.00	150.00
tblOffRoadEquipment	HorsePower	212.00	150.00
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tblOffRoadEquipment	HorsePower	212.00	150.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOnRoadDust	VendorPercentPave	100.00	90.00
tblOnRoadDust	VendorPercentPave	100.00	90.00
tblOnRoadDust	VendorPercentPave	100.00	90.00
tblOnRoadDust	VendorPercentPave	100.00	90.00
tblOnRoadDust	VendorPercentPave	100.00	90.00
tblOnRoadDust	VendorPercentPave	100.00	90.00

tblOnRoadDust	VendorPercentPave	100.00	90.00
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tblOnRoadDust	VendorPercentPave	100.00	90.00
tblOnRoadDust	VendorPercentPave	100.00	90.00
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tblOnRoadDust	VendorPercentPave	100.00	90.00
tblOnRoadDust	VendorPercentPave	100.00	90.00
tblOnRoadDust	VendorPercentPave	100.00	90.00
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tblOnRoadDust	WorkerPercentPave	100.00	90.00
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tblOnRoadDust	WorkerPercentPave	100.00	90.00
tblOnRoadDust	WorkerPercentPave	100.00	90.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	VendorTripNumber	25.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	25.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00

tblTripsAndVMT	VendorTripNumber	25.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	25.00	2.00
tblTripsAndVMT	WorkerTripNumber	5.00	4.00
tblTripsAndVMT	WorkerTripNumber	65.00	8.00
tblTripsAndVMT	WorkerTripNumber	5.00	4.00
tblTripsAndVMT	WorkerTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	5.00	4.00
tblTripsAndVMT	WorkerTripNumber	65.00	8.00
tblTripsAndVMT	WorkerTripNumber	5.00	4.00
tblTripsAndVMT	WorkerTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	5.00	4.00
tblTripsAndVMT	WorkerTripNumber	5.00	4.00
tblTripsAndVMT	WorkerTripNumber	65.00	6.00
tblTripsAndVMT	WorkerTripNumber	5.00	4.00
tblTripsAndVMT	WorkerTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	5.00	4.00
tblTripsAndVMT	WorkerTripNumber	5.00	4.00
tblTripsAndVMT	WorkerTripNumber	65.00	6.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	0.7650	7.6562	6.1864	8.9600e-003	7.4241	0.4430	7.8670	0.7543	0.4075	1.1619	0.0000	869.4193	869.4193	0.2714	0.0000	876.2033
2021	1.4839	6.9311	6.1237	8.9600e-003	11.5355	0.3960	11.5362	1.1608	0.3644	1.1615	0.0000	868.8601	868.8601	0.2715	0.0000	875.6468
2022	0.6194	6.0355	6.0414	8.9600e-003	11.5355	0.3334	11.5361	1.1608	0.3067	1.1614	0.0000	868.2029	868.2029	0.2716	0.0000	874.9920
2023	1.8698	6.8739	5.9952	0.0139	16.6833	0.2995	16.9782	1.6792	0.2821	1.9613	0.0000	1,343.2803	1,343.2803	0.2717	0.0000	1,348.6457
Maximum	**1.8698**	**7.6562**	**6.1864**	**0.0139**	**16.6833**	**0.4430**	**16.9782**	**1.6792**	**0.4075**	**1.9613**	**0.0000**	**1,343.2803**	**1,343.2803**	**0.2717**	**0.0000**	**1,348.6457**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	0.7650	7.6562	6.1864	8.9600e-003	4.3889	0.4430	4.8318	0.4463	0.4075	0.8538	0.0000	869.4192	869.4192	0.2714	0.0000	876.2033
2021	1.4839	6.9311	6.1237	8.9600e-003	7.0844	0.3960	7.0852	0.7157	0.3644	0.7806	0.0000	868.8601	868.8601	0.2715	0.0000	875.6468
2022	0.6194	6.0355	6.0414	8.9600e-003	7.0844	0.3334	7.0851	0.7157	0.3067	0.7219	0.0000	868.2029	868.2029	0.2716	0.0000	874.9920
2023	1.8698	6.8739	5.9952	0.0139	10.2464	0.2995	10.5413	1.0355	0.2821	1.3176	0.0000	1,343.2803	1,343.2803	0.2717	0.0000	1,348.6457
Maximum	**1.8698**	**7.6562**	**6.1864**	**0.0139**	**10.2464**	**0.4430**	**10.5413**	**1.0355**	**0.4075**	**1.3176**	**0.0000**	**1,343.2803**	**1,343.2803**	**0.2717**	**0.0000**	**1,348.6457**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**38.95**	**0.00**	**38.35**	**38.74**	**0.00**	**32.54**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation 1	Site Preparation	5/1/2020	7/31/2020	5	66	clearing and grubbing
2	Grading 1	Grading	8/1/2020	11/2/2020	5	66	
3	Grading 2	Grading	5/1/2021	6/30/2021	5	43	
4	Building Construction 1	Building Construction	7/1/2021	7/21/2021	5	15	wet crossings/foot bridges installation
5	Paving 1	Paving	7/22/2021	7/28/2021	5	5	gravel base parking lot
6	Site Preparation 2	Site Preparation	7/29/2021	8/4/2021	5	5	signage, fencing, seating, etc.
7	Site Preparation 3	Site Preparation	8/5/2021	11/1/2021	5	63	clearing and grubbing
8	Grading 3	Grading	5/1/2022	9/29/2022	5	109	
9	Building Construction 2	Building Construction	10/1/2022	10/21/2022	5	15	wet crossings/foot bridges installation
10	Building Construction 3	Building Construction	5/1/2023	5/19/2023	5	15	Installation of surface protection mats
11	Paving 2	Paving	5/21/2023	5/26/2023	5	5	gravel base parking lot
12	Site Preparation 4	Site Preparation	5/28/2023	6/2/2023	5	5	signage, fencing, seating, etc.
13	Grading 4	Grading	6/4/2023	6/9/2023	5	5	
14	Building Construction 4	Building Construction	6/11/2023	6/30/2023	5	15	construction of main road access bridge
15	Paving 3	Paving	7/2/2023	7/5/2023	5	3	
16	Site Preparation 5	Site Preparation	7/7/2023	7/10/2023	5	2	signage, fencing, seating, etc.

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 1.5

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation 1	Crawler Tractors	1	8.00	150	0.43
Site Preparation 1	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading 1	Crawler Tractors	1	8.00	150	0.43
Grading 1	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading 2	Crawler Tractors	1	8.00	150	0.43
Grading 2	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction 1	Cranes	0	0.00	231	0.29
Paving 1	Crawler Tractors	1	8.00	150	0.43
Paving 1	Rollers	1	8.00	80	0.38
Site Preparation 2	Graders	0	0.00	187	0.41
Site Preparation 3	Crawler Tractors	1	8.00	150	0.43
Site Preparation 3	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading 3	Crawler Tractors	1	8.00	150	0.43
Grading 3	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction 2	Cranes	0	0.00	231	0.29
Building Construction 3	Pumps	0	0.00	84	0.74
Paving 2	Crawler Tractors	1	8.00	150	0.43
Paving 2	Rollers	1	8.00	80	0.38
Site Preparation 4	Graders	0	0.00	187	0.41
Grading 4	Crawler Tractors	1	8.00	150	0.43
Grading 4	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction 4	Cranes	1	8.00	231	0.29
Building Construction 4	Pumps	1	8.00	84	0.74
Paving 3	Crawler Tractors	1	8.00	150	0.43
Paving 3	Rollers	1	8.00	80	0.38
Site Preparation 5	Graders	0	0.00	187	0.41

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation 1	2	4.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading 1	2	4.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading 2	2	4.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 1	0	6.00	2.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving 1	2	4.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation 2	0	2.00	2.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation 3	2	4.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading 3	2	4.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 2	0	6.00	2.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 3	0	8.00	4.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving 2	2	4.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation 4	0	2.00	2.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading 4	2	4.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 4	2	8.00	4.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving 3	2	4.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation 5	0	2.00	2.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation 1 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.0364	0.0000	1.0364	0.1119	0.0000	0.1119			0.0000			0.0000
Off-Road	0.7511	7.6478	6.0791	8.6300e-003		0.4428	0.4428		0.4073	0.4073		836.5882	836.5882	0.2706		843.3524
Total	**0.7511**	**7.6478**	**6.0791**	**8.6300e-003**	**1.0364**	**0.4428**	**1.4792**	**0.1119**	**0.4073**	**0.5193**		**836.5882**	**836.5882**	**0.2706**		**843.3524**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0139	8.4200e-003	0.1073	3.3000e-004	6.3877	2.1000e-004	6.3879	0.6424	2.0000e-004	0.6426		32.8311	32.8311	7.9000e-004		32.8508
Total	**0.0139**	**8.4200e-003**	**0.1073**	**3.3000e-004**	**6.3877**	**2.1000e-004**	**6.3879**	**0.6424**	**2.0000e-004**	**0.6426**		**32.8311**	**32.8311**	**7.9000e-004**		**32.8508**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.4664	0.0000	0.4664	0.0504	0.0000	0.0504			0.0000			0.0000
Off-Road	0.7511	7.6478	6.0791	8.6300e-003		0.4428	0.4428		0.4073	0.4073	0.0000	836.5882	836.5882	0.2706		843.3524
Total	**0.7511**	**7.6478**	**6.0791**	**8.6300e-003**	**0.4664**	**0.4428**	**0.9091**	**0.0504**	**0.4073**	**0.4577**	**0.0000**	**836.5882**	**836.5882**	**0.2706**		**843.3524**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0139	8.4200e-003	0.1073	3.3000e-004	3.9225	2.1000e-004	3.9227	0.3959	2.0000e-004	0.3961		32.8311	32.8311	7.9000e-004		32.8508
Total	**0.0139**	**8.4200e-003**	**0.1073**	**3.3000e-004**	**3.9225**	**2.1000e-004**	**3.9227**	**0.3959**	**2.0000e-004**	**0.3961**		**32.8311**	**32.8311**	**7.9000e-004**		**32.8508**

3.3 Grading 1 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3615	0.0000	0.3615	0.0390	0.0000	0.0390			0.0000			0.0000
Off-Road	0.7511	7.6478	6.0791	8.6300e-003		0.4428	0.4428		0.4073	0.4073		836.5882	836.5882	0.2706		843.3524
Total	**0.7511**	**7.6478**	**6.0791**	**8.6300e-003**	**0.3615**	**0.4428**	**0.8043**	**0.0390**	**0.4073**	**0.4464**		**836.5882**	**836.5882**	**0.2706**		**843.3524**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0139	8.4200e-003	0.1073	3.3000e-004	6.3877	2.1000e-004	6.3879	0.6424	2.0000e-004	0.6426		32.8311	32.8311	7.9000e-004		32.8508
Total	**0.0139**	**8.4200e-003**	**0.1073**	**3.3000e-004**	**6.3877**	**2.1000e-004**	**6.3879**	**0.6424**	**2.0000e-004**	**0.6426**		**32.8311**	**32.8311**	**7.9000e-004**		**32.8508**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1627	0.0000	0.1627	0.0176	0.0000	0.0176			0.0000			0.0000
Off-Road	0.7511	7.6478	6.0791	8.6300e-003		0.4428	0.4428		0.4073	0.4073	0.0000	836.5882	836.5882	0.2706		843.3524
Total	**0.7511**	**7.6478**	**6.0791**	**8.6300e-003**	**0.1627**	**0.4428**	**0.6055**	**0.0176**	**0.4073**	**0.4249**	**0.0000**	**836.5882**	**836.5882**	**0.2706**		**843.3524**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0139	8.4200e-003	0.1073	3.3000e-004	3.9225	2.1000e-004	3.9227	0.3959	2.0000e-004	0.3961		32.8311	32.8311	7.9000e-004		32.8508
Total	**0.0139**	**8.4200e-003**	**0.1073**	**3.3000e-004**	**3.9225**	**2.1000e-004**	**3.9227**	**0.3959**	**2.0000e-004**	**0.3961**		**32.8311**	**32.8311**	**7.9000e-004**		**32.8508**

3.4 Grading 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3978	0.0000	0.3978	0.0430	0.0000	0.0430			0.0000			0.0000
Off-Road	0.6828	6.8952	6.0254	8.6400e-003		0.3900	0.3900		0.3588	0.3588		837.1817	837.1817	0.2708		843.9507
Total	**0.6828**	**6.8952**	**6.0254**	**8.6400e-003**	**0.3978**	**0.3900**	**0.7878**	**0.0430**	**0.3588**	**0.4017**		**837.1817**	**837.1817**	**0.2708**		**843.9507**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0129	7.5200e-003	0.0983	3.2000e-004	6.3877	2.1000e-004	6.3879	0.6424	1.9000e-004	0.6426		31.6784	31.6784	7.1000e-004		31.6961
Total	**0.0129**	**7.5200e-003**	**0.0983**	**3.2000e-004**	**6.3877**	**2.1000e-004**	**6.3879**	**0.6424**	**1.9000e-004**	**0.6426**		**31.6784**	**31.6784**	**7.1000e-004**		**31.6961**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1790	0.0000	0.1790	0.0193	0.0000	0.0193			0.0000			0.0000
Off-Road	0.6828	6.8952	6.0254	8.6400e-003		0.3900	0.3900		0.3588	0.3588	0.0000	837.1817	837.1817	0.2708		843.9507
Total	**0.6828**	**6.8952**	**6.0254**	**8.6400e-003**	**0.1790**	**0.3900**	**0.5690**	**0.0193**	**0.3588**	**0.3781**	**0.0000**	**837.1817**	**837.1817**	**0.2708**		**843.9507**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0129	7.5200e-003	0.0983	3.2000e-004	3.9225	2.1000e-004	3.9227	0.3959	1.9000e-004	0.3961		31.6784	31.6784	7.1000e-004		31.6961
Total	**0.0129**	**7.5200e-003**	**0.0983**	**3.2000e-004**	**3.9225**	**2.1000e-004**	**3.9227**	**0.3959**	**1.9000e-004**	**0.3961**		**31.6784**	**31.6784**	**7.1000e-004**		**31.6961**

3.5 Building Construction 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	5.8600e-003	0.1983	0.0465	5.0000e-004	1.9540	4.1000e-004	1.9544	0.1972	3.9000e-004	0.1976		53.3837	53.3837	2.6100e-003		53.4489
Worker	0.0193	0.0113	0.1474	4.8000e-004	9.5815	3.1000e-004	9.5818	0.9636	2.9000e-004	0.9639		47.5176	47.5176	1.0600e-003		47.5441
Total	**0.0252**	**0.2096**	**0.1939**	**9.8000e-004**	**11.5355**	**7.2000e-004**	**11.5362**	**1.1608**	**6.8000e-004**	**1.1615**		**100.9013**	**100.9013**	**3.6700e-003**		**100.9931**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	5.8600e-003	0.1983	0.0465	5.0000e-004	1.2007	4.1000e-004	1.2012	0.1218	3.9000e-004	0.1222		53.3837	53.3837	2.6100e-003		53.4489
Worker	0.0193	0.0113	0.1474	4.8000e-004	5.8837	3.1000e-004	5.8840	0.5939	2.9000e-004	0.5942		47.5176	47.5176	1.0600e-003		47.5441
Total	**0.0252**	**0.2096**	**0.1939**	**9.8000e-004**	**7.0844**	**7.2000e-004**	**7.0852**	**0.7157**	**6.8000e-004**	**0.7164**		**100.9013**	**100.9013**	**3.6700e-003**		**100.9931**

3.6 Paving 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6850	6.9236	5.6456	8.1600e-003		0.3958	0.3958		0.3642	0.3642		790.3705	790.3705	0.2556		796.7610
Paving	0.7860					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4710**	**6.9236**	**5.6456**	**8.1600e-003**		**0.3958**	**0.3958**		**0.3642**	**0.3642**		**790.3705**	**790.3705**	**0.2556**		**796.7610**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0129	7.5200e-003	0.0983	3.2000e-004	6.3877	2.1000e-004	6.3879	0.6424	1.9000e-004	0.6426		31.6784	31.6784	7.1000e-004		31.6961
Total	**0.0129**	**7.5200e-003**	**0.0983**	**3.2000e-004**	**6.3877**	**2.1000e-004**	**6.3879**	**0.6424**	**1.9000e-004**	**0.6426**		**31.6784**	**31.6784**	**7.1000e-004**		**31.6961**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6850	6.9236	5.6456	8.1600e-003		0.3958	0.3958		0.3642	0.3642	0.0000	790.3705	790.3705	0.2556		796.7610
Paving	0.7860					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4710**	**6.9236**	**5.6456**	**8.1600e-003**		**0.3958**	**0.3958**		**0.3642**	**0.3642**	**0.0000**	**790.3705**	**790.3705**	**0.2556**		**796.7610**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0129	7.5200e-003	0.0983	3.2000e-004	3.9225	2.1000e-004	3.9227	0.3959	1.9000e-004	0.3961		31.6784	31.6784	7.1000e-004		31.6961
Total	**0.0129**	**7.5200e-003**	**0.0983**	**3.2000e-004**	**3.9225**	**2.1000e-004**	**3.9227**	**0.3959**	**1.9000e-004**	**0.3961**		**31.6784**	**31.6784**	**7.1000e-004**		**31.6961**

3.7 Site Preparation 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.5303**	**0.0000**	**0.5303**	**0.0573**	**0.0000**	**0.0573**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	5.8600e-003	0.1983	0.0465	5.0000e-004	1.9540	4.1000e-004	1.9544	0.1972	3.9000e-004	0.1976		53.3837	53.3837	2.6100e-003		53.4489
Worker	6.4300e-003	3.7600e-003	0.0491	1.6000e-004	3.1938	1.0000e-004	3.1939	0.3212	1.0000e-004	0.3213		15.8392	15.8392	3.5000e-004		15.8480
Total	**0.0123**	**0.2021**	**0.0956**	**6.6000e-004**	**5.1478**	**5.1000e-004**	**5.1483**	**0.5184**	**4.9000e-004**	**0.5189**		**69.2229**	**69.2229**	**2.9600e-003**		**69.2970**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2386	0.0000	0.2386	0.0258	0.0000	0.0258			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.2386**	**0.0000**	**0.2386**	**0.0258**	**0.0000**	**0.0258**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	5.8600e-003	0.1983	0.0465	5.0000e-004	1.2007	4.1000e-004	1.2012	0.1218	3.9000e-004	0.1222		53.3837	53.3837	2.6100e-003		53.4489
Worker	6.4300e-003	3.7600e-003	0.0491	1.6000e-004	1.9612	1.0000e-004	1.9613	0.1980	1.0000e-004	0.1981		15.8392	15.8392	3.5000e-004		15.8480
Total	**0.0123**	**0.2021**	**0.0956**	**6.6000e-004**	**3.1620**	**5.1000e-004**	**3.1625**	**0.3198**	**4.9000e-004**	**0.3203**		**69.2229**	**69.2229**	**2.9600e-003**		**69.2970**

3.8 Site Preparation 3 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.6828	6.8952	6.0254	8.6400e-003		0.3900	0.3900		0.3588	0.3588		837.1817	837.1817	0.2708		843.9507
Total	**0.6828**	**6.8952**	**6.0254**	**8.6400e-003**	**0.5303**	**0.3900**	**0.9202**	**0.0573**	**0.3588**	**0.4160**		**837.1817**	**837.1817**	**0.2708**		**843.9507**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0129	7.5200e-003	0.0983	3.2000e-004	6.3877	2.1000e-004	6.3879	0.6424	1.9000e-004	0.6426		31.6784	31.6784	7.1000e-004		31.6961
Total	**0.0129**	**7.5200e-003**	**0.0983**	**3.2000e-004**	**6.3877**	**2.1000e-004**	**6.3879**	**0.6424**	**1.9000e-004**	**0.6426**		**31.6784**	**31.6784**	**7.1000e-004**		**31.6961**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2386	0.0000	0.2386	0.0258	0.0000	0.0258			0.0000			0.0000
Off-Road	0.6828	6.8952	6.0254	8.6400e-003		0.3900	0.3900		0.3588	0.3588	0.0000	837.1817	837.1817	0.2708		843.9507
Total	**0.6828**	**6.8952**	**6.0254**	**8.6400e-003**	**0.2386**	**0.3900**	**0.6286**	**0.0258**	**0.3588**	**0.3845**	**0.0000**	**837.1817**	**837.1817**	**0.2708**		**843.9507**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0129	7.5200e-003	0.0983	3.2000e-004	3.9225	2.1000e-004	3.9227	0.3959	1.9000e-004	0.3961		31.6784	31.6784	7.1000e-004		31.6961
Total	**0.0129**	**7.5200e-003**	**0.0983**	**3.2000e-004**	**3.9225**	**2.1000e-004**	**3.9227**	**0.3959**	**1.9000e-004**	**0.3961**		**31.6784**	**31.6784**	**7.1000e-004**		**31.6961**

3.9 Grading 3 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3977	0.0000	0.3977	0.0430	0.0000	0.0430			0.0000			0.0000
Off-Road	0.6074	6.0287	5.9508	8.6500e-003		0.3332	0.3332		0.3065	0.3065		837.6871	837.6871	0.2709		844.4602
Total	**0.6074**	**6.0287**	**5.9508**	**8.6500e-003**	**0.3977**	**0.3332**	**0.7309**	**0.0430**	**0.3065**	**0.3495**		**837.6871**	**837.6871**	**0.2709**		**844.4602**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0120	6.7400e-003	0.0905	3.1000e-004	6.3877	2.0000e-004	6.3879	0.6424	1.9000e-004	0.6426		30.5158	30.5158	6.4000e-004		30.5317
Total	**0.0120**	**6.7400e-003**	**0.0905**	**3.1000e-004**	**6.3877**	**2.0000e-004**	**6.3879**	**0.6424**	**1.9000e-004**	**0.6426**		**30.5158**	**30.5158**	**6.4000e-004**		**30.5317**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1790	0.0000	0.1790	0.0193	0.0000	0.0193			0.0000			0.0000
Off-Road	0.6074	6.0287	5.9508	8.6500e-003		0.3332	0.3332		0.3065	0.3065	0.0000	837.6871	837.6871	0.2709		844.4602
Total	**0.6074**	**6.0287**	**5.9508**	**8.6500e-003**	**0.1790**	**0.3332**	**0.5122**	**0.0193**	**0.3065**	**0.3258**	**0.0000**	**837.6871**	**837.6871**	**0.2709**		**844.4602**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0120	6.7400e-003	0.0905	3.1000e-004	3.9225	2.0000e-004	3.9227	0.3959	1.9000e-004	0.3961		30.5158	30.5158	6.4000e-004		30.5317
Total	**0.0120**	**6.7400e-003**	**0.0905**	**3.1000e-004**	**3.9225**	**2.0000e-004**	**3.9227**	**0.3959**	**1.9000e-004**	**0.3961**		**30.5158**	**30.5158**	**6.4000e-004**		**30.5317**

3.10 Building Construction 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	5.4600e-003	0.1883	0.0437	5.0000e-004	1.9540	3.5000e-004	1.9543	0.1972	3.4000e-004	0.1975		52.8650	52.8650	2.4900e-003		52.9273
Worker	0.0180	0.0101	0.1358	4.6000e-004	9.5815	3.0000e-004	9.5818	0.9636	2.8000e-004	0.9639		45.7737	45.7737	9.5000e-004		45.7976
Total	**0.0234**	**0.1984**	**0.1795**	**9.6000e-004**	**11.5355**	**6.5000e-004**	**11.5361**	**1.1608**	**6.2000e-004**	**1.1614**		**98.6387**	**98.6387**	**3.4400e-003**		**98.7248**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	5.4600e-003	0.1883	0.0437	5.0000e-004	1.2007	3.5000e-004	1.2011	0.1218	3.4000e-004	0.1222		52.8650	52.8650	2.4900e-003		52.9273
Worker	0.0180	0.0101	0.1358	4.6000e-004	5.8837	3.0000e-004	5.8840	0.5939	2.8000e-004	0.5941		45.7737	45.7737	9.5000e-004		45.7976
Total	**0.0234**	**0.1984**	**0.1795**	**9.6000e-004**	**7.0844**	**6.5000e-004**	**7.0851**	**0.7157**	**6.2000e-004**	**0.7163**		**98.6387**	**98.6387**	**3.4400e-003**		**98.7248**

3.11 Building Construction 3 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	8.2000e-003	0.2934	0.0786	9.7000e-004	3.9080	3.2000e-004	3.9083	0.3943	3.0000e-004	0.3946		102.7346	102.7346	4.2400e-003		102.8405
Worker	0.0224	0.0121	0.1670	5.9000e-004	12.7753	4.0000e-004	12.7757	1.2849	3.6000e-004	1.2852		58.6919	58.6919	1.1400e-003		58.7205
Total	**0.0306**	**0.3055**	**0.2456**	**1.5600e-003**	**16.6833**	**7.2000e-004**	**16.6840**	**1.6792**	**6.6000e-004**	**1.6798**		**161.4265**	**161.4265**	**5.3800e-003**		**161.5609**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	8.2000e-003	0.2934	0.0786	9.7000e-004	2.4015	3.2000e-004	2.4018	0.2437	3.0000e-004	0.2440		102.7346	102.7346	4.2400e-003		102.8405
Worker	0.0224	0.0121	0.1670	5.9000e-004	7.8449	4.0000e-004	7.8453	0.7918	3.6000e-004	0.7922		58.6919	58.6919	1.1400e-003		58.7205
Total	**0.0306**	**0.3055**	**0.2456**	**1.5600e-003**	**10.2464**	**7.2000e-004**	**10.2471**	**1.0355**	**6.6000e-004**	**1.0362**		**161.4265**	**161.4265**	**5.3800e-003**		**161.5609**

3.12 Paving 2 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5486	5.3983	5.5326	8.1600e-003		0.2993	0.2993		0.2753	0.2753		790.7982	790.7982	0.2558		797.1922
Paving	0.7860					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3346**	**5.3983**	**5.5326**	**8.1600e-003**		**0.2993**	**0.2993**		**0.2753**	**0.2753**		**790.7982**	**790.7982**	**0.2558**		**797.1922**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0112	6.0600e-003	0.0835	2.9000e-004	6.3877	2.0000e-004	6.3879	0.6424	1.8000e-004	0.6426		29.3460	29.3460	5.7000e-004		29.3602
Total	**0.0112**	**6.0600e-003**	**0.0835**	**2.9000e-004**	**6.3877**	**2.0000e-004**	**6.3879**	**0.6424**	**1.8000e-004**	**0.6426**		**29.3460**	**29.3460**	**5.7000e-004**		**29.3602**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5486	5.3983	5.5326	8.1600e-003		0.2993	0.2993		0.2753	0.2753	0.0000	790.7982	790.7982	0.2558		797.1922
Paving	0.7860					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3346**	**5.3983**	**5.5326**	**8.1600e-003**		**0.2993**	**0.2993**		**0.2753**	**0.2753**	**0.0000**	**790.7982**	**790.7982**	**0.2558**		**797.1922**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0112	6.0600e-003	0.0835	2.9000e-004	3.9225	2.0000e-004	3.9227	0.3959	1.8000e-004	0.3961		29.3460	29.3460	5.7000e-004		29.3602
Total	**0.0112**	**6.0600e-003**	**0.0835**	**2.9000e-004**	**3.9225**	**2.0000e-004**	**3.9227**	**0.3959**	**1.8000e-004**	**0.3961**		**29.3460**	**29.3460**	**5.7000e-004**		**29.3602**

3.13 Site Preparation 4 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.5303**	**0.0000**	**0.5303**	**0.0573**	**0.0000**	**0.0573**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	4.1000e-003	0.1467	0.0393	4.8000e-004	1.9540	1.6000e-004	1.9542	0.1972	1.5000e-004	0.1973		51.3673	51.3673	2.1200e-003		51.4202
Worker	5.5900e-003	3.0300e-003	0.0418	1.5000e-004	3.1938	1.0000e-004	3.1939	0.3212	9.0000e-005	0.3213		14.6730	14.6730	2.9000e-004		14.6801
Total	**9.6900e-003**	**0.1497**	**0.0811**	**6.3000e-004**	**5.1478**	**2.6000e-004**	**5.1481**	**0.5184**	**2.4000e-004**	**0.5186**		**66.0403**	**66.0403**	**2.4100e-003**		**66.1003**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2386	0.0000	0.2386	0.0258	0.0000	0.0258			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.2386**	**0.0000**	**0.2386**	**0.0258**	**0.0000**	**0.0258**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	4.1000e-003	0.1467	0.0393	4.8000e-004	1.2007	1.6000e-004	1.2009	0.1218	1.5000e-004	0.1220		51.3673	51.3673	2.1200e-003		51.4202
Worker	5.5900e-003	3.0300e-003	0.0418	1.5000e-004	1.9612	1.0000e-004	1.9613	0.1980	9.0000e-005	0.1981		14.6730	14.6730	2.9000e-004		14.6801
Total	**9.6900e-003**	**0.1497**	**0.0811**	**6.3000e-004**	**3.1620**	**2.6000e-004**	**3.1622**	**0.3198**	**2.4000e-004**	**0.3200**		**66.0403**	**66.0403**	**2.4100e-003**		**66.1003**

3.14 Grading 4 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3988	0.0000	0.3988	0.0431	0.0000	0.0431			0.0000			0.0000
Off-Road	0.5462	5.3239	5.9117	8.6600e-003		0.2865	0.2865		0.2636	0.2636		838.2670	838.2670	0.2711		845.0448
Total	**0.5462**	**5.3239**	**5.9117**	**8.6600e-003**	**0.3988**	**0.2865**	**0.6853**	**0.0431**	**0.2636**	**0.3066**		**838.2670**	**838.2670**	**0.2711**		**845.0448**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0112	6.0600e-003	0.0835	2.9000e-004	6.3877	2.0000e-004	6.3879	0.6424	1.8000e-004	0.6426		29.3460	29.3460	5.7000e-004		29.3602
Total	**0.0112**	**6.0600e-003**	**0.0835**	**2.9000e-004**	**6.3877**	**2.0000e-004**	**6.3879**	**0.6424**	**1.8000e-004**	**0.6426**		**29.3460**	**29.3460**	**5.7000e-004**		**29.3602**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1794	0.0000	0.1794	0.0194	0.0000	0.0194			0.0000			0.0000
Off-Road	0.5462	5.3239	5.9117	8.6600e-003		0.2865	0.2865		0.2636	0.2636	0.0000	838.2670	838.2670	0.2711		845.0448
Total	**0.5462**	**5.3239**	**5.9117**	**8.6600e-003**	**0.1794**	**0.2865**	**0.4659**	**0.0194**	**0.2636**	**0.2830**	**0.0000**	**838.2670**	**838.2670**	**0.2711**		**845.0448**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0112	6.0600e-003	0.0835	2.9000e-004	3.9225	2.0000e-004	3.9227	0.3959	1.8000e-004	0.3961		29.3460	29.3460	5.7000e-004		29.3602
Total	**0.0112**	**6.0600e-003**	**0.0835**	**2.9000e-004**	**3.9225**	**2.0000e-004**	**3.9227**	**0.3959**	**1.8000e-004**	**0.3961**		**29.3460**	**29.3460**	**5.7000e-004**		**29.3602**

3.15 Building Construction 4 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6792	6.5684	5.5597	0.0124		0.2942	0.2942		0.2814	0.2814		1,181.8538	1,181.8538	0.2092		1,187.0848
Total	**0.6792**	**6.5684**	**5.5597**	**0.0124**		**0.2942**	**0.2942**		**0.2814**	**0.2814**		**1,181.8538**	**1,181.8538**	**0.2092**		**1,187.0848**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	8.2000e-003	0.2934	0.0786	9.7000e-004	3.9080	3.2000e-004	3.9083	0.3943	3.0000e-004	0.3946		102.7346	102.7346	4.2400e-003		102.8405
Worker	0.0224	0.0121	0.1670	5.9000e-004	12.7753	4.0000e-004	12.7757	1.2849	3.6000e-004	1.2852		58.6919	58.6919	1.1400e-003		58.7205
Total	**0.0306**	**0.3055**	**0.2456**	**1.5600e-003**	**16.6833**	**7.2000e-004**	**16.6840**	**1.6792**	**6.6000e-004**	**1.6798**		**161.4265**	**161.4265**	**5.3800e-003**		**161.5609**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6792	6.5684	5.5597	0.0124		0.2942	0.2942		0.2814	0.2814	0.0000	1,181.8538	1,181.8538	0.2092		1,187.0848
Total	**0.6792**	**6.5684**	**5.5597**	**0.0124**		**0.2942**	**0.2942**		**0.2814**	**0.2814**	**0.0000**	**1,181.8538**	**1,181.8538**	**0.2092**		**1,187.0848**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	8.2000e-003	0.2934	0.0786	9.7000e-004	2.4015	3.2000e-004	2.4018	0.2437	3.0000e-004	0.2440		102.7346	102.7346	4.2400e-003		102.8405
Worker	0.0224	0.0121	0.1670	5.9000e-004	7.8449	4.0000e-004	7.8453	0.7918	3.6000e-004	0.7922		58.6919	58.6919	1.1400e-003		58.7205
Total	**0.0306**	**0.3055**	**0.2456**	**1.5600e-003**	**10.2464**	**7.2000e-004**	**10.2471**	**1.0355**	**6.6000e-004**	**1.0362**		**161.4265**	**161.4265**	**5.3800e-003**		**161.5609**

3.16 Paving 3 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5486	5.3983	5.5326	8.1600e-003		0.2993	0.2993		0.2753	0.2753		790.7982	790.7982	0.2558		797.1922
Paving	1.3100					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.8586**	**5.3983**	**5.5326**	**8.1600e-003**		**0.2993**	**0.2993**		**0.2753**	**0.2753**		**790.7982**	**790.7982**	**0.2558**		**797.1922**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0112	6.0600e-003	0.0835	2.9000e-004	6.3877	2.0000e-004	6.3879	0.6424	1.8000e-004	0.6426		29.3460	29.3460	5.7000e-004		29.3602
Total	**0.0112**	**6.0600e-003**	**0.0835**	**2.9000e-004**	**6.3877**	**2.0000e-004**	**6.3879**	**0.6424**	**1.8000e-004**	**0.6426**		**29.3460**	**29.3460**	**5.7000e-004**		**29.3602**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5486	5.3983	5.5326	8.1600e-003		0.2993	0.2993		0.2753	0.2753	0.0000	790.7982	790.7982	0.2558		797.1922
Paving	1.3100					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.8586**	**5.3983**	**5.5326**	**8.1600e-003**		**0.2993**	**0.2993**		**0.2753**	**0.2753**	**0.0000**	**790.7982**	**790.7982**	**0.2558**		**797.1922**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0112	6.0600e-003	0.0835	2.9000e-004	3.9225	2.0000e-004	3.9227	0.3959	1.8000e-004	0.3961		29.3460	29.3460	5.7000e-004		29.3602
Total	**0.0112**	**6.0600e-003**	**0.0835**	**2.9000e-004**	**3.9225**	**2.0000e-004**	**3.9227**	**0.3959**	**1.8000e-004**	**0.3961**		**29.3460**	**29.3460**	**5.7000e-004**		**29.3602**

3.17 Site Preparation 5 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.5303**	**0.0000**	**0.5303**	**0.0573**	**0.0000**	**0.0573**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	4.1000e-003	0.1467	0.0393	4.8000e-004	1.9540	1.6000e-004	1.9542	0.1972	1.5000e-004	0.1973		51.3673	51.3673	2.1200e-003		51.4202
Worker	5.5900e-003	3.0300e-003	0.0418	1.5000e-004	3.1938	1.0000e-004	3.1939	0.3212	9.0000e-005	0.3213		14.6730	14.6730	2.9000e-004		14.6801
Total	**9.6900e-003**	**0.1497**	**0.0811**	**6.3000e-004**	**5.1478**	**2.6000e-004**	**5.1481**	**0.5184**	**2.4000e-004**	**0.5186**		**66.0403**	**66.0403**	**2.4100e-003**		**66.1003**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2386	0.0000	0.2386	0.0258	0.0000	0.0258			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.2386**	**0.0000**	**0.2386**	**0.0258**	**0.0000**	**0.0258**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	4.1000e-003	0.1467	0.0393	4.8000e-004	1.2007	1.6000e-004	1.2009	0.1218	1.5000e-004	0.1220		51.3673	51.3673	2.1200e-003		51.4202
Worker	5.5900e-003	3.0300e-003	0.0418	1.5000e-004	1.9612	1.0000e-004	1.9613	0.1980	9.0000e-005	0.1981		14.6730	14.6730	2.9000e-004		14.6801
Total	**9.6900e-003**	**0.1497**	**0.0811**	**6.3000e-004**	**3.1620**	**2.6000e-004**	**3.1622**	**0.3198**	**2.4000e-004**	**0.3200**		**66.0403**	**66.0403**	**2.4100e-003**		**66.1003**

CalEEMod Version: CalEEMod.2016.3.2

Date: 9/10/2019 6:55 AM

Estero Trail Project
Bay Area AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	1.50	Acre	1.50	0.00	0
User Defined Recreational	3.55	User Defined Unit	3.55	154,464.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Estero Trail Project. BAAQMD.

Land Use - Construction of two 5-foot-wide trail corridors totaling approximately 5-miles.1.5 acres for parking and 0.66 acre for access road.

Construction Phase - Construction would occur from approximately May through October.

Off-road Equipment - No construction equipment, assumed use of handtools.

Off-road Equipment - No construction equipment, assumed use of handtools.

Off-road Equipment - No construction equipment, assumed use of handtools.

Off-road Equipment - No construction equipment, assumed use of handtools.

Off-road Equipment - Updated per applicant.

Off-road Equipment - Updated per applicant.

Off-road Equipment - Updated per applicant.

Off-road Equipment - Updated per applicant.

Off-road Equipment - Updated per applicant.

Off-road Equipment - Updated per applicant.

Off-road Equipment - Updated per applicant.

Off-road Equipment - Updated per applicant.

Off-road Equipment - Updated per applicant.

Off-road Equipment - No construction equipment, assumed use of handtools.

Off-road Equipment - Updated per applicant.

Off-road Equipment - No construction equipment, assumed use of handtools.

Off-road Equipment - No construction equipment, assumed use of handtools.

Trips and VMT - Updated trips per applicant.

On-road Fugitive Dust - Assumed 90% of trips would be on unpaved roads.

Grading - Assumed balanced onsite.

Architectural Coating - Not required for trail construction.

Vehicle Trips - Modeling construction only.

Vehicle Emission Factors - Modeling construction only.

Vehicle Emission Factors - Modeling construction only.

Vehicle Emission Factors - Modeling construction only.

Road Dust - Modeling construction only.

Woodstoves - Modeling construction only.

Consumer Products - Modeling construction only.

Area Coating - Modeling construction only.

Landscape Equipment - Modeling construction only.

Energy Use - Modeling construction only.

Water And Wastewater - Modeling construction only.

Solid Waste - Modeling construction only.

Construction Off-road Equipment Mitigation - Comply with BAAQMD fugitive dust BMPs - water exposed area twice daily and vehicle speed of 15 mph on unpaved roads.

Fleet Mix - Modeling construction only.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Exterior	77232	26532
tblAreaCoating	Area_Nonresidential_Interior	231696	79596
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	0.5
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	230.00	15.00
tblConstructionPhase	NumDays	230.00	15.00
tblConstructionPhase	NumDays	230.00	15.00
tblConstructionPhase	NumDays	230.00	15.00
tblConstructionPhase	NumDays	20.00	5.00
tblConstructionPhase	NumDays	20.00	66.00
tblConstructionPhase	NumDays	20.00	43.00
tblConstructionPhase	NumDays	20.00	109.00
tblConstructionPhase	NumDays	20.00	5.00
tblConstructionPhase	NumDays	20.00	3.00
tblConstructionPhase	NumDays	20.00	5.00
tblConstructionPhase	NumDays	10.00	66.00
tblConstructionPhase	NumDays	10.00	5.00
tblConstructionPhase	NumDays	10.00	2.00
tblConstructionPhase	NumDays	10.00	5.00
tblConstructionPhase	NumDays	10.00	63.00
tblGrading	AcresOfGrading	2.50	1.88
tblGrading	AcresOfGrading	33.00	22.50
tblGrading	AcresOfGrading	21.50	16.13
tblGrading	AcresOfGrading	54.50	40.88
tblGrading	AcresOfGrading	33.00	64.50
tblGrading	AcresOfGrading	0.00	2.50
tblGrading	AcresOfGrading	0.00	1.00
tblGrading	AcresOfGrading	0.00	2.50
tblLandUse	LandUseSquareFeet	65,340.00	0.00
tblLandUse	LandUseSquareFeet	0.00	154,464.00

tblLandUse	LotAcreage	0.00	3.55
tblOffRoadEquipment	HorsePower	212.00	150.00
tblOffRoadEquipment	HorsePower	212.00	150.00
tblOffRoadEquipment	HorsePower	212.00	150.00
tblOffRoadEquipment	HorsePower	212.00	150.00
tblOffRoadEquipment	HorsePower	212.00	150.00
tblOffRoadEquipment	HorsePower	212.00	150.00
tblOffRoadEquipment	HorsePower	212.00	150.00
tblOffRoadEquipment	HorsePower	212.00	150.00
tblOffRoadEquipment	HorsePower	212.00	150.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOnRoadDust	VendorPercentPave	100.00	90.00
tblOnRoadDust	VendorPercentPave	100.00	90.00
tblOnRoadDust	VendorPercentPave	100.00	90.00
tblOnRoadDust	VendorPercentPave	100.00	90.00
tblOnRoadDust	VendorPercentPave	100.00	90.00
tblOnRoadDust	VendorPercentPave	100.00	90.00
tblOnRoadDust	VendorPercentPave	100.00	90.00

tblOnRoadDust	VendorPercentPave	100.00	90.00
tblOnRoadDust	VendorPercentPave	100.00	90.00
tblOnRoadDust	VendorPercentPave	100.00	90.00
tblOnRoadDust	VendorPercentPave	100.00	90.00
tblOnRoadDust	VendorPercentPave	100.00	90.00
tblOnRoadDust	VendorPercentPave	100.00	90.00
tblOnRoadDust	VendorPercentPave	100.00	90.00
tblOnRoadDust	VendorPercentPave	100.00	90.00
tblOnRoadDust	VendorPercentPave	100.00	90.00
tblOnRoadDust	WorkerPercentPave	100.00	90.00
tblOnRoadDust	WorkerPercentPave	100.00	90.00
tblOnRoadDust	WorkerPercentPave	100.00	90.00
tblOnRoadDust	WorkerPercentPave	100.00	90.00
tblOnRoadDust	WorkerPercentPave	100.00	90.00
tblOnRoadDust	WorkerPercentPave	100.00	90.00
tblOnRoadDust	WorkerPercentPave	100.00	90.00
tblOnRoadDust	WorkerPercentPave	100.00	90.00
tblOnRoadDust	WorkerPercentPave	100.00	90.00
tblOnRoadDust	WorkerPercentPave	100.00	90.00
tblOnRoadDust	WorkerPercentPave	100.00	90.00
tblOnRoadDust	WorkerPercentPave	100.00	90.00
tblOnRoadDust	WorkerPercentPave	100.00	90.00
tblOnRoadDust	WorkerPercentPave	100.00	90.00
tblOnRoadDust	WorkerPercentPave	100.00	90.00
tblOnRoadDust	WorkerPercentPave	100.00	90.00
tblOnRoadDust	WorkerPercentPave	100.00	90.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	VendorTripNumber	25.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	25.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	25.00	2.00

tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	25.00	2.00
tblTripsAndVMT	WorkerTripNumber	5.00	4.00
tblTripsAndVMT	WorkerTripNumber	65.00	8.00
tblTripsAndVMT	WorkerTripNumber	5.00	4.00
tblTripsAndVMT	WorkerTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	5.00	4.00
tblTripsAndVMT	WorkerTripNumber	65.00	8.00
tblTripsAndVMT	WorkerTripNumber	5.00	4.00
tblTripsAndVMT	WorkerTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	5.00	4.00
tblTripsAndVMT	WorkerTripNumber	5.00	4.00
tblTripsAndVMT	WorkerTripNumber	65.00	6.00
tblTripsAndVMT	WorkerTripNumber	5.00	4.00
tblTripsAndVMT	WorkerTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	5.00	4.00
tblTripsAndVMT	WorkerTripNumber	5.00	4.00
tblTripsAndVMT	WorkerTripNumber	65.00	6.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	0.7658	7.6582	6.1799	8.9300e-003	7.4241	0.4430	7.8670	0.7543	0.4075	1.1619	0.0000	866.8308	866.8308	0.2713	0.0000	873.6135
2021	1.4846	6.9329	6.1174	8.9300e-003	11.5355	0.3960	11.5362	1.1608	0.3644	1.1615	0.0000	866.3632	866.3632	0.2714	0.0000	873.1487
2022	0.6201	6.0370	6.0352	8.9300e-003	11.5355	0.3334	11.5361	1.1608	0.3067	1.1614	0.0000	865.7988	865.7988	0.2715	0.0000	872.5867
2023	1.8705	6.8776	5.9892	0.0138	16.6833	0.2995	16.9782	1.6792	0.2821	1.9613	0.0000	1,335.8471	1,335.8471	0.2716	0.0000	1,341.2185
Maximum	**1.8705**	**7.6582**	**6.1799**	**0.0138**	**16.6833**	**0.4430**	**16.9782**	**1.6792**	**0.4075**	**1.9613**	**0.0000**	**1,335.8471**	**1,335.8471**	**0.2716**	**0.0000**	**1,341.2185**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	0.7658	7.6582	6.1799	8.9300e-003	4.3889	0.4430	4.8318	0.4463	0.4075	0.8538	0.0000	866.8308	866.8308	0.2713	0.0000	873.6135
2021	1.4846	6.9329	6.1174	8.9300e-003	7.0844	0.3960	7.0852	0.7157	0.3644	0.7806	0.0000	866.3632	866.3632	0.2714	0.0000	873.1487
2022	0.6201	6.0370	6.0352	8.9300e-003	7.0844	0.3334	7.0851	0.7157	0.3067	0.7219	0.0000	865.7988	865.7988	0.2715	0.0000	872.5867
2023	1.8705	6.8776	5.9892	0.0138	10.2464	0.2995	10.5413	1.0355	0.2821	1.3176	0.0000	1,335.8471	1,335.8471	0.2716	0.0000	1,341.2185
Maximum	**1.8705**	**7.6582**	**6.1799**	**0.0138**	**10.2464**	**0.4430**	**10.5413**	**1.0355**	**0.4075**	**1.3176**	**0.0000**	**1,335.8471**	**1,335.8471**	**0.2716**	**0.0000**	**1,341.2185**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**38.95**	**0.00**	**38.35**	**38.74**	**0.00**	**32.54**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation 1	Site Preparation	5/1/2020	7/31/2020	5	66	clearing and grubbing
2	Grading 1	Grading	8/1/2020	11/2/2020	5	66	
3	Grading 2	Grading	5/1/2021	6/30/2021	5	43	
4	Building Construction 1	Building Construction	7/1/2021	7/21/2021	5	15	wet crossings/foot bridges installation
5	Paving 1	Paving	7/22/2021	7/28/2021	5	5	gravel base parking lot
6	Site Preparation 2	Site Preparation	7/29/2021	8/4/2021	5	5	signage, fencing, seating, etc.
7	Site Preparation 3	Site Preparation	8/5/2021	11/1/2021	5	63	clearing and grubbing
8	Grading 3	Grading	5/1/2022	9/29/2022	5	109	
9	Building Construction 2	Building Construction	10/1/2022	10/21/2022	5	15	wet crossings/foot bridges installation
10	Building Construction 3	Building Construction	5/1/2023	5/19/2023	5	15	Installation of surface protection mats
11	Paving 2	Paving	5/21/2023	5/26/2023	5	5	gravel base parking lot
12	Site Preparation 4	Site Preparation	5/28/2023	6/2/2023	5	5	signage, fencing, seating, etc.
13	Grading 4	Grading	6/4/2023	6/9/2023	5	5	
14	Building Construction 4	Building Construction	6/11/2023	6/30/2023	5	15	construction of main road access bridge
15	Paving 3	Paving	7/2/2023	7/5/2023	5	3	
16	Site Preparation 5	Site Preparation	7/7/2023	7/10/2023	5	2	signage, fencing, seating, etc.

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 1.5

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation 1	Crawler Tractors	1	8.00	150	0.43
Site Preparation 1	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading 1	Crawler Tractors	1	8.00	150	0.43
Grading 1	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading 2	Crawler Tractors	1	8.00	150	0.43
Grading 2	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction 1	Cranes	0	0.00	231	0.29
Paving 1	Crawler Tractors	1	8.00	150	0.43
Paving 1	Rollers	1	8.00	80	0.38
Site Preparation 2	Graders	0	0.00	187	0.41
Site Preparation 3	Crawler Tractors	1	8.00	150	0.43
Site Preparation 3	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading 3	Crawler Tractors	1	8.00	150	0.43
Grading 3	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction 2	Cranes	0	0.00	231	0.29
Building Construction 3	Pumps	0	0.00	84	0.74
Paving 2	Crawler Tractors	1	8.00	150	0.43
Paving 2	Rollers	1	8.00	80	0.38
Site Preparation 4	Graders	0	0.00	187	0.41
Grading 4	Crawler Tractors	1	8.00	150	0.43
Grading 4	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction 4	Cranes	1	8.00	231	0.29
Building Construction 4	Pumps	1	8.00	84	0.74
Paving 3	Crawler Tractors	1	8.00	150	0.43
Paving 3	Rollers	1	8.00	80	0.38
Site Preparation 5	Graders	0	0.00	187	0.41

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation 1	2	4.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading 1	2	4.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading 2	2	4.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 1	0	6.00	2.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving 1	2	4.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation 2	0	2.00	2.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation 3	2	4.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading 3	2	4.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 2	0	6.00	2.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 3	0	8.00	4.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving 2	2	4.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation 4	0	2.00	2.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading 4	2	4.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 4	2	8.00	4.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving 3	2	4.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation 5	0	2.00	2.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation 1 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.0364	0.0000	1.0364	0.1119	0.0000	0.1119			0.0000			0.0000
Off-Road	0.7511	7.6478	6.0791	8.6300e-003		0.4428	0.4428		0.4073	0.4073		836.5882	836.5882	0.2706		843.3524
Total	**0.7511**	**7.6478**	**6.0791**	**8.6300e-003**	**1.0364**	**0.4428**	**1.4792**	**0.1119**	**0.4073**	**0.5193**		**836.5882**	**836.5882**	**0.2706**		**843.3524**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0147	0.0104	0.1008	3.0000e-004	6.3877	2.1000e-004	6.3879	0.6424	2.0000e-004	0.6426		30.2426	30.2426	7.4000e-004		30.2611
Total	**0.0147**	**0.0104**	**0.1008**	**3.0000e-004**	**6.3877**	**2.1000e-004**	**6.3879**	**0.6424**	**2.0000e-004**	**0.6426**		**30.2426**	**30.2426**	**7.4000e-004**		**30.2611**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.4664	0.0000	0.4664	0.0504	0.0000	0.0504			0.0000			0.0000
Off-Road	0.7511	7.6478	6.0791	8.6300e-003		0.4428	0.4428		0.4073	0.4073	0.0000	836.5882	836.5882	0.2706		843.3524
Total	**0.7511**	**7.6478**	**6.0791**	**8.6300e-003**	**0.4664**	**0.4428**	**0.9091**	**0.0504**	**0.4073**	**0.4577**	**0.0000**	**836.5882**	**836.5882**	**0.2706**		**843.3524**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0147	0.0104	0.1008	3.0000e-004	3.9225	2.1000e-004	3.9227	0.3959	2.0000e-004	0.3961		30.2426	30.2426	7.4000e-004		30.2611
Total	**0.0147**	**0.0104**	**0.1008**	**3.0000e-004**	**3.9225**	**2.1000e-004**	**3.9227**	**0.3959**	**2.0000e-004**	**0.3961**		**30.2426**	**30.2426**	**7.4000e-004**		**30.2611**

3.3 Grading 1 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3615	0.0000	0.3615	0.0390	0.0000	0.0390			0.0000			0.0000
Off-Road	0.7511	7.6478	6.0791	8.6300e-003		0.4428	0.4428		0.4073	0.4073		836.5882	836.5882	0.2706		843.3524
Total	**0.7511**	**7.6478**	**6.0791**	**8.6300e-003**	**0.3615**	**0.4428**	**0.8043**	**0.0390**	**0.4073**	**0.4464**		**836.5882**	**836.5882**	**0.2706**		**843.3524**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0147	0.0104	0.1008	3.0000e-004	6.3877	2.1000e-004	6.3879	0.6424	2.0000e-004	0.6426		30.2426	30.2426	7.4000e-004		30.2611
Total	**0.0147**	**0.0104**	**0.1008**	**3.0000e-004**	**6.3877**	**2.1000e-004**	**6.3879**	**0.6424**	**2.0000e-004**	**0.6426**		**30.2426**	**30.2426**	**7.4000e-004**		**30.2611**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1627	0.0000	0.1627	0.0176	0.0000	0.0176			0.0000			0.0000
Off-Road	0.7511	7.6478	6.0791	8.6300e-003		0.4428	0.4428		0.4073	0.4073	0.0000	836.5882	836.5882	0.2706		843.3524
Total	**0.7511**	**7.6478**	**6.0791**	**8.6300e-003**	**0.1627**	**0.4428**	**0.6055**	**0.0176**	**0.4073**	**0.4249**	**0.0000**	**836.5882**	**836.5882**	**0.2706**		**843.3524**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0147	0.0104	0.1008	3.0000e-004	3.9225	2.1000e-004	3.9227	0.3959	2.0000e-004	0.3961		30.2426	30.2426	7.4000e-004		30.2611
Total	**0.0147**	**0.0104**	**0.1008**	**3.0000e-004**	**3.9225**	**2.1000e-004**	**3.9227**	**0.3959**	**2.0000e-004**	**0.3961**		**30.2426**	**30.2426**	**7.4000e-004**		**30.2611**

3.4 Grading 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3978	0.0000	0.3978	0.0430	0.0000	0.0430			0.0000			0.0000
Off-Road	0.6828	6.8952	6.0254	8.6400e-003		0.3900	0.3900		0.3588	0.3588		837.1817	837.1817	0.2708		843.9507
Total	**0.6828**	**6.8952**	**6.0254**	**8.6400e-003**	**0.3978**	**0.3900**	**0.7878**	**0.0430**	**0.3588**	**0.4017**		**837.1817**	**837.1817**	**0.2708**		**843.9507**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0136	9.2800e-003	0.0919	2.9000e-004	6.3877	2.1000e-004	6.3879	0.6424	1.9000e-004	0.6426		29.1815	29.1815	6.6000e-004		29.1980
Total	**0.0136**	**9.2800e-003**	**0.0919**	**2.9000e-004**	**6.3877**	**2.1000e-004**	**6.3879**	**0.6424**	**1.9000e-004**	**0.6426**		**29.1815**	**29.1815**	**6.6000e-004**		**29.1980**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1790	0.0000	0.1790	0.0193	0.0000	0.0193			0.0000			0.0000
Off-Road	0.6828	6.8952	6.0254	8.6400e-003		0.3900	0.3900		0.3588	0.3588	0.0000	837.1817	837.1817	0.2708		843.9507
Total	**0.6828**	**6.8952**	**6.0254**	**8.6400e-003**	**0.1790**	**0.3900**	**0.5690**	**0.0193**	**0.3588**	**0.3781**	**0.0000**	**837.1817**	**837.1817**	**0.2708**		**843.9507**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0136	9.2800e-003	0.0919	2.9000e-004	3.9225	2.1000e-004	3.9227	0.3959	1.9000e-004	0.3961		29.1815	29.1815	6.6000e-004		29.1980
Total	**0.0136**	**9.2800e-003**	**0.0919**	**2.9000e-004**	**3.9225**	**2.1000e-004**	**3.9227**	**0.3959**	**1.9000e-004**	**0.3961**		**29.1815**	**29.1815**	**6.6000e-004**		**29.1980**

3.5 Building Construction 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	6.2200e-003	0.1996	0.0538	4.9000e-004	1.9540	4.2000e-004	1.9544	0.1972	4.1000e-004	0.1976		51.9174	51.9174	2.8300e-003		51.9882
Worker	0.0204	0.0139	0.1379	4.4000e-004	9.5815	3.1000e-004	9.5818	0.9636	2.9000e-004	0.9639		43.7722	43.7722	9.9000e-004		43.7970
Total	**0.0267**	**0.2135**	**0.1917**	**9.3000e-004**	**11.5355**	**7.3000e-004**	**11.5362**	**1.1608**	**7.0000e-004**	**1.1615**		**95.6896**	**95.6896**	**3.8200e-003**		**95.7852**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	6.2200e-003	0.1996	0.0538	4.9000e-004	1.2007	4.2000e-004	1.2012	0.1218	4.1000e-004	0.1222		51.9174	51.9174	2.8300e-003		51.9882
Worker	0.0204	0.0139	0.1379	4.4000e-004	5.8837	3.1000e-004	5.8840	0.5939	2.9000e-004	0.5942		43.7722	43.7722	9.9000e-004		43.7970
Total	**0.0267**	**0.2135**	**0.1917**	**9.3000e-004**	**7.0844**	**7.3000e-004**	**7.0852**	**0.7157**	**7.0000e-004**	**0.7164**		**95.6896**	**95.6896**	**3.8200e-003**		**95.7852**

3.6 Paving 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6850	6.9236	5.6456	8.1600e-003		0.3958	0.3958		0.3642	0.3642		790.3705	790.3705	0.2556		796.7610
Paving	0.7860					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4710**	**6.9236**	**5.6456**	**8.1600e-003**		**0.3958**	**0.3958**		**0.3642**	**0.3642**		**790.3705**	**790.3705**	**0.2556**		**796.7610**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0136	9.2800e-003	0.0919	2.9000e-004	6.3877	2.1000e-004	6.3879	0.6424	1.9000e-004	0.6426		29.1815	29.1815	6.6000e-004		29.1980
Total	**0.0136**	**9.2800e-003**	**0.0919**	**2.9000e-004**	**6.3877**	**2.1000e-004**	**6.3879**	**0.6424**	**1.9000e-004**	**0.6426**		**29.1815**	**29.1815**	**6.6000e-004**		**29.1980**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6850	6.9236	5.6456	8.1600e-003		0.3958	0.3958		0.3642	0.3642	0.0000	790.3705	790.3705	0.2556		796.7610
Paving	0.7860					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4710**	**6.9236**	**5.6456**	**8.1600e-003**		**0.3958**	**0.3958**		**0.3642**	**0.3642**	**0.0000**	**790.3705**	**790.3705**	**0.2556**		**796.7610**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0136	9.2800e-003	0.0919	2.9000e-004	3.9225	2.1000e-004	3.9227	0.3959	1.9000e-004	0.3961		29.1815	29.1815	6.6000e-004		29.1980
Total	**0.0136**	**9.2800e-003**	**0.0919**	**2.9000e-004**	**3.9225**	**2.1000e-004**	**3.9227**	**0.3959**	**1.9000e-004**	**0.3961**		**29.1815**	**29.1815**	**6.6000e-004**		**29.1980**

3.7 Site Preparation 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.5303**	**0.0000**	**0.5303**	**0.0573**	**0.0000**	**0.0573**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	6.2200e-003	0.1996	0.0538	4.9000e-004	1.9540	4.2000e-004	1.9544	0.1972	4.1000e-004	0.1976		51.9174	51.9174	2.8300e-003		51.9882
Worker	6.8100e-003	4.6400e-003	0.0460	1.5000e-004	3.1938	1.0000e-004	3.1939	0.3212	1.0000e-004	0.3213		14.5907	14.5907	3.3000e-004		14.5990
Total	**0.0130**	**0.2043**	**0.0998**	**6.4000e-004**	**5.1478**	**5.2000e-004**	**5.1483**	**0.5184**	**5.1000e-004**	**0.5189**		**66.5082**	**66.5082**	**3.1600e-003**		**66.5872**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2386	0.0000	0.2386	0.0258	0.0000	0.0258			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.2386**	**0.0000**	**0.2386**	**0.0258**	**0.0000**	**0.0258**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	6.2200e-003	0.1996	0.0538	4.9000e-004	1.2007	4.2000e-004	1.2012	0.1218	4.1000e-004	0.1222		51.9174	51.9174	2.8300e-003		51.9882
Worker	6.8100e-003	4.6400e-003	0.0460	1.5000e-004	1.9612	1.0000e-004	1.9613	0.1980	1.0000e-004	0.1981		14.5907	14.5907	3.3000e-004		14.5990
Total	**0.0130**	**0.2043**	**0.0998**	**6.4000e-004**	**3.1620**	**5.2000e-004**	**3.1625**	**0.3198**	**5.1000e-004**	**0.3203**		**66.5082**	**66.5082**	**3.1600e-003**		**66.5872**

3.8 Site Preparation 3 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.6828	6.8952	6.0254	8.6400e-003		0.3900	0.3900		0.3588	0.3588		837.1817	837.1817	0.2708		843.9507
Total	**0.6828**	**6.8952**	**6.0254**	**8.6400e-003**	**0.5303**	**0.3900**	**0.9202**	**0.0573**	**0.3588**	**0.4160**		**837.1817**	**837.1817**	**0.2708**		**843.9507**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0136	9.2800e-003	0.0919	2.9000e-004	6.3877	2.1000e-004	6.3879	0.6424	1.9000e-004	0.6426		29.1815	29.1815	6.6000e-004		29.1980
Total	**0.0136**	**9.2800e-003**	**0.0919**	**2.9000e-004**	**6.3877**	**2.1000e-004**	**6.3879**	**0.6424**	**1.9000e-004**	**0.6426**		**29.1815**	**29.1815**	**6.6000e-004**		**29.1980**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2386	0.0000	0.2386	0.0258	0.0000	0.0258			0.0000			0.0000
Off-Road	0.6828	6.8952	6.0254	8.6400e-003		0.3900	0.3900		0.3588	0.3588	0.0000	837.1817	837.1817	0.2708		843.9507
Total	**0.6828**	**6.8952**	**6.0254**	**8.6400e-003**	**0.2386**	**0.3900**	**0.6286**	**0.0258**	**0.3588**	**0.3845**	**0.0000**	**837.1817**	**837.1817**	**0.2708**		**843.9507**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0136	9.2800e-003	0.0919	2.9000e-004	3.9225	2.1000e-004	3.9227	0.3959	1.9000e-004	0.3961		29.1815	29.1815	6.6000e-004		29.1980
Total	**0.0136**	**9.2800e-003**	**0.0919**	**2.9000e-004**	**3.9225**	**2.1000e-004**	**3.9227**	**0.3959**	**1.9000e-004**	**0.3961**		**29.1815**	**29.1815**	**6.6000e-004**		**29.1980**

3.9 Grading 3 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3977	0.0000	0.3977	0.0430	0.0000	0.0430			0.0000			0.0000
Off-Road	0.6074	6.0287	5.9508	8.6500e-003		0.3332	0.3332		0.3065	0.3065		837.6871	837.6871	0.2709		844.4602
Total	**0.6074**	**6.0287**	**5.9508**	**8.6500e-003**	**0.3977**	**0.3332**	**0.7309**	**0.0430**	**0.3065**	**0.3495**		**837.6871**	**837.6871**	**0.2709**		**844.4602**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0127	8.3200e-003	0.0844	2.8000e-004	6.3877	2.0000e-004	6.3879	0.6424	1.9000e-004	0.6426		28.1117	28.1117	5.9000e-004		28.1265
Total	**0.0127**	**8.3200e-003**	**0.0844**	**2.8000e-004**	**6.3877**	**2.0000e-004**	**6.3879**	**0.6424**	**1.9000e-004**	**0.6426**		**28.1117**	**28.1117**	**5.9000e-004**		**28.1265**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1790	0.0000	0.1790	0.0193	0.0000	0.0193			0.0000			0.0000
Off-Road	0.6074	6.0287	5.9508	8.6500e-003		0.3332	0.3332		0.3065	0.3065	0.0000	837.6871	837.6871	0.2709		844.4602
Total	**0.6074**	**6.0287**	**5.9508**	**8.6500e-003**	**0.1790**	**0.3332**	**0.5122**	**0.0193**	**0.3065**	**0.3258**	**0.0000**	**837.6871**	**837.6871**	**0.2709**		**844.4602**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0127	8.3200e-003	0.0844	2.8000e-004	3.9225	2.0000e-004	3.9227	0.3959	1.9000e-004	0.3961		28.1117	28.1117	5.9000e-004		28.1265
Total	**0.0127**	**8.3200e-003**	**0.0844**	**2.8000e-004**	**3.9225**	**2.0000e-004**	**3.9227**	**0.3959**	**1.9000e-004**	**0.3961**		**28.1117**	**28.1117**	**5.9000e-004**		**28.1265**

3.10 Building Construction 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	5.8000e-003	0.1893	0.0505	4.8000e-004	1.9540	3.7000e-004	1.9544	0.1972	3.5000e-004	0.1975		51.4039	51.4039	2.7000e-003		51.4714
Worker	0.0191	0.0125	0.1265	4.2000e-004	9.5815	3.0000e-004	9.5818	0.9636	2.8000e-004	0.9639		42.1675	42.1675	8.9000e-004		42.1897
Total	**0.0249**	**0.2018**	**0.1771**	**9.0000e-004**	**11.5355**	**6.7000e-004**	**11.5361**	**1.1608**	**6.3000e-004**	**1.1614**		**93.5714**	**93.5714**	**3.5900e-003**		**93.6611**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	5.8000e-003	0.1893	0.0505	4.8000e-004	1.2007	3.7000e-004	1.2011	0.1218	3.5000e-004	0.1222		51.4039	51.4039	2.7000e-003		51.4714
Worker	0.0191	0.0125	0.1265	4.2000e-004	5.8837	3.0000e-004	5.8840	0.5939	2.8000e-004	0.5941		42.1675	42.1675	8.9000e-004		42.1897
Total	**0.0249**	**0.2018**	**0.1771**	**9.0000e-004**	**7.0844**	**6.7000e-004**	**7.0851**	**0.7157**	**6.3000e-004**	**0.7163**		**93.5714**	**93.5714**	**3.5900e-003**		**93.6611**

3.11 Building Construction 3 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	8.7400e-003	0.2943	0.0897	9.4000e-004	3.9080	3.3000e-004	3.9083	0.3943	3.2000e-004	0.3946		99.9230	99.9230	4.5600e-003		100.0371
Worker	0.0238	0.0150	0.1550	5.4000e-004	12.7753	4.0000e-004	12.7757	1.2849	3.6000e-004	1.2852		54.0703	54.0703	1.0600e-003		54.0967
Total	**0.0326**	**0.3093**	**0.2446**	**1.4800e-003**	**16.6833**	**7.3000e-004**	**16.6840**	**1.6792**	**6.8000e-004**	**1.6799**		**153.9933**	**153.9933**	**5.6200e-003**		**154.1338**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	8.7400e-003	0.2943	0.0897	9.4000e-004	2.4015	3.3000e-004	2.4018	0.2437	3.2000e-004	0.2440		99.9230	99.9230	4.5600e-003		100.0371
Worker	0.0238	0.0150	0.1550	5.4000e-004	7.8449	4.0000e-004	7.8453	0.7918	3.6000e-004	0.7922		54.0703	54.0703	1.0600e-003		54.0967
Total	**0.0326**	**0.3093**	**0.2446**	**1.4800e-003**	**10.2464**	**7.3000e-004**	**10.2471**	**1.0355**	**6.8000e-004**	**1.0362**		**153.9933**	**153.9933**	**5.6200e-003**		**154.1338**

3.12 Paving 2 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5486	5.3983	5.5326	8.1600e-003		0.2993	0.2993		0.2753	0.2753		790.7982	790.7982	0.2558		797.1922
Paving	0.7860					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3346**	**5.3983**	**5.5326**	**8.1600e-003**		**0.2993**	**0.2993**		**0.2753**	**0.2753**		**790.7982**	**790.7982**	**0.2558**		**797.1922**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0119	7.4800e-003	0.0775	2.7000e-004	6.3877	2.0000e-004	6.3879	0.6424	1.8000e-004	0.6426		27.0351	27.0351	5.3000e-004		27.0484
Total	**0.0119**	**7.4800e-003**	**0.0775**	**2.7000e-004**	**6.3877**	**2.0000e-004**	**6.3879**	**0.6424**	**1.8000e-004**	**0.6426**		**27.0351**	**27.0351**	**5.3000e-004**		**27.0484**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5486	5.3983	5.5326	8.1600e-003		0.2993	0.2993		0.2753	0.2753	0.0000	790.7982	790.7982	0.2558		797.1922
Paving	0.7860					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3346**	**5.3983**	**5.5326**	**8.1600e-003**		**0.2993**	**0.2993**		**0.2753**	**0.2753**	**0.0000**	**790.7982**	**790.7982**	**0.2558**		**797.1922**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0119	7.4800e-003	0.0775	2.7000e-004	3.9225	2.0000e-004	3.9227	0.3959	1.8000e-004	0.3961		27.0351	27.0351	5.3000e-004		27.0484
Total	**0.0119**	**7.4800e-003**	**0.0775**	**2.7000e-004**	**3.9225**	**2.0000e-004**	**3.9227**	**0.3959**	**1.8000e-004**	**0.3961**		**27.0351**	**27.0351**	**5.3000e-004**		**27.0484**

3.13 Site Preparation 4 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.5303**	**0.0000**	**0.5303**	**0.0573**	**0.0000**	**0.0573**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	4.3700e-003	0.1472	0.0448	4.7000e-004	1.9540	1.7000e-004	1.9542	0.1972	1.6000e-004	0.1973		49.9615	49.9615	2.2800e-003		50.0185
Worker	5.9600e-003	3.7400e-003	0.0387	1.4000e-004	3.1938	1.0000e-004	3.1939	0.3212	9.0000e-005	0.3213		13.5176	13.5176	2.6000e-004		13.5242
Total	**0.0103**	**0.1509**	**0.0836**	**6.1000e-004**	**5.1478**	**2.7000e-004**	**5.1481**	**0.5184**	**2.5000e-004**	**0.5186**		**63.4791**	**63.4791**	**2.5400e-003**		**63.5427**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2386	0.0000	0.2386	0.0258	0.0000	0.0258			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.2386**	**0.0000**	**0.2386**	**0.0258**	**0.0000**	**0.0258**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	4.3700e-003	0.1472	0.0448	4.7000e-004	1.2007	1.7000e-004	1.2009	0.1218	1.6000e-004	0.1220		49.9615	49.9615	2.2800e-003		50.0185
Worker	5.9600e-003	3.7400e-003	0.0387	1.4000e-004	1.9612	1.0000e-004	1.9613	0.1980	9.0000e-005	0.1981		13.5176	13.5176	2.6000e-004		13.5242
Total	**0.0103**	**0.1509**	**0.0836**	**6.1000e-004**	**3.1620**	**2.7000e-004**	**3.1622**	**0.3198**	**2.5000e-004**	**0.3200**		**63.4791**	**63.4791**	**2.5400e-003**		**63.5427**

3.14 Grading 4 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3988	0.0000	0.3988	0.0431	0.0000	0.0431			0.0000			0.0000
Off-Road	0.5462	5.3239	5.9117	8.6600e-003		0.2865	0.2865		0.2636	0.2636		838.2670	838.2670	0.2711		845.0448
Total	**0.5462**	**5.3239**	**5.9117**	**8.6600e-003**	**0.3988**	**0.2865**	**0.6853**	**0.0431**	**0.2636**	**0.3066**		**838.2670**	**838.2670**	**0.2711**		**845.0448**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0119	7.4800e-003	0.0775	2.7000e-004	6.3877	2.0000e-004	6.3879	0.6424	1.8000e-004	0.6426		27.0351	27.0351	5.3000e-004		27.0484
Total	**0.0119**	**7.4800e-003**	**0.0775**	**2.7000e-004**	**6.3877**	**2.0000e-004**	**6.3879**	**0.6424**	**1.8000e-004**	**0.6426**		**27.0351**	**27.0351**	**5.3000e-004**		**27.0484**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1794	0.0000	0.1794	0.0194	0.0000	0.0194			0.0000			0.0000
Off-Road	0.5462	5.3239	5.9117	8.6600e-003		0.2865	0.2865		0.2636	0.2636	0.0000	838.2670	838.2670	0.2711		845.0448
Total	**0.5462**	**5.3239**	**5.9117**	**8.6600e-003**	**0.1794**	**0.2865**	**0.4659**	**0.0194**	**0.2636**	**0.2830**	**0.0000**	**838.2670**	**838.2670**	**0.2711**		**845.0448**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0119	7.4800e-003	0.0775	2.7000e-004	3.9225	2.0000e-004	3.9227	0.3959	1.8000e-004	0.3961		27.0351	27.0351	5.3000e-004		27.0484
Total	**0.0119**	**7.4800e-003**	**0.0775**	**2.7000e-004**	**3.9225**	**2.0000e-004**	**3.9227**	**0.3959**	**1.8000e-004**	**0.3961**		**27.0351**	**27.0351**	**5.3000e-004**		**27.0484**

3.15 Building Construction 4 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6792	6.5684	5.5597	0.0124		0.2942	0.2942		0.2814	0.2814		1,181.8538	1,181.8538	0.2092		1,187.0848
Total	**0.6792**	**6.5684**	**5.5597**	**0.0124**		**0.2942**	**0.2942**		**0.2814**	**0.2814**		**1,181.8538**	**1,181.8538**	**0.2092**		**1,187.0848**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	8.7400e-003	0.2943	0.0897	9.4000e-004	3.9080	3.3000e-004	3.9083	0.3943	3.2000e-004	0.3946		99.9230	99.9230	4.5600e-003		100.0371
Worker	0.0238	0.0150	0.1550	5.4000e-004	12.7753	4.0000e-004	12.7757	1.2849	3.6000e-004	1.2852		54.0703	54.0703	1.0600e-003		54.0967
Total	**0.0326**	**0.3093**	**0.2446**	**1.4800e-003**	**16.6833**	**7.3000e-004**	**16.6840**	**1.6792**	**6.8000e-004**	**1.6799**		**153.9933**	**153.9933**	**5.6200e-003**		**154.1338**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6792	6.5684	5.5597	0.0124		0.2942	0.2942		0.2814	0.2814	0.0000	1,181.8538	1,181.8538	0.2092		1,187.0848
Total	**0.6792**	**6.5684**	**5.5597**	**0.0124**		**0.2942**	**0.2942**		**0.2814**	**0.2814**	**0.0000**	**1,181.8538**	**1,181.8538**	**0.2092**		**1,187.0848**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	8.7400e-003	0.2943	0.0897	9.4000e-004	2.4015	3.3000e-004	2.4018	0.2437	3.2000e-004	0.2440		99.9230	99.9230	4.5600e-003		100.0371
Worker	0.0238	0.0150	0.1550	5.4000e-004	7.8449	4.0000e-004	7.8453	0.7918	3.6000e-004	0.7922		54.0703	54.0703	1.0600e-003		54.0967
Total	**0.0326**	**0.3093**	**0.2446**	**1.4800e-003**	**10.2464**	**7.3000e-004**	**10.2471**	**1.0355**	**6.8000e-004**	**1.0362**		**153.9933**	**153.9933**	**5.6200e-003**		**154.1338**

3.16 Paving 3 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5486	5.3983	5.5326	8.1600e-003		0.2993	0.2993		0.2753	0.2753		790.7982	790.7982	0.2558		797.1922
Paving	1.3100					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.8586**	**5.3983**	**5.5326**	**8.1600e-003**		**0.2993**	**0.2993**		**0.2753**	**0.2753**		**790.7982**	**790.7982**	**0.2558**		**797.1922**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0119	7.4800e-003	0.0775	2.7000e-004	6.3877	2.0000e-004	6.3879	0.6424	1.8000e-004	0.6426		27.0351	27.0351	5.3000e-004		27.0484
Total	**0.0119**	**7.4800e-003**	**0.0775**	**2.7000e-004**	**6.3877**	**2.0000e-004**	**6.3879**	**0.6424**	**1.8000e-004**	**0.6426**		**27.0351**	**27.0351**	**5.3000e-004**		**27.0484**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5486	5.3983	5.5326	8.1600e-003		0.2993	0.2993		0.2753	0.2753	0.0000	790.7982	790.7982	0.2558		797.1922
Paving	1.3100					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.8586**	**5.3983**	**5.5326**	**8.1600e-003**		**0.2993**	**0.2993**		**0.2753**	**0.2753**	**0.0000**	**790.7982**	**790.7982**	**0.2558**		**797.1922**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0119	7.4800e-003	0.0775	2.7000e-004	3.9225	2.0000e-004	3.9227	0.3959	1.8000e-004	0.3961		27.0351	27.0351	5.3000e-004		27.0484
Total	**0.0119**	**7.4800e-003**	**0.0775**	**2.7000e-004**	**3.9225**	**2.0000e-004**	**3.9227**	**0.3959**	**1.8000e-004**	**0.3961**		**27.0351**	**27.0351**	**5.3000e-004**		**27.0484**

3.17 Site Preparation 5 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.5303**	**0.0000**	**0.5303**	**0.0573**	**0.0000**	**0.0573**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	4.3700e-003	0.1472	0.0448	4.7000e-004	1.9540	1.7000e-004	1.9542	0.1972	1.6000e-004	0.1973		49.9615	49.9615	2.2800e-003		50.0185
Worker	5.9600e-003	3.7400e-003	0.0387	1.4000e-004	3.1938	1.0000e-004	3.1939	0.3212	9.0000e-005	0.3213		13.5176	13.5176	2.6000e-004		13.5242
Total	**0.0103**	**0.1509**	**0.0836**	**6.1000e-004**	**5.1478**	**2.7000e-004**	**5.1481**	**0.5184**	**2.5000e-004**	**0.5186**		**63.4791**	**63.4791**	**2.5400e-003**		**63.5427**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2386	0.0000	0.2386	0.0258	0.0000	0.0258			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.2386**	**0.0000**	**0.2386**	**0.0258**	**0.0000**	**0.0258**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	4.3700e-003	0.1472	0.0448	4.7000e-004	1.2007	1.7000e-004	1.2009	0.1218	1.6000e-004	0.1220		49.9615	49.9615	2.2800e-003		50.0185
Worker	5.9600e-003	3.7400e-003	0.0387	1.4000e-004	1.9612	1.0000e-004	1.9613	0.1980	9.0000e-005	0.1981		13.5176	13.5176	2.6000e-004		13.5242
Total	**0.0103**	**0.1509**	**0.0836**	**6.1000e-004**	**3.1620**	**2.7000e-004**	**3.1622**	**0.3198**	**2.5000e-004**	**0.3200**		**63.4791**	**63.4791**	**2.5400e-003**		**63.5427**

APPENDIX C

Biological Resource Reports

DUDEK

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March 2, 2018 10326

Rich Stabler
Sonoma County Agricultural Preservation and Open Space District
2550 Ventura Avenue
Santa Rosa, California 95403

Subject: Botanical Survey Results for the Estero Trail Project, Sonoma County, California

Dear Mr. Stabler:

This report documents the findings of a botanical survey conducted for the Estero Trail Project (proposed project) near Valley Ford in Sonoma County, California (Figure 1, Regional Map and Figure 2, Site and Vicinity Map). The survey was completed to document existing conditions along the proposed trail alignment and other proposed improvements at the Bordessa property, and to determine whether the project area supports existing special-status plant species, suitable habitat for special-status plant species, or sensitive natural communities.

METHODOLOGY AND CONSTRAINTS

For the purposes of this analysis, the ±130.9-acre survey area consists of the proposed 5-foot wide trail alignment and a 100-foot buffer, and the approximately 1.5-acre staging areas.

Background Research and Literature Review

Prior to conducting the site survey, a review of pertinent online and literature sources was performed. This review consisted of the following online databases and previous reports:

- The California Department of Fish and Wildlife's California Natural Diversity Database (CNDDB) focused on the Valley Ford, California, and surrounding U.S. Geological Survey topographic quadrangles (Duncan Mills, Camp Meeker, Sebastopol, Bodega Head, Two Rock, Tomales, and Point Reyes NE) (CDFW 2017).
- List of plants in the Valley Ford, California, and surrounding U.S. Geological Survey topographic quadrangles from the California Native Plant Society's Inventory of Rare and Endangered Plants of California (CNPS 2017).
- List of potential threatened, endangered, proposed, or candidate species in Sonoma County from the Sacramento Office of the U.S. Fish and Wildlife Service (USFWS 2017).

- Soils map and report for the survey area (USDA 2017).
- Consortium of California Herbaria specimen records (Consortium of California Herbaria 2017).
- Estero Americano Preserve Herbarium Book, prepared by the Sonoma Land Trust, January 2011.
- Rare Plant/Wetland Habitat Assessment–Estero Trail Site, prepared by the County of Sonoma Permit and Resources Management Department (2014).

A list of special-status plant species was generated based on available data. The full list of potentially occurring special-status plant species is included in this report as Attachment 1. An abbreviated list of target special-status species with moderate to high potential to occur was then produced based on available habitat, elevation, soils, geographic range, and past occurrence data. The abbreviated list is discussed further in Table 1 of the Survey Results section of this report. Plants with no to low potential to occur on site due to lack of suitable soils or habitat, or because the project site is outside their known elevation or geographic ranges, are not discussed further in this document.

Potential reference populations for special-status plant species were identified through an analysis of past records documented in the CNDDB (CDFW 2017) and the California Consortium of Herbaria online database (California Consortium of Herbaria 2017).

Survey

Dudek botanist Laura Burris conducted a pedestrian survey of the project area consisting of meandering transects on the following dates: April 13 and 14, May 25 and 26, and August 2 and 3, 2017. The site was previously surveyed by the County Permit and Resource Management staff in 2014 (Table 1). Results of the 2014 surveys were reviewed and field verified during the 2017 surveys.

Table 1
Schedule of Surveys

Date	Hours	Personnel*	Conditions
04/15/14	Unknown	Sonoma County	Unknown
06/23/14	Unknown	Sonoma County	Unknown
04/13/17	0800–1640	LB/JS	55–62ºF, 20–60% cloud cover (cc), 1–5 miles per hour (mph) winds, sporadic rain showers in the morning
04/14/17	0725 – 1630	LB/JS	50 – 62 ºF, 5 - 10% cc, 2-5 mph winds
05/25/17	0805 – 1645	LB/CA	56 – 65 ºF, 10 – 15% cc, 0-5 mph winds

05/26/17	0750 – 1715	LB/CA	56-68 ºF, 0 - 5% cc, 2-5 mph winds
08/02/17	0750–1620	LB/PK	54 – 89 ºF, 0 – 5% cc, 0-5 mph winds
08/03/17	0730 – 1625	LB/PK	56 – 85 ºF, 0% cc, 0-5 mph winds

Note:
* LB: Laura Burris, Dudek; JS: John Spranza, Dudek; CA: Callie Amoaku, Dudek; PK: Paul Keating, Dudek.

The survey followed recommended methodology described in the California Native Plant Society's Botanical Survey Guidelines (CNPS 2001), the California Department of Fish and Wildlife's Protocols for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Natural Communities (CDFW 2009), and the U.S. Fish and Wildlife Service's Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants (USFWS 2000).

The survey was floristic in nature and consisted of walking the trail alignment and a 100-foot buffer. Special-status plant species encountered were recorded using a handheld GPS device. The timing of the survey was such that target species would be evident and identifiable. All botanical resources were identified to a level necessary to determine rarity and botanical nomenclature follows the Jepson Manual: Vascular Plants of California, Second Edition (Baldwin et al. 2012) and The Jepson Online Interchange Project (Regents of the University of California 2017). When appropriate for identification, specimens were collected for further study in a lab setting.

Constraints

California has been experiencing a severe drought during the last 5 years and more. Drought can affect native plant populations, including special-status species, in adverse ways. It is possible that annual seeds in the seed bank will not germinate due to lack of rainfall, or perennial species may perish. That being said, the 2016/2017 rain season produced average rainfall and conditions at the project site were consistent with what would be expected during a normal rainfall year.

Local reference populations for special-status species are primarily located on private land and were inaccessible or public trust land with restricted access, and so were not visited; however, dates of identification and collection of herbarium specimens coincide with the timing of the 2017 surveys, as described above. Thus, the surveys were conducted within a period when potentially occurring special-status species would be evident and identifiable with the exception of western leatherwood (*Dirca occidentalis*), which typically blooms January through March (CNPS 2017). On April 14, 2017, a reference population of western leatherwood was visited adjacent to Salmon Creek Road, northeast of the town of Bodega to determine if plants would be identifiable outside of the winter bloom period. Because this species is a woody perennial shrub to small tree, plants were readily identifiable and distinguishable from surrounding vegetation based on leaves and stem characteristics.

REGULATORY DEFINITIONS AND FRAMEWORK

Special-status Species

For the purposes of this analysis, special-status plant species are defined as plants that are legally protected or that are otherwise considered sensitive by federal, state, or local resource conservation agencies. These species fall into one or more of the following categories:

- Listed by the federal government under the Federal Endangered Species Act of 1973 or the state of California under the California Endangered Species Act of 1970 as endangered, threatened, or rare;
- A candidate for federal or state listing as endangered or threatened;
- Species afforded protection under local or regional planning documents;
- Taxa considered to be "rare, threatened, or endangered in California" as defined by the California Department of Fish and Wildlife (CDFW) and assigned a California Rare Plant Rank (CRPR). The CDFW system includes six rarity and endangerment ranks for categorizing plant species of concern, as follows:
    - CRPR 1A – Plants presumed to be extinct in California
    - CRPR 1B – Plants that are rare, threatened, or endangered in California and elsewhere
    - CRPR 2A – Plants presumed to be extinct in California, but more common elsewhere
    - CRPR 2B – Plants that are rare, threatened, or endangered in California, but more common elsewhere
    - CRPR 3 – Plants about which more information is needed (a review list)
    - CRPR 4 – Plants of limited distribution (a watch list)

  Plants ranked as CRPR 1A, 1B, 2A, and 2B may qualify as endangered, rare, or threatened species within the definition of State California Environmental Quality (CEQA) Guidelines Section 15380. CDFW recommends that potential impacts to CRPR 1 and 2 species be evaluated in CEQA documents. In general, CRPR 3 and 4 species do not meet the definition

of endangered, rare, or threatened pursuant to State CEQA Guidelines Section 15380, but these species may be evaluated on a case-by-case basis.

Sensitive Natural Communities and Habitats

Sensitive natural communities or habitats are defined as one or more of the following:

- Natural community with a state Rarity Rank of S3 or lower.
- Designated in the Sonoma County Local Coastal Program (2015 Draft) or the 1876 California Coastal Act (Section 30107.5) as an environmentally sensitive habitat area (ESHA). ESHAs are defined as "any area in which plant or animal life or their habitats are either rare or especially valuable because of their specific nature or role in an ecosystem, and which could be easily disturbed or degraded by human activities and developments." Such areas include wetlands (marshes, ponds, reservoirs, seeps), riparian areas, grasslands/coastal prairies, rare plant habitat, and special animal habitat.
- Wetlands and waters protected under the California Coastal Act or Sections 401 and 404 of the Clean Water Act (Coastal Commission 1994).

PROJECT SITE DESCRIPTION

Proposed Project

The proposed project would include the selection of a general location (within the 100-foot buffer area; approximately 50 feet on either side of the proposed trail) for two public access trails over a portion of the approximately 495-acre Bordessa property. The trail easement would be 50 feet wide and approximately 5 miles in length. The proposed trail system would be the principal means for providing comprehensive public access to the property. The trails would be constructed for pedestrian use and hand-carried non-motorized boats, kayaks, and canoes. The trail would be 5 feet wide, with a surface of compacted native material or other permeable surface, including wet crossings made of rock, within the easement. Trail marker posts and benches would be placed along the trail. The existing main access road and gate, or improved replacements, are expected to remain in similar locations. Two staging areas not to exceed 1.5 acres in size would be added to accommodate parking for trail users. Each staging area would be suitable for use by pedestrians, bicyclists, and drivers of motor vehicles. Staging areas may include one or more of the following: restroom facilities, accessible parking, bicycle parking, picnic tables, benches, trash and recycling containers, and operations signage. Likely improvements would consist of entry road improvements and road extension to provide

operations, maintenance, emergency vehicle access, and public access to the larger southern staging area.

Soils

According to the Natural Resources Conservation Service (USDA 2017), nine soil types are mapped within the project site (Figure 3): Blucher fine sandy loam (overwash), 0% to 2% slopes, is a somewhat poorly drained, non-saline to very slightly saline soil derived from sedimentary rock. Kneeland sandy loam (sandy variant), 2% to 15% and 15% to 30% slopes, is a well-drained residuum weathered from sedimentary rock. Kneeland rocky sandy loam (sandy variant), 9% to 30% slopes, is a well-drained residuum weathered from sedimentary rock found on back and side slopes on marine terraces. Los Osos clay loam (thin solum), 30% to 50% slopes, is a well-drained residuum weathered from sedimentary rock found on hillsides. The remaining soil type is Steinbeck loam occurring on 2% to 9% slopes, 9% to 15% slopes, 9% to 15% slopes (eroded), 15% to 30% slopes (eroded), and 30% to 50% slopes (eroded). This is a moderately well-drained residuum weathered from sandstone found on back and side slopes of terraces.

Vegetation Communities and Land Cover Types

The land cover within the project area consists of a combination of terrestrial non-vegetative land covers and natural vegetation communities, as well as aquatic land cover types. The vegetation communities and land covers have been adapted from the Manual of California Vegetation, Second Edition (Sawyer et al. 2009), and the California Wildlife Habitat Relationship System (originally published by Mayer and Laudenslayer in 1988). The following vegetation communities and land cover types have been documented on site and are described in further detail below: California annual grassland, common velvet grass–sweet vernal grass meadows, perennial ryegrass fields, slough sedge swards, purple needlegrass grassland, coyote brush scrub, arroyo willow thickets, eucalyptus groves, Baltic and Mexican rush marshes, ruderal roadways/developed, seasonal wetlands, seep, pond, intermittent drainage, ephemeral drainage, and vegetated swale (Figure 4, Vegetation Communities).

California Annual Grassland. The dominant habitat type in the project area, the California annual grassland on site is dominated by non-native grasses such as slender wild oats (*Avena barbata*), velvet grass (*Holcus lanatus*), big quaking grass (*Briza maxima*), little quakinggrass (*Briza minor*), and annual dogtails (*Cynosurus echinatus*). Also present in this habitat are non-native forbs such as bull thistle (*Cirsium vulgare*), Italian plumeless thistle (*Carduus pycnocephalus*), bird's-foot trefoil (*Lotus corniculatus*), smooth cat's ear (*Hypochaeris glabra*), hairy cat's ear (*H. radicata*), pale flax (*Linum bienne*), and common sheep sorrel (*Rumex acetosella*). Native grasses and forbs were present in less density than the non-natives and include:

purple needlegrass (*Stipa pulchra*), meadow barley (*Hordeum brachyantherum*), common yarrow (*Achillea millefolium*), dwarf brodiaea (*Brodiaea terrestris*), California poppy (*Eschscholzia californica*), miniature lupine (*Lupinus bicolor*), blue-eyed grass (*Sisyrinchium bellum*), and western brackenfern (*Pteridium aquilinum*). Congested-headed hayfield tarplant (*Hemizonia congesta* ssp. *congesta*), a California Rare Plant Rank (CRPR) 1B.2 species, was present in large numbers in the grassland on site.

Common Velvet Grass–Sweet Vernal Grass Meadows (*Holcus lanatus–Anthoxanthum odoratum* Herbaceous Semi-Natural Alliance). Common velvet grass–sweet vernal grass meadows on site is co-dominated by these two non-native grass species. This vegetation community generally occurs in more mesic areas of the California annual grassland in the western hills of the project site. Non-native sweet briar rose (*Rosa rubiginosa*) also occurs sporadically in this vegetation community.

Perennial Ryegrass Fields (*Lolium perennis* (*Festuca perennis*) Herbaceous Semi-Natural Alliance). Perennial ryegrass fields on site contain nearly 100% cover of perennial ryegrass (*Festuca perennis*). This vegetation community occurs directly adjacent to the barn on site and is typically associated with moist soils.

Slough Sedge Swards (*Carex obnupta* Herbaceous Alliance). Slough sedge swards occur in the grassland throughout the project site where moisture appears to be maintained in the soil due to the site's microtopography. This vegetation community is dominated by slough sedge (*Carex obnupta*), with some velvet grass, sweet vernal grass, poison hemlock (*Conium maculatum*), and California blackberry (*Rubus ursinus*) interspersed.

Purple Needlegrass Grassland (*Nassella* (*Stipa*) *pulchra* Herbaceous Alliance). Purple needlegrass grassland occurs sporadically throughout the grassland in the southern and western portions of the project site. This vegetation community is characterized by at least 10% total cover of purple needle grass (*Stipa pulchra*). Other species commonly found in this vegetation community include native forbs such as Douglas iris (*Iris douglasiana*), California compassplant (*Wyethia angustifolia*), coyote mint (*Monardella villosa*), and purple sanicle (*Sanicula bipinnatifida*).

Coyote Brush Scrub (*Baccharis pilularis* Shrubland Alliance). Coyote brush (*Baccharis pilularis*) is the dominant shrub in this vegetation community. Coyote brush scrub occurs intermittently in the western portion of the project site, primarily on north- and east-facing hill slopes. Other shrub species observed in this vegetation community include sweet briar rose, California coffee berry (*Frangula californica*), hawthorn (*Crataegus* spp.), and common gorse (*Ulex europaeus*). Scattered Monterey pine trees (*Pinus radiata*) are also present in low numbers

within this vegetation community on the northwestern slopes within the project site. The herbaceous understory of this vegetation community contains grass and herb species consistent with those found in California annual grassland, described above, with the addition of a high concentration of western brackenfern.

Arroyo Willow Thickets (*Salix lasiolepis* Shrubland Alliance). Arroyo willow (*Salix lasiolepis*) is the dominant tree cover along the two intermittent drainages on site. Other tree species observed with the arroyo willow along the central drainage include Lombardy poplar (*Populus nigra*) and blue gum (*Eucalyptus globulus*). The understory of this vegetation community primarily consisted of rushes (*Juncus patens* and *J. effusus*) and western brackenfern.

Eucalyptus Groves (*Eucalyptus* (*globulus, camaldulensis*) Woodland Semi-Natural Alliance). Several eucalyptus (also known as blue gum; *Eucalyptus globulus*) groves occur on site, one along an ephemeral drainage in the western portion of the project site and the other along the main, central intermittent drainage. This vegetation community is dominated by blue gum in the overstory, with sporadic shrub and small tree species in the understory including arroyo willow, hawthorn (*Crataegus* spp.), poison oak (*Toxicodendron diversilobum*), and California blackberry. Western brackenfern and grasses typical of the California annual grassland described above were common in the herbaceous layer.

Baltic and Mexican Rush Marshes (*Juncus (balticus, mexicanus*) Herbaceous Alliance). This vegetation community consisted of a mix of *Juncus* species including *Juncus balticus*, *J. mexicanus*, *J. patens*, and *J. effusus*. The rush marshes occurred along the drainages and adjacent to the Estero where they mixed with pickleweed (*Salicornia* spp.).

Ruderal Roadways/Developed. This land cover type consisted of the developed dirt and gravel access road leading from Highway 1 to the barn on site, as well as the barn and associated anthropogenic influences associated with cattle ranching. Vegetation is generally absent from the access road, and Himalayan blackberry (*Rubus armeniacus*) was common adjacent to the barn.

Seasonal Wetlands. Seasonal wetlands are similar to the seeps on site in that they appear to have some groundwater influence; however, they do not appear to maintain saturation to the extent of the seeps. These wetlands were found primarily in the western portion of the project site on hills and many were associated with microtopography and small depressions in the hillslopes. The dominant species in the seasonal wetlands consisted of slough sedge, poison hemlock, and sweet briar rose.

Seeps. A number of seeps occur within the project site. Seeps are area where groundwater seeps through the top layers of soil, creating hydric conditions in an otherwise xeric area of

grassland. Several seeps occur along the intermittent drainages and appear to contribute to the water flow of these systems. Vegetation observed within the seeps include slough sedge, rushes, and poison hemlock.

Intermittent Drainage. There are two intermittent drainages within or directly adjacent to the project site. The central drainage flows from north to south through the center portion of the project site, and the proposed trail alignment crosses it twice. A second drainage borders the proposed trail alignment at the eastern edge of the project site. The channels are characterized by defined bed and bank created by the flow of water through the systems. Common plant species associated with both drainages include rushes (*Juncus effusus*, *J. patens*, *J. mexicanus*), arroyo willow, velvet grass, and sweet vernal grass. Water was present in these drainages during the August surveys and is assumed to be present year-round; however, these features appear only to flow during the rainy season. Where water was ponded, species such as duckweed (*Lemna* spp.) and lanceleaf water plantain (*Alisma lanceolatum*).

Ephemeral Drainage. Two ephemeral drainages occur in the western portion of the project site, draining water runoff from the western hills east to the central intermittent drainage. These two drainages contain defined bed and banks but appear to maintain water flow only during the rainy season. Neither of these drainages held water during the May surveys. The southernmost drainage contains a mature overstory of blue gum, whereas the other does not have a tree canopy. Common species observed in these drainages include Himalayan blackberry, western brackenfern, swordfern (*Polystichum minutum*), and hawthorn.

Vegetated Swale. One vegetated swale occurs directly adjacent and to the west of the gravel access road on site. This feature appears to channel rain water runoff from the hill west of the gravel access road, south to a culvert under the road, and eventually feeds into the central intermittent drainage. Vegetation present in this feature consists primarily of sweet vernal grass, velvet grass, congested-headed hayfield tarplant, and pennyroyal (*Mentha pulegium*).

Representative photographs of the project area are included in Attachment 2 of this report.

SURVEY RESULTS

Special-Status Plants

Based on results of the records searches described above, 116 special-status plant species have been documented in the vicinity of the project site. Of these, 104 species were removed from consideration due to lack of suitable habitat, or low quantity of habitat, or the site was out of the species' known geographic or elevation range (refer to Attachment 1).

The 12 remaining species, Johnny-nip (*Castilleja ambigua* var. *ambigua*), golden larkspur (*Delphinium luteum*), western leatherwood (*Dirca occidentalis*), fragrant fritillary (*Fritillaria liliacea*), woolly-headed gilia (*Gilia capitata* ssp. *tomentosa*), congested-headed hayfield tarplant, harlequin lotus (*Hosackia gracilis*), Baker's goldfields (*Lasthenia californica* ssp. *bakeri*), Point Reyes checkerbloom (*Sidalcea calycosa* ssp. *rhizomata*), purple-stemmed checkerbloom (*Sidalcea malviflora* ssp. *purpurea*), two-fork clover (*Trifolium amoenum*), and San Francisco owl's-clover (*Triphysaria floribunda*) have a moderate or high potential to occur, or have been identified on site during the botanical surveys (Table 2).

Table 2
Target Special-Status Species

Scientific Name	Common Name	Status	Observed During 2017 Surveys
		Federal/State/CRPR or Other	*(Yes/No)*
Castilleja ambigua var. *ambigua*	Johnny-nip	None/None/4.2	Yes
Delphinium luteum	golden larkspur	FE/CR/1B.1	No
Dirca occidentalis	western leatherwood	None/None/1B.2	No
Fritillaria liliacea	fragrant fritillary	None/None/1B.2	No
Gilia capitata ssp. *tomentosa*	woolly-headed gilia	None/None/1B.1	No
Hemizonia congesta ssp. *congesta*	congested-headed hayfield tarplant	None/None/1B.2	Yes
Hosackia gracilis	harlequin lotus	None/None/4.2	Yes
Lasthenia californica ssp. *bakeri*	Baker's goldfields	None/None/1B.2	No
Sidalcea calycosa ssp. *rhizomata*	Point Reyes checkerbloom	None/None/1B.2	No
Sidalcea malviflora ssp. *purpurea*	purple-stemmed checkerbloom	None/None/1B.2	No
Trifolium amoenum	two-fork clover	FE/None/1B.1	No
Triphysaria floribunda	San Francisco owl's-clover	None/None/1B.2	No

Sources: CNPS 2017, CDFW 2017, USFWS 2017.
Notes: CRPR = California Rare Plant Rank.
Federal Status:
FE = federal endangered species
State Status:
CR = California rare species
CRPR:
1B = plants rare, threatened, or endangered in California and elsewhere
4 = plants of limited distribution – a watch list
Threat Ranks:
.1 = seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)
.2 = moderately threatened in California (20%–80% of occurrences threatened/moderate degree and immediacy of threat)

All species observed within the project area were identified to the lowest taxonomic level to determine rarity and are included in this report in Attachment 3.

Golden larkspur, western leatherwood, fragrant fritillary, woolly-headed gilia, Baker's goldfields, Point Reyes checkerbloom, purple-stemmed checkerbloom, two-fork clover, and San Francisco owl's-clover have potential to occur in the habitats present in the survey area; however, these species were not identified in the survey area during the 2017 botanical surveys. Several species within the same genera as these species (*Trifolium* and *Sidalcea*) were noted within the survey area and voucher specimens were collected to verify identification in a lab setting.

Johnny-nip, congested-headed hayfield tarplant, and harlequin lotus were identified on site during the botanical survey and are discussed in further detail in the following section.

Johnny-Nip (*Castilleja ambigua* var. *ambigua*). Johnny-nip is a hemiparasitic annual herb found in coastal bluff scrub, coastal prairie, coastal scrub, marshes and swamps, alley and foothill grassland, and along the margins of vernal pools. This species generally blooms from March through August at elevations ranging from 0 to 1,427 feet above mean sea level (amsl) (CNPS 2017). Johnny-nip has a CRPR of 4.2, meaning it is of limited distribution in California and fairly endangered in California (CNPS 2017).

This species was observed in the grassland habitat in the eastern portion of the project site during the 2017 botanical survey (Figure 5, Botanical Resources). Approximately nine individuals were documented. Common associates of this species included congested-headed hayfield tarplant, meadow barley, and California button-celery (*Eryngium aristulatum*).

Congested-Headed Hayfield Tarplant (*Hemizonia congesta* ssp. *congesta*). Congested-headed hayfield tarplant is an annual herb found in valley and foothill grasslands and sometimes along roadways. This species generally blooms from April through November at elevations ranging from 66 to 1,837 feet amsl (CNPS 2017). Congested-headed hayfield tarplant has a CRPR of 1B.2, meaning it is rare or endangered in California and elsewhere (CNPS 2017).

This species was observed in the grassland habitat throughout the project site during the 2017 botanical survey. Thousands of individuals were documented, with the largest populations located on west-facing slopes east of the central drainage (Figure 4). Common associates of this species on site include meadow barley, common sheep sorrel, and harlequin lotus. This species was also documented onsite during focused botanical surveys conducted in 2014 (County 2014).

Harlequin Lotus (*Hosackia gracilis*). Harlequin lotus is a perennial rhizomatous herb found in wetlands and along roadsides in the following habitats: broadleafed upland forest, coastal bluff scrub, closed-cone coniferous forest, cismontane woodland, coastal prairie, coastal scrub, meadows and seeps, marshes and swamps, north coast coniferous forest, and valley and foothill grassland. This species generally blooms from March through July at elevations ranging from 0 to

2,297 feet amsl (CNPS 2017). Harlequin lotus has a CRPR of 4.2, meaning it is of limited distribution in California and fairly endangered in California.

This species was observed in the grassland habitat throughout the project site during the botanical survey, although it was most commonly associated with more mesic grasslands and conditions. Hundreds of individuals were documented primarily in the northern half of the project site (Figure 4). Species commonly associated with harlequin lotus include big quakinggrass, slough sedge, common sheep sorrel, and velvet grass.

Sensitive Natural Communities and Environmentally Sensitive Habitat Areas

The following resources were identified onsite and are considered to be sensitive natural communities, as defined by CDFW, and/or ESHAs, as defined by the California Coastal Commission: wetlands, riparian, rare plant habitat, *Viola adunca* habitat, and grasslands. Each of these is discussed further in the text below.

Wetlands. Wetlands onsite include seasonal wetlands, seeps, and drainages. Not only are these wetlands protected by the Coastal Commission as ESHAs, they may also be subject to the jurisdiction of the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (CWA), as well as the State Regional Water Quality Control Board under Section 401 of the CWA. Seasonal wetlands dominated by slough sedge have a state rarity rank of S3, and are thus considered a sensitive natural community by CDFW.

Riparian. Riparian corridors associated with drainages onsite are protected by the Coastal Commission as ESHAs because they represent unique habitat of limited distribution. Additionally, these corridors provide cover and migratory corridors for local and migratory wildlife species. Riparian zones are generally regulated by the CDFW under Section 1600 et. seq. of the California Fish and Game Code, and any alteration to the riparian zone of a stream with defined bed and bank would require a Streambed Alteration Agreement.

Rare Plant Habitat. Occupied habitat for special-status plant species onsite includes those areas where congested-headed hayfield tarplant, johnny jump-up, and harlequin lotus occur (figure 3). These areas provide unique habitat characteristics that make them suitable for rare plants and are protected as ESHAs by the Coastal Commission.

Myrtle's Silverspot Butterfly Habitat. Areas supporting early blue violet (*Viola adunca*), the larval host plant for the federally endangered Myrtle's silverspot butterfly (*Speyeria zerene myrtleae*), were identified during surveys conducted by the County in 2014, and during the 2017 plant surveys (Figure 3). Although not themselves considered rare, early blue violets provide unique habitat

requirements for the life cycle of the Myrtle's silverspot butterfly and are protected as ESHA's by the Coastal Commission.

Grasslands. While the majority of grassland onsite are dominated by non-native annual grasses, there are areas with native grasses and forbs reminiscent of the coastal prairies that were once prevalent in the project region. Through ranching and other human disturbance, the quality of the grasslands have been reduced, but they still provide important functions and habitat values for wildlife and native plants. Thus, the grasslands onsite, especially those with higher cover of native grasses and forbs, such as those in the southeastern portion of the project site, may be protected as ESHAs under Coastal Commission regulations.

CONCLUSIONS AND RECOMMENDATIONS

Special-status Plant Species

Three special-status plant species (Johnny-nip, congested-headed hayfield tarplant, and harlequin lotus) were documented on site. Development of the proposed trail alignment would result in impacts to special-status species through ground-disturbing activities associated with trail construction. The following avoidance, minimization, and mitigation measures should be implemented to reduce impacts on special-status plant populations on site:

1. If construction of the proposed project does not take place within 1 year of the completion of this report, additional rare plant surveys are recommended. Many special-status plant species are annuals and thus may lie dormant in seedbanks or shift geographic location based on annual weather conditions.
2. Prior to ground disturbance in areas occupied by congested-headed hayfield tarplant, a salvage and translocation plan should be developed and implemented. The plan should include plant collection and replanting methods and locations. Because this species is an annual, methods of translocation may include collection of seed, if timing is appropriate, or collection of topsoil. The seed and/or topsoil should be placed in an area of similar topography and soils to ensure the greatest likelihood of translocation success.
3. Buffers (either physical or spatial) should be implemented between the trail alignment and special-status plants/unique native plant assemblages to discourage off-trail exploration/flower picking.

In accordance with survey guidance, if the project does not commence within 1 year, the botanical surveys should be repeated to verify the distribution of special-status species and to document any additional species that may have sprouted from the seedbank or may have been subsequently introduced in the project area.

Sensitive Natural Communities/ESHAs

Five types of sensitive natural communities or ESHAs (wetlands, riparian, rare plant habitat, Myrtle's silverspot butterfly habitat, and grasslands) were documented onsite. The following avoidance and minimization measures are recommended to avoid or reduce potential adverse effects to these resources, and to maintain the functional capacity of each.

1. Prohibit construction within 100 feet of all wetland boundaries, unless an environmental assessment finds the wetland would not be affected by such construction.
2. Completely avoid all potential Myrtle's silverspot butterfly larval host habitat (early blue violet plants). Buffers (either physical or spatial) should be implemented between the trail alignment and Myrtle's silverspot butterfly larval host plant habitat to discourage off-trail exploration in these areas.
3. To the maximum extent practicable, do not remove vegetation within the riparian corridor. If vegetation removal is necessary, applicable authorizations from the CDFW in the form of a Streambed Alteration Agreement would be necessary.
4. Sediment and erosion control measures shall be utilized for any trail construction upslope of wetlands or streams. These measures may include, but are not limited to, biodegradable straw wattles free from weed seed, silt fencing, hydroseeding, or biodegradable erosion control mats/blankets.
5. If avoidance is not possible, compensatory mitigation may be required. A mitigation plan would be drafted to provide implementation and monitoring requirements to ensure that the project would result in no net loss of habitat acreage or ecological function. To ensure no net loss of habitat functions and values, compensatory mitigation would take place either onsite or at an appropriate off-site location at a ration no less than 1:1.

Please contact Laura Burris at lburris@dudek.com or 916.835.9671 if there are any questions or concerns regarding the information presented herein.

Sincerely,

Laura Burris
Botanist
CDFW Voucher Plant Collection Permit No. 2081(a)-10-55-V

Attachments

Figures 1–5

1 Special-Status Plant Species Potential to Occur within the Project Area

2 Representative Site Photographs

3 Plant Species Observed within the Project Area

cc: Christine Kronenberg, Dudek

REFERENCES

Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken, eds. 2012. *The Jepson Manual: Vascular Plants of California*. Second Edition. Berkeley, California: University of California Press.

California Coastal Commission. June 15, 1994. *Procedural Guidance for the Review of Wetland Projects in California's Coastal Zone*. http://www.coastal.ca.gov/web/wetrev/wettitle.html

CDFW (California Department of Fish and Wildlife). 2009. *Protocols for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Natural Communities*. Sacramento, California: CDFW. November 24, 2009.

CDFW. 2017. Rarefind 5. California Natural Diversity Database. CDFW, Biogeographic Data Branch. Accessed March 2017. https://map.dfg.ca.gov/rarefind/view/RareFind.aspx.

CNPS (California Native Plant Society). 2001. *CNPS Botanical Survey Guidelines*. Sacramento, California: CNPS. Revised June 2, 2001.

CNPS. 2017. "Inventory of Rare and Endangered Plants." Online edition, v8-02. Sacramento, California: CNPS, Rare Plant Program. Accessed March 2017. http://www.rareplants.cnps.org.

County of Sonoma. 2014. *Rare Plant/Wetland Habitat Assessment–Estero Trail Site*. County of Sonoma, Permit and Resources Management Department.

Regents of the University of California. 2017. The Jepson Online Interchange Project, University of California, Berkeley. http://ucjeps.berkeley.edu/interchange/ [accessed March 2017].

Sawyer, J.O., T. Keeler-Wolf, and J.M. Evens. 2009. *A Manual of California Vegetation, Second Edition*. Sacramento, California: California Native Plant Society.

Sonoma Land Trust. January 2011. *Estero Americano Preserve Herbarium Book*.

USDA (U.S. Department of Agriculture). 2017. Web Soil Survey for Sonoma County. USDA Natural Resources Conservation Service, Soil Survey Staff. Accessed March 2017. http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm.

USFWS (U.S. Fish and Wildlife Service). 2000. *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants*.

USFWS. 2017. "List of Threatened, Endangered, Potential, or Candidate Species in Sonoma County." Sacramento, California: USFWS. Accessed March 2017.

ATTACHMENT 1

Special-Status Plant Species Potential to Occur within the Project Area

ATTACHMENT 2

Representative Site Photographs

ATTACHMENT 3

Plant Species Observed within the Project Area

Northwestern Pond Turtle (*Actinemys marmorata marmorata*) Habitat Assessment and Surveys Report for the Estero Trail Project Sonoma County, California

Prepared For:

County of Sonoma

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Northwestern Pond Turtle (*Actinemys marmorata marmorata*) Habitat Assessment and Surveys Report for the Estero Trail Project

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Northwestern Pond Turtle (*Actinemys marmorata marmorata*) Habitat Assessment and Surveys Report for the Estero Trail Project

1 INTRODUCTION

At the request of Sonoma County, Dudek conducted a habitat assessment and daytime survey within the Estero Trail project (study area) for the northwestern pond turtle (*Actinemys marmorata marmorata*) (WPT), which is a federal Species of Concern and a California Species of Special Concern. The study area is located within an elevation range from sea level to 119 meters (m) (0 to 390 feet [ft]) above mean sea level, and is located along the Estero American 2 miles west of the town of Valley Ford (Figures 1 and 2, Regional and Vicinity Maps). The site occurs within Section 33, Township 6 North, and Range 10 West of the "Valley Ford" 7.5-minute topographic quadrangles. The approximate center of the study area is located at 38°19'25" North and 122°57' 41" West.

The site is currently owned by the Bordessa family and is known as Bordessa Ranch. In 2010, the Bordessa family submitted an inquiry to the Sonoma County Agricultural Preservation and Open Space District (District) about District purchase of a Conservation Easement over the property, including a public access trail. In 2012, imminent subdivision of the ranch was prevented by the District through purchase of a Conservation Easement. Under the terms of the agreement between the District and the Bordessa family, the District will hold the Conservation Easement over the Property in perpetuity with the intention to preserve its important agricultural, natural, and scenic values, along with a trail easement, to provide the public with outdoor recreational opportunities. Regional Parks and the District have since worked together to develop the trail easement and public access. With a grant from the State Coastal Conservancy, Regional Parks is providing environmental review and easement trail planning.

The proposed project would establish two main pedestrian only trails and parking lots that would allow for low-intensity public recreational access. The proposed trail alignments would not be more than 5 miles in length and the parking lots would not be more than 1.5 acres in combined size (Figure 3, Project Site). The proposed trail system is the principal means for providing public access to the property and the Estero. The trails will be constructed for pedestrian use and hand-carried non-motorized boats, kayaks and canoes. The trail will be 5 ft wide and composed of compacted native material or other permeable surface, including rocked crossings only where the trail would span a stream. Several benches and trail marker posts would be placed along the trail. The existing main access road and gate are expected to remain in similar locations.

The study area contains four man-made ponds, two unnamed intermittent drainages (ID-01 and ID-02), several small ephemeral drainages, and several seeps and springs. The WPT habitat assessment and daytime surveys were conducted on September 26 and 27, 2017, by senior aquatic ecologist Craig Seltenrich and biologist Paul Keating of Dudek.

1.1 Environmental Setting

The site and study area are located in primarily non-native annual grassland habitat, although the southern portion of the site includes tidal habitat along intermittent drainages ID-01 and ID-02 located in the center and eastern portions of the site (Figure 4, Vegetation Communities).

1.2 Vegetation Community Types

California Annual Grassland. The dominant habitat type in the project area, the California annual grassland is dominated by non-native grasses such as slender wild oats (*Avena barbata*), velvet grass (*Holcus lanatus*), rattlesnake grass (*Briza maxima*), little quaking grass (*Briza minor*), hedgehog dogtail grass (*Cynosurus echinatus*). Also present in this habitat are non-native forbs such as bull thistle (*Cirsium vulgare*), Italian thistle (*Carduus pycnocephalus*), birdsfoot trefoil (*Lotus corniculatus*), cat's ears (*Hypochaeris glabra*; *H. radicata*), pale flax (*Linum bienne*), and sheep sorrel (*Rumex acetosella*). Native grasses and forbs were present in less density than the non-natives and include: purple needlegrass (*Stipa pulchra*), yarrow (*Achillea millefolium*), dwarf brodiaea (*Brodiaea terrestris*), California poppy (*Eschscholzia californica*), annual lupine (*Lupinus bicolor*), blue-eyed grass (*Sisyrinchium bellum*), and scattered coyote brush (*Baccharis pilularis*).

Coyote Brush Scrub (*Baccharis pilularis* Shrubland Alliance). Coyote brush (*Baccharis pilularis*) is the dominant shrub in this vegetation community. Coyote brush scrub occurs intermittently in the western portion of the project site, primarily on north- and east-facing hill slopes. Other shrub species observed in this vegetation community include coffeeberry (*Frangula californica*), hawthorn (*Crataegus* spp.), and gorse (*Ulex europaeus*). Scattered Monterey pine trees (*Pinus radiata*) are also present in low numbers within this vegetation community. The herbaceous understory of this vegetation community contains grass and herb species consistent with those found in the California Annual Grassland, described above.

Arroyo Willow Thickets (*Salix lasiolepis* Shrubland Alliance). Arroyo willow (*Salix lasiolepis*) is the dominant tree cover along the two intermittent drainages ID-01 and ID-02. Other tree species observed with the arroyo willow along the central drainage ID-01 include Lombardy poplar (*Populus nigra*) and blue gum (*Eucalyptus globulus*). The understory of this vegetation community primarily consisted of rushes (*Juncus patens* and *J. effusus*), and bracken fern (*Pteridium aquilinum*).

Eucalyptus Groves (*Eucalyptus* (*globulus, camaldulensis*) Woodland Semi-Natural Alliance). Several eucalyptus (*Eucalyptus globulus*) groves occur on site, one along an ephemeral drainage in the western portion of the project site and the other along drainage ID-01.



SOURCE: ArcGIS Online Basemap

FIGURE 1

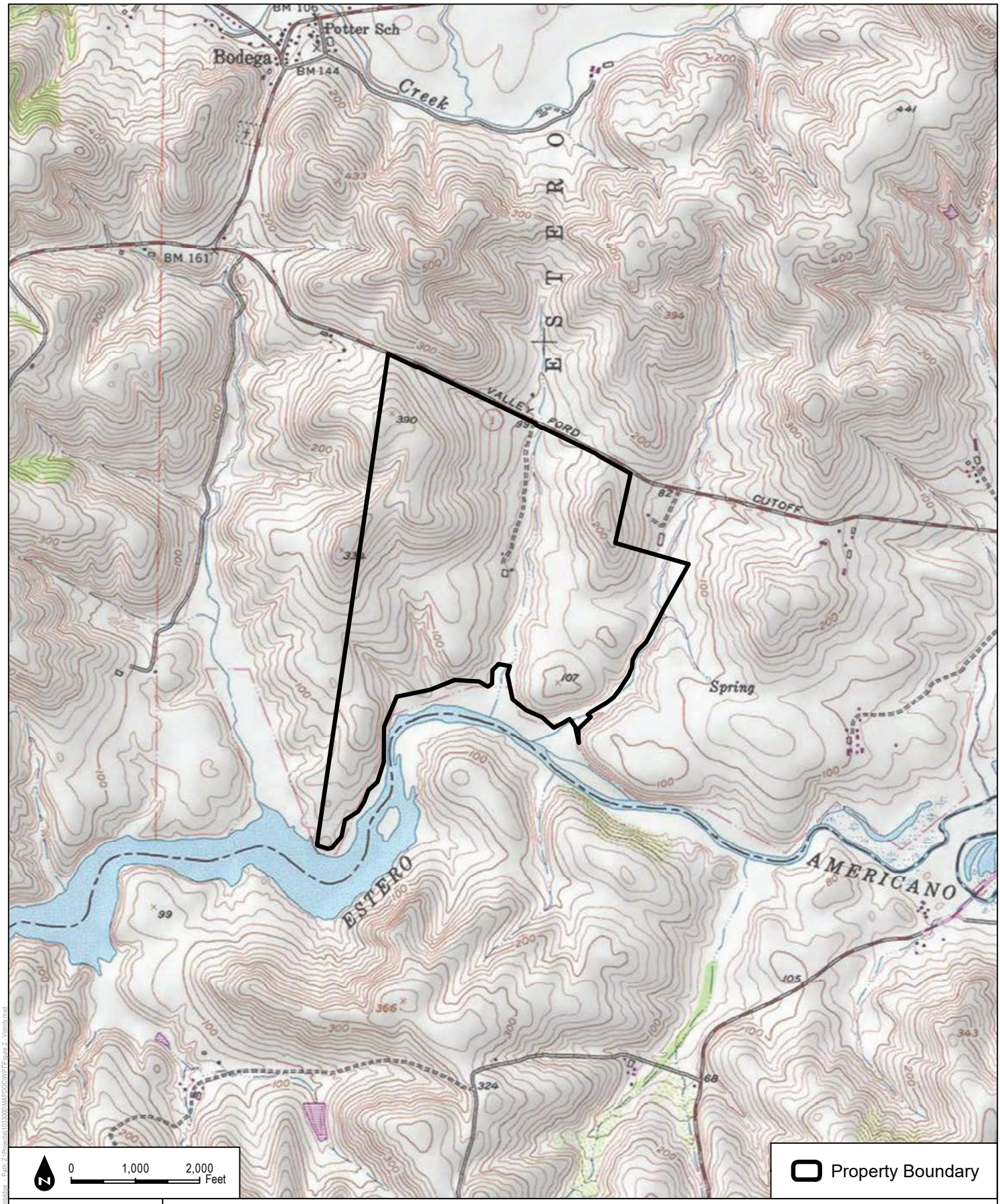
Regional Map

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Bordessa Ranch - Estero Trail

Western Pond Turtle Habitat Assessment and Surveys Report

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SOURCE: USGS 7.5-Minute Series Valley Ford Quadrangle
Township 6N; Range 10W; Sections 27, 28, 33, 34

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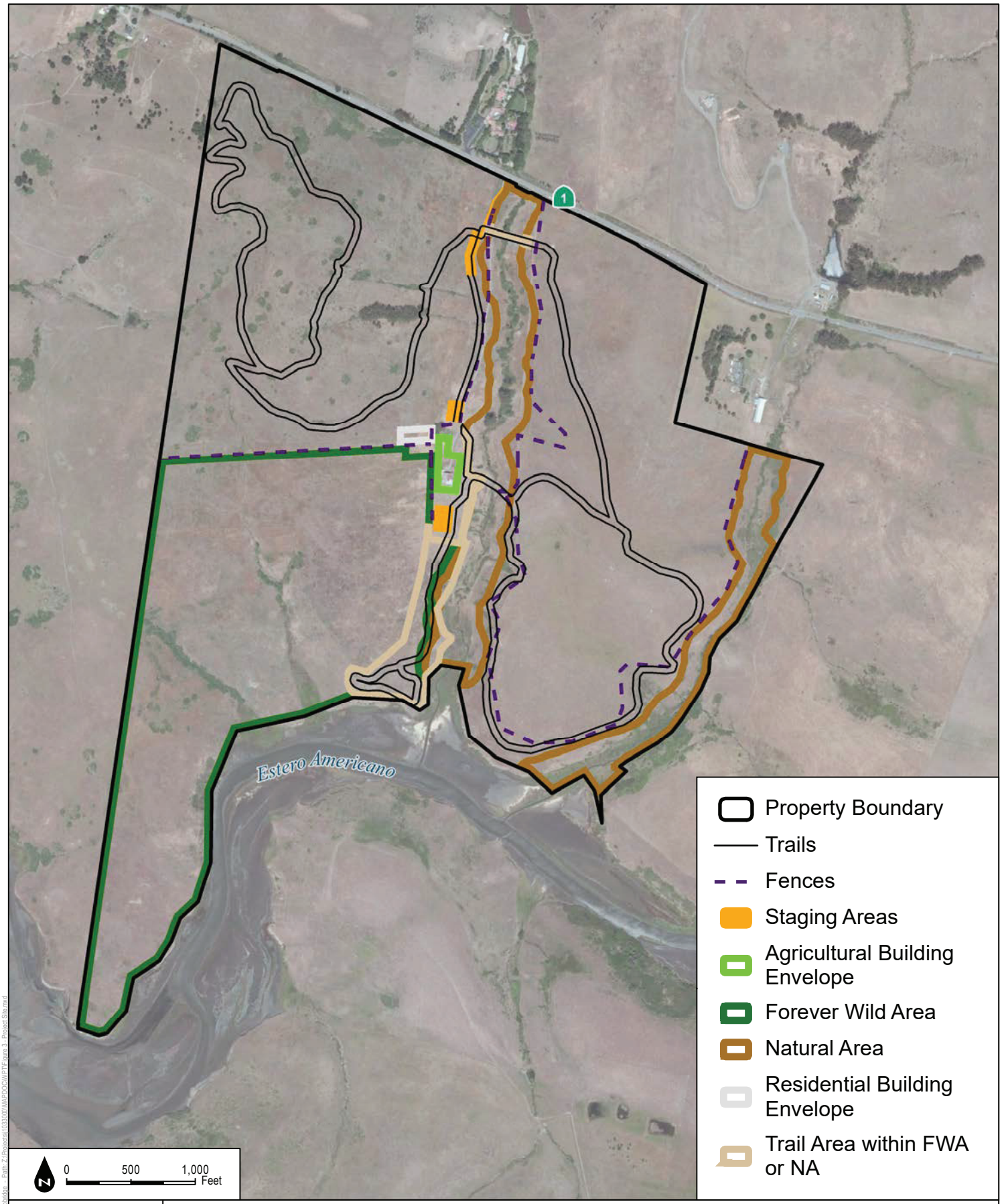
FIGURE 2
Vicinity Map

Bordessa Ranch - Estero Trail

Western Pond Turtle Habitat Assessment and Surveys Report

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SOURCE: Bing Maps (Accessed 2017)

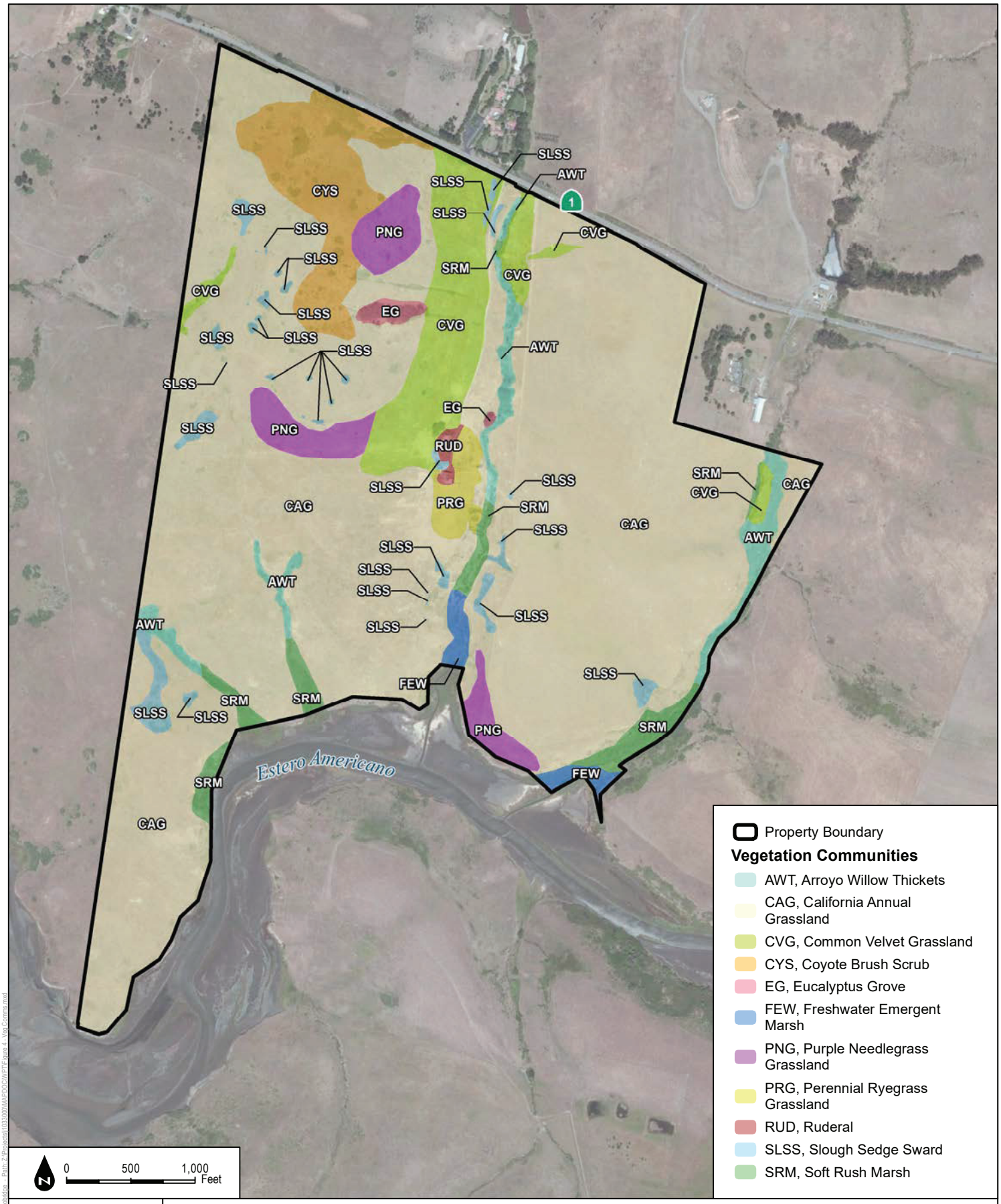
FIGURE 3
Project Site

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Bordessa Ranch - Estero Trail

Western Pond Turtle Habitat Assessment and Surveys Report

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SOURCE: Bing Maps (Accessed 2017)

FIGURE 4

Vegetation Communities

Bordessa Ranch - Estero Trail

Western Pond Turtle Habitat Assessment and Surveys Report

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Slough Sedge Swards (*Carex obnupta* Herbaceous Alliance). Slough sedge swards occur in the grassland throughout the project site where moisture appears to be maintained in the soil due to the site's micro-topography. This vegetation community is dominated by slough sedge (*Carex obnupta*), with some velvet grass, sweet vernal grass (*Anthoxanthum odoratum*), and California blackberry (*Rubus ursinus*) interspersed.

1.3 Aquatic Features

Aquatic habitats present within the site include four man-made ponds (two of which appear to be perennial in average and above average water years), two intermittent drainages (ID-01 and ID-02), and several ephemeral drainages, springs and seeps, and numerous other small shallow ephemeral features.

1.4 Soils

Soils information for the site was obtained from the Natural Resources Conservation Service Soil Survey of Sonoma County, California, Western Part (USDA 2017). Steinbeck loam and Kneeland sandy loam, on varying slopes, are the most common soil types present and both are found throughout the eastern and western hills. Los Osos clay loam, thin solum, 30%–50% slopes occurs on the south facing slopes of both hills. Bulcher fine sandy loam, overwash 0–2% slopes is also present along drainages ID-01 and ID-02 where they meet with the Estero Americano (Figure 5, Natural Resources Conservation Service Soil Types).

1.5 Western Pond Turtle General Ecology

1.5.1 Status

WPT is a federal Species of Concern and a California Species of Special Concern.

1.5.2 Distribution

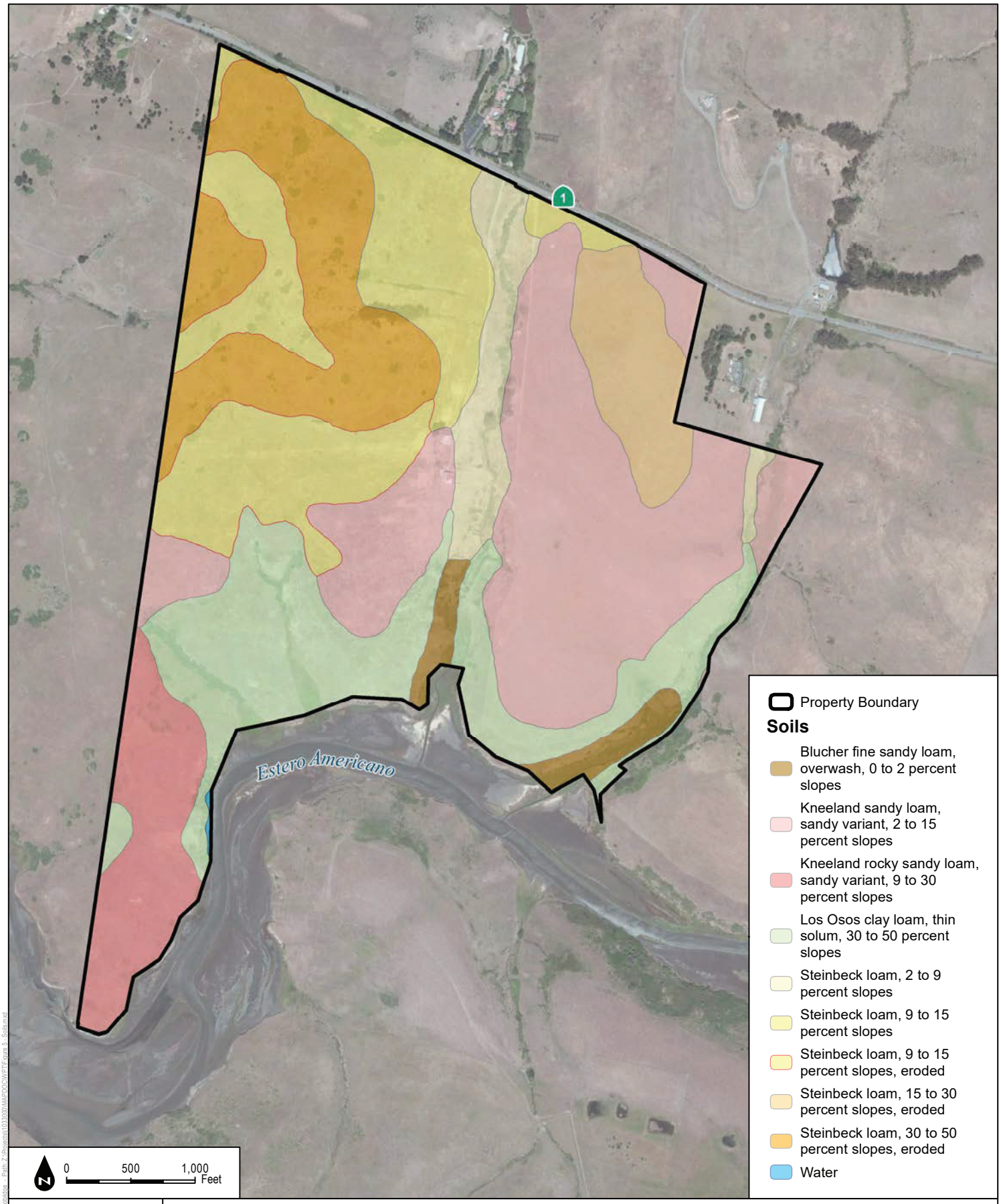
The western pond turtle is the only freshwater turtle native to most of the west coast of temperate North America. They occur from sea level to 6,000 ft (1,858 m) from British Columbia south to northwestern Baja California, principally west of the Sierra-Cascade Crest. The western pond turtle is uncommon to common in suitable aquatic habitat throughout California, west of the Sierra-Cascade crest and absent from desert regions, except in the Mojave Desert along the Mojave River and its tributaries. The northwestern subspecies is restricted to areas from British Columbia south to Marin County in central California, and intergrades with the southern subspecies (*A. marmorata pallidus*) in Marin County.

1.5.3 Habitat Requirements

The western pond turtle is primarily aquatic and inhabits a wide range of fresh and brackish water habitats. Habitat quality seems to be correlated with the abundance of aerial and aquatic basking sites; western pond turtles often reach higher densities where many aerial and aquatic basking sites are available. Preferred habitats for western pond turtles are permanent ponds, lakes, low-flow regions of rivers, and river side-channels and backwater areas.

Deep, still water with abundant emergent woody debris, overhanging vegetation and rock outcrops is optimal for basking and thermoregulation. Western pond turtles are uncommon in high-gradient streams probably because water temperatures, current velocity, lack of food resources, or any combination of these factors may limit their distribution (Holland 1991). Turtles will move significant distances (at least 1.8 miles) if the local aquatic habitat changes (i.e., disappears), but dispersal abilities of juveniles and the recolonization potential of western pond turtles following extirpation of a local population are unknown (Jennings and Hayes 1994). Although adults are habitat generalists, hatchlings and juveniles require very specialized habitat for survival through the first few years. Hatchlings require shallow water habitat with relatively dense submergent or short emergent vegetation in which to forage. Habitats preferred by hatchlings and juveniles are often relatively scarce and subject to disturbance (Jennings and Hayes 1994).

Western pond turtles require upland oviposition sites in the vicinity of aquatic habitats and prefers open areas where the soil is sandy or gravelly and may be found in valley and foothill grasslands, open chaparral, and pine-oak woodland habitats. Nests are typically dug in a substrate with high clay or silt content, but may vary from sandy shorelines to forest soil types. Nesting sites have been recorded as far as 400 m from aquatic areas, but the majority are within 200 m of the aquatic site (Storer 1930; Jennings and Hayes 1994). Slope of nest sites range up to 60 degrees, but most nests are on slopes less than 25 degrees.



SOURCE: Bing Maps (Accessed 2017); USDA NRCS Soils

FIGURE 5

Natural Resources Conservation Service Soil Types

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Western Pond Turtle Habitat Assessment and Surveys Report

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1.5.4 Life History

This species often overwinters in forested habitats. Females emerge from hibernation sites and travel overland to riparian or other aquatic sites in the spring for mating. Breeding activity peaks in June–July when females begin to search for suitable nesting sites up to 325 ft (100 m) away from watercourses (Nussbaum et al. 1983). Mating typically occurs during late April and early May and eggs are deposited between late April and early August. Three to eleven eggs are deposited within excavated nests at least 4 inches (10 centimeters) deep in upland areas, with substrates that typically have high clay or silt fractions, usually in the vicinity of aquatic habitats. Nesting sites have been recorded as far as 400 m from aquatic areas, but the majority is located within 200 m of aquatic sites. Actual incubation takes 73–80 days (Feldman 1982). Sexual maturity is reached at about eight years of age. Low fecundity, low hatchling and juvenile survival, high adult survival and potentially long lifespans characterize this species (Jennings and Hayes 1994). Hatchlings emerge the following spring after overwintering in the nest.

1.5.5 Threats

The greatest threats to western pond turtle populations are habitat loss and fragmentation. Elimination of habitat due to agricultural and urban development, flood control and water diversion threaten the survival of WPT. Competition with invasive turtle species, such as red-eared slider's (*Trachemys scripta elegans*) and hatching predation by bullfrogs threaten recruitment in western pond turtle populations as well (Jennings and Hayes 1994).

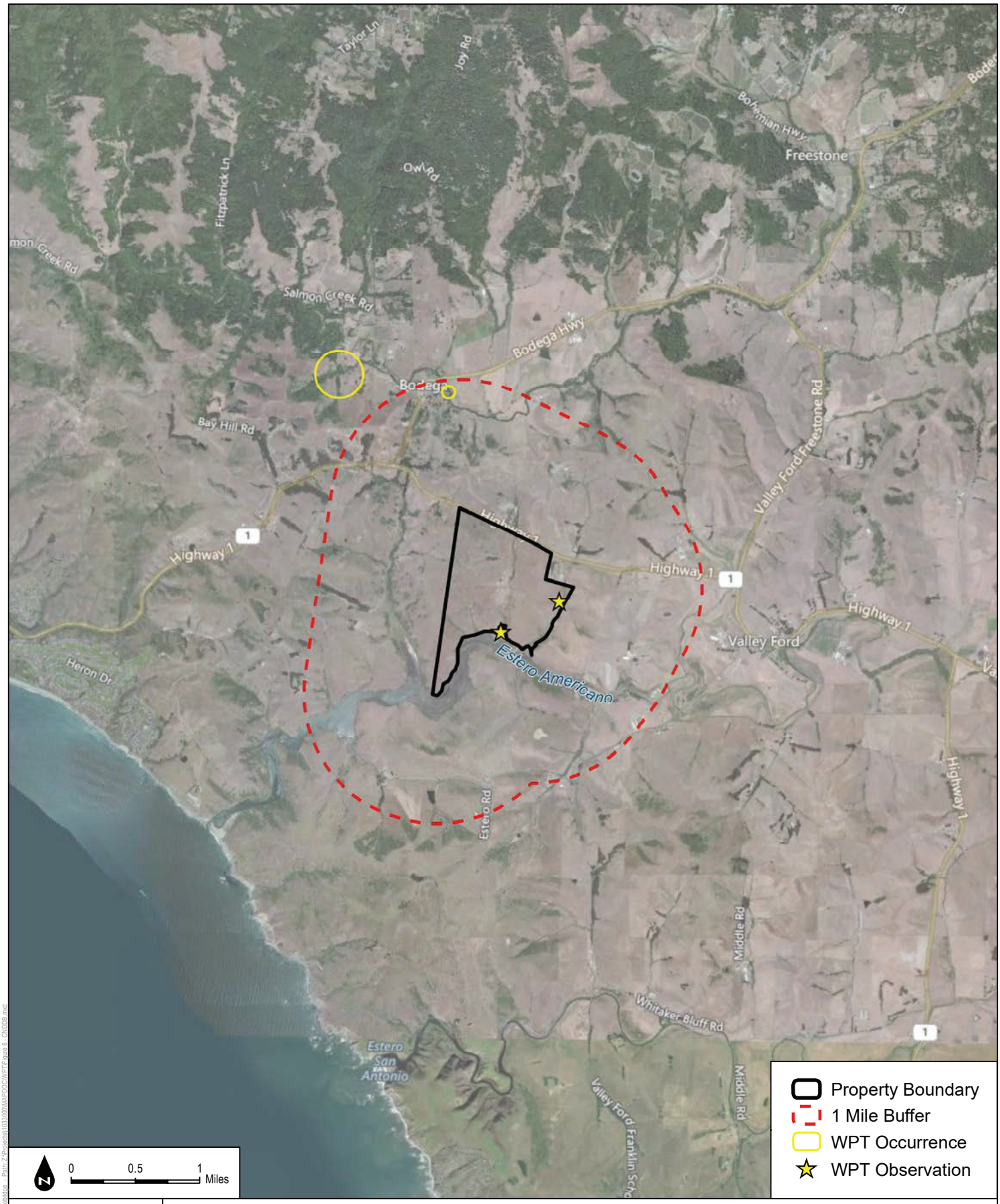
1.6 WPT Occurrence Records within 1.6 kilometers (1.0 miles) of the Site

The California Department of Fish and Wildlife's (CDFW's) California Natural Diversity Data Base (CNDDB) (CDFW 2017) was queried for WPT within 1.6 kilometers (km) (1 mile [mi]) of the project boundaries (Figure 6, CNDDB Occurrences (and Document of Field Observations) of Western Pond Turtle). The closest occurrence record (#641; in 2005), is located approximately 1.6 km north of the project site and represents an adult male observed along Salmon Creek near the town of Bodega. The next nearest occurrence record (#425; in 1995 and 1996) is located 2.3 km (1.5 mi) northwest of the project site and 0.8 km (0.5 mi) west of the town of Bodega. The landowner reported multiple juvenile and adult WPT along Salmon Creek and in a small farm pond adjacent to the creek. Copies of the CNDDB occurrence records are provided in Attachment A.

Additionally, a WPT was identified near the mouth of drainage ID-01 within the tidally influenced portion of the creek during previous site visits (personal communication with Richard Stabler, September 2017, Sonoma County).

1.7 Adjacent Land Use

Similar to the project site, land use in the surrounding area are rural, agricultural and livestock grazing. The surrounding area is characterized by annual grasslands with similar topography (rolling hills). The only other land use in the immediate vicinity is the Sonoma Coast Villa and Spa located immediately east of the project site and Highway 1.



SOURCE: Bing Maps (Accessed 2017); CNDDB (2017)

FIGURE 6

CNDDB Occurrences (and Documentation of Field Observations) of Western Pond Turtle

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Bordessa Ranch - Estero Trail

Western Pond Turtle Habitat Assessment and Surveys Report

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2 METHODS

Habitat assessments were conducted at all aquatic features that could potentially support WPT (regardless of the presence or absence of water at the time of the assessment) within the study area, which included four man-made ponds (i.e., stock ponds) and two intermittent drainages. Visual encounter surveys were conducted at all of the features that contained sufficient water to potentially support presence of the species.

Surveys were conducted at each aquatic location on two consecutive days, September 26 and 27, 2017.

2.1 Aquatic and Upland Habitat Assessments

Aquatic and upland habitat information was collected and recorded on habitat assessment data sheets provided with the survey protocol (Holland 1991). Habitat assessment field data sheets were completed for all aquatic habitats that could potentially support utilization by WPT, regardless of the presence of water during the assessment. These data included: water turbidity; substrate type; air and water temperatures; aquatic and terrestrial vegetation types; sources of disturbance; presence of grazing; presence of non-native species (e.g., bullfrogs, fishes, and other species); description of basking sites; and carapace length of turtles observed. Photographs were taken to document the location and type of pond turtle habitat present.

2.2 Visual Encounter Surveys

WPT surveys were conducted according to protocols developed by Holland (1991). Initially potential aquatic habitats will be viewed from a distance (if possible) using binoculars to scan the shoreline, water surface, and any logs, wood, branches, rocks, etc. that could potentially provide basking habitat. If turtles were not observed after an extended period of time, surveyors continued to slowly approach (in a crouched position) and view the features with and without binoculars. Eventually reaching the margin of the feature. Stream surveys will be conducted by two surveyors slowly walking both banks of the stream, initially viewing the channel from the top of the bank, or margin of the pond at a great enough distance to avoid disturbing turtles, stopping frequently to scan the shoreline and water ahead (using binoculars) for basking turtles or surfacing turtles that might be in the water. Areas containing abundant floating vegetation will be viewed for approximately one additional hour to detect any turtles that may emerge to bask.

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3 RESULTS

Site and habitat characteristics (both aquatic and terrestrial) and a summary of the formal survey results at each pond location are described below. Copies of habitat assessment data sheets completed for each of the sites are provided in Attachment B. Photographs of the aquatic habitats and representative upland areas within the site are provided in Attachment C.

3.1 Aquatic Habitat Descriptions

A total of six aquatic features (ponds 1–4 and intermittent drainages ID-01 and ID-02) were evaluated as potential habitat for WPT (Figure 7, Aquatic Habitats Evaluated within the Estero Trail Study Area).

Ponds 1 and 2 were dry at the time of the assessment, Pond 3 was at least 75% inundated, and Pond 4, which contained dense bulrush appeared to be less than 0.3 m (1 ft) deep. There was no surface flow in either of the two intermittent drainages present on site; however, both drainages contained isolated pools with stretches of dry channel in between.

Site-specific descriptions are provided for the six primary aquatic habitats (ponds 1–4 and intermittent drainages ID-01 and ID-02) documented during the site assessment. The other remaining drainages are all highly ephemeral and do not appear to pond water for a sufficient period to provide habitat for WPT. Multiple seeps occur in the surrounding upland areas, and several spring boxes or watering troughs for cattle are present as well. These features may provide for dispersal, foraging habitat, and cover during various seasons. In addition to the aquatic habitat characteristics at each site, a description of the surrounding uplands and presence of terrestrial cover in the vicinity of the feature is also provided.

3.2 Man-Made Ponds

3.2.1 Pond 1

Pond 1 is located in the northern portion of the study area approximately 925 ft (282 m) west of the access road. This man-made stock pond is situated on a hillside and is fed by a small ephemeral drainage that originates approximately 425 ft (130 m) uphill of the pond. This drainage continues immediately south of the pond and conveys pond overflow to drainage ID-01, located just east of the access road. At the time of the September 2017 site visit, this seasonal pond was almost dry. The only water remaining had low turbidity and occurred in depressions left by cattle hooves in the deepest portion of the pond. When full, this pond measures approximately 12 m (40 ft) long and 12 m (40 ft) wide with a maximum water depth of about 2.25 m (7.4 ft) when full. The small ephemeral drainage below the pond was also dry during the September 2017 site visit.

Emergent vegetation consisted of bulrush and creeping spikerush, and provided about 10% cover throughout the pond. Submerged vegetation was absent since the pond was almost dry. Most of the pond perimeter was earthen banks (70%) although coyote brush, spikerush, grasses, various forbs, and a small redwood tree were also present around the pond. Much of the vegetation in the upper portion of the pond has been recently disturbed and consisted of primarily of gorse, which had been mechanically removed. Very little overhanging vegetation occurred around the margin of the pond; and at mid-day, bulrush, coyote brush, and a small redwood tree provide about 15% shade on the water. The pond substrate was composed primarily of fine silt/mud (90%) with a small amount of sand (10%). The earthen banks were of moderate–high gradient along the pond berm and the remainder of the pond was of moderate gradient.

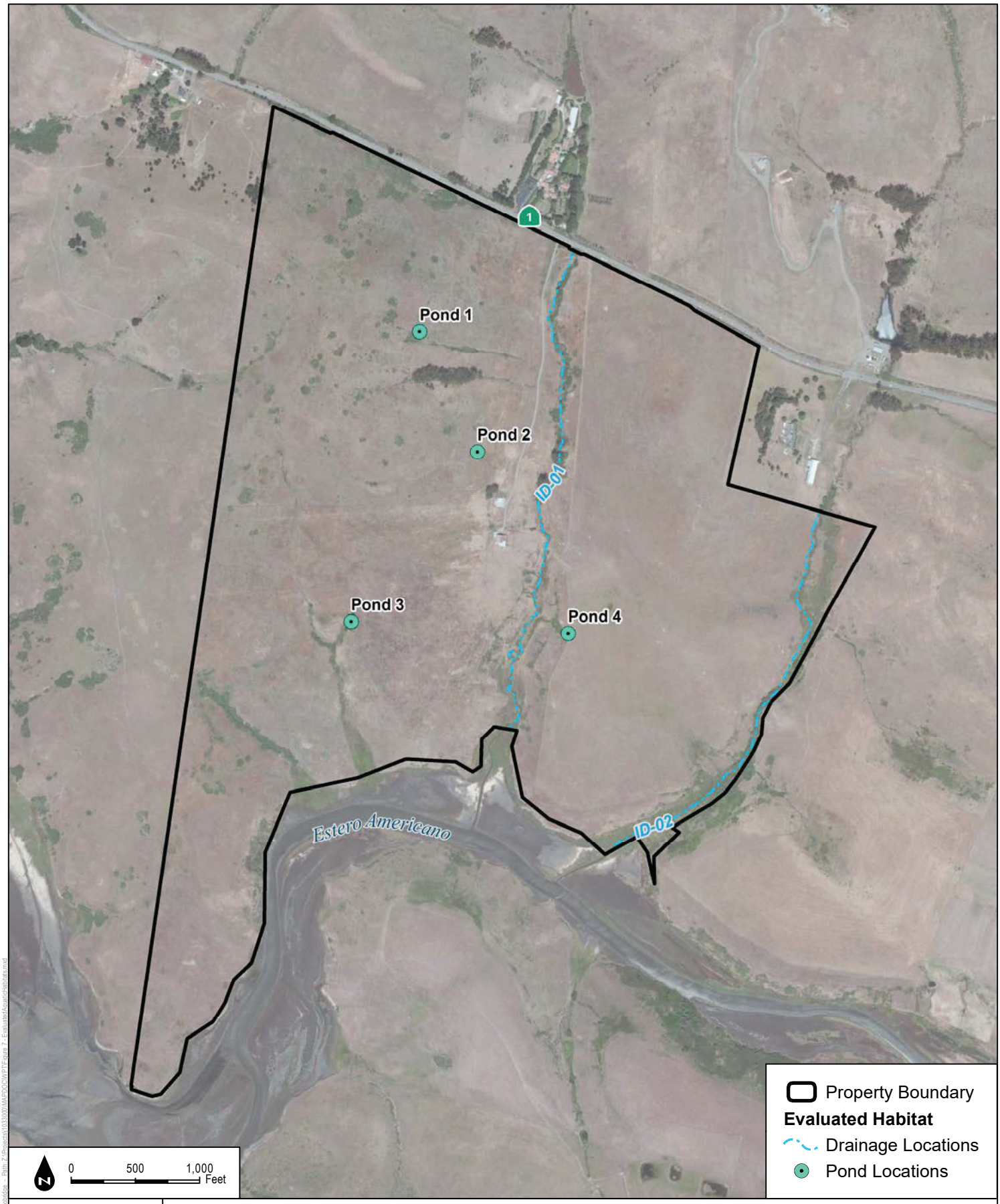
Uplands in the immediate vicinity of the pond consist of disturbed areas (grazing and mechanical weed control) with varying amounts of vegetation. Low to moderate small mammal (pocket gopher) activity was observed in the vicinity of the pond. Terrestrial vegetation including forbs, grasses, and coyote brush provide approximately 15% cover within 15 m (50 ft) of the pond. There are no visible barriers to WPT movement or dispersal.

Pond 1 was almost dry at the time of the survey conducted on September 26, 2017. It is difficult to ascertain when the pond typically dries from aerial imagery; however, given the presence of bulrush and the timing of this survey it is assumed that the pond remains inundated through July or August during most years and likely provides suitable habitat for WPT when inundated. No wildlife species, either terrestrial or aquatic, were observed during the site visit.

3.2.2 Pond 2

Pond 2 is located approximately 305 m (1,000 ft) south-southeast of Pond 1 and about 100 m (330 ft) west of the access road. This man-made stock pond is located on the side of a hill and is not associated with a drainage. The pond berm appears to have been breached at some point in the past, reducing the overall depth and volume of the pond. At the time of the site assessment, this seasonal pond was completely dry and when full is estimated to measure approximately 10 m (33 ft) long and 6 m (20 ft) wide with an estimated maximum water depth of 0.5 m (1.5 ft).

Emergent vegetation consisting of rushes was present around a portion (10%) of the pond margin, providing limited cover and no shade on the water at mid-day. Submerged vegetation was not present due to the absence of water. The pond substrate was composed primarily of silt (90%) with a small amount of sand (10%). The relatively smooth earthen banks extended around the perimeter of the pond and are of moderate to high gradient.



SOURCE: Bing Maps (Accessed 2017)

FIGURE 7

Aquatic Habitats Evaluated within the Estero Trail Study Area

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Uplands in the immediate vicinity of the pond consist of disturbed areas with little or no vegetation. Very little small mammal activity was observed in the vicinity of the pond, and other types of cover (other than limited vegetation) were not present. Terrestrial vegetation around the pond has been disturbed by grazing. There are no visible barriers to WPT movement or dispersal.

3.2.3 Pond 3

Pond 3 is located in the south-western portion of study area near the upper end of an ephemeral drainage that flows into the Estero Americano. The man-made stock pond is fenced off with barbed wire precluding access by cattle, and as a result, very little disturbance was observed around the pond. At the time of the site assessment, this apparently perennial pond was at least 75% inundated, and measured approximately 24 m (80 ft) in length and 11.5 m (38 ft) in width. Due to the heavy growth of duckweed fern (*Azolla* sp.), the maximum and average water depths could not be determined. The drainage leading from the pond to the Estero Americano was dry at the time of the September 2017 site visit.

Emergent vegetation consisted primarily of duckweed fern (which covered the entire surface of the pond) along with scattered sedges, grasses, and forbs. Arroyo willow and coffeeberry provided cover along the eastern margin of the pond. Submerged vegetation could not be evaluated due to the heavy mat of duckweed fern. Overhanging willows and other bank vegetation provided about 20% shade on the water at mid-day. Earthen banks, wood planks, and algal mats provided potential basking sites, and willow branches and potentially root balls underneath the overhanging willows provide additional cover. The pond substrate was composed primarily of silt/mud (90%) with about 10% sand. The mostly earthen banks range from low to moderate in gradient.

Uplands in the immediate vicinity of the pond consist primarily of grassland habitat (highly disturbed in some areas due to grazing) outside the barbed wire fence surrounding the pond, and undisturbed wetland/riparian and upland habitat within the fence area adjacent to the pond. Small mammal activity was generally sparse observed in the vicinity of the pond. Terrestrial vegetation including forbs, grasses, and coyote brush provide approximately 15% cover within 15 m (50 ft) of the pond. There are no visible barriers to WPT movement or dispersal.

During the September 26th site visit audible plops were heard from under the overhanging willows and coffeeberry along the eastern bank of the pond. Due to the heavy cover, a visual confirmation of the species could not be confirmed. However, since the edge of the pond did not appear to be very steep under the willows, the “plop” was likely not due to a WPT, which would have slid into the water rather than “plop.” No other wildlife species, either terrestrial or aquatic, were observed during the site visit.

3.2.4 Pond 4

Pond 4 is a man-made stock pond located in the southern portion of study area approximately 240 ft (73 m) east of drainage ID-01. A narrow drainage occurs below the pond which conveys pond overflow to drainage ID-01. A perimeter fence occurs around this pond precluding cattle access, and as a result, very little disturbance was observed around the pond. The entire pond is currently filled with bulrush, providing about 95% shade on the water at midday. Due to the dense vegetation, the level of inundation could not be determined, although it appeared that the water depth was less than 6 inches. The pond measured approximately 12 m (39 ft) in length and 20 m (68 ft) in width.

Emergent vegetation consisted almost entirely of bulrush which covered the majority (95%) of the pond. Submerged vegetation was not observed since the pond was covered with bulrush. The majority of the pond margin and bank was vegetated with grasses and sedges. Overhanging margin and bank vegetation, which was comprised mostly of grasses, sedges, ferns and blackberry, provides about 15% cover. The pond substrate was composed primarily of fine silt/mud (85%) with a small amount of sand (15%). Moderate to high gradient earthen banks covered with vegetation occurred around the entire perimeter of the pond. Due to the dense bulrush and lack of open water, the pond does not provide suitable aquatic habitat for WPT. No wildlife species, either terrestrial or aquatic, were observed during the site visit.

Uplands in the immediate vicinity of the pond consisted of disturbed and undisturbed areas with varying amounts of vegetation. Low to moderate small mammal (pocket gopher) activity was observed in the vicinity of the pond. Terrestrial vegetation including sedges, grasses, ferns, blackberry, coffeeberry, and coyote brush provided approximately 80% cover within 15 m (50 ft) of the pond. There are no visible barriers to WPT movement or dispersal.

3.3 Unnamed Intermittent Drainages

3.3.1 Drainage ID-01

Drainage ID-01 is located approximately 60 m (200 ft) east of the access road and originates approximately 0.5 mile north of Highway 1. This drainage enters the study area through a culvert under Highway 1 and terminates at the Estero Americano. Stream characteristics and riparian cover varies within drainage ID-01 from the northern to southern ends of the study area. The upper third of the drainage had dense riparian cover with a few small, isolated shallow pools, the middle portion of the drainage contained less dense riparian cover interspersed with open areas lacking riparian cover, and the lower portion of the drainage is tidally influenced upstream of the Estero Americano. The stream channel is relatively narrow and contained periodic isolated pools

including a few plunge pools (that were narrow with varying length) that still contained water. The largest pools (in length) occurred in the tidally influenced portion of the drainage.

The upper third of the drainage contained fairly dense riparian vegetation, consisting of arroyo willow, eucalyptus, and Lombardy poplar, which provided approximately 90% canopy cover. Pools in this section were small and relatively shallow and most were dry, although a few pools still contained a small amount of water. Channel substrates consisted primarily of gravel and cobble with some areas containing finer sediments. The heavy canopy cover was dominated by arroyo willow with scattered eucalyptus and Lombardy poplar.

Riparian cover in the middle portion of the drainage (which extends to the tidally influenced portion of the creek) was less dense and of limited extent (relative to the upper portion of the drainage) interspersed with open areas lacking riparian cover. The primary riparian cover in this portion of the drainage consisted primarily of arroyo willow. This portion of the drainage contained more pools than in the upper part of the drainage, with varying levels of inundation. The average maximum pool depth in this section was estimated at about 1 m (3 ft), with the deepest pool recorded at approximately 2 m (6 ft). Average pool length was approximately 8 m (25 ft) with the longest pool measured at 45 m (150 ft) and widths varied from 1.5 to 3.5 m (5 to 11.5 ft). Emergent vegetation was present in some of the pools, consisting of common rush (*Juncus effuses*), bulrush (*Scirpus* sp.), cattail (*Typha latifolia*), lanceleaf water plantain (*Alisma lanceolatum*), and several forbs. Other plants observed in drainage ID-01 include slough sedge (*Carex obnupta*), velvet grass (*Holcus lanatus*), sweet vernal grass (*Anthoxanthum oderatum*), horsetail (*Equisetum telmateia*), western brackenfern (*Pteridium aquilinum*), and western swordfern (*Polystichum munitum*). A filamentous green alga (*Cladophora* sp.) along with water milfoil (*Myriophyllum* sp.) comprised the majority of submerged vegetation. Channel substrates consisted primarily of silt/mud (85%) and sand (15%). Overhanging, emergent, and submerged vegetation and undercut banks provided the majority of the aquatic cover which averaged 40% along pool margins. Pools generally had moderate to high gradient earthen banks. Terrestrial cover (primarily vegetation) along the stream channel provides up to 90% cover. Western mosquitofish (*Gambusia affinis*) and an unidentified minnow were observed in many of the pools that still contained water.

Upland habitat along the middle portion of the drainage consists primarily of non-native annual grassland, with scattered small mammal (Botta's pocket gopher) burrows, sedges, and shrubs (coyote brush) which provide cover outside of the channel.

The lower portion of the drainage is located within the tidally influenced portion of the creek. Riparian cover was absent in this portion of the drainage. Vegetation along the channel consisted primarily of pickle weed (*Salicornia* sp.) and salt grass (*Distichlis* sp.). The channel varied in

width from about 2 m (6 ft) to 4 m (12 ft). In general, the tidal portion of the drainage consisted of one long pool with varying depth. Channel substrates consisted primarily of silt/mud (85%), sand (5%), and cobble (10%). The channel banks were earthen and generally high gradient. A filamentous green alga was present throughout most of this portion of the drainage. Overhanging and submerged vegetation and undercut banks provided the majority of the aquatic cover which averaged greater than 90% along the channel. Abundant terrestrial cover (vegetation) along the stream channel provides up to 100% cover.

Uplands in the lower portion of the drainage consist primarily of pickle weed and salt grass, which provides 100% cover within 15 m (50 ft) of the drainage.

3.3.2 Drainage ID-02

Drainage ID-02 is located along the eastern boundary of the study area. This drainage originates approximately 0.75 mile north of Highway 1, entering the study area through a culvert under Highway 1 and terminating at the Estero Americano. In general, stream characteristics were similar to drainage ID-01 with habitat characteristics and riparian cover varying from the northern to southern ends of the study area. The upper third of the drainage was fairly incised and relatively open with some scattered willow, the middle portion of the drainage was less incised and contained dense riparian cover that precluded access to the stream channel, and the lower portion of the drainage is tidally influenced upstream of the Estero Americano and lacks riparian cover. The overall channel width varies from approximately 6 to 15 m (20 to 50 ft) in areas that could be accessed. The stream gradient was low (0–1%) in the upper third of the drainage, with increased gradient (1%–3%) in the middle portion, and low gradient (0–1%) again in the lower third of the drainage upstream of the Estero Americano. The upper portion of the drainage is fairly open with sedges, grasses, and scattered willow providing limited canopy cover, with grasses and dense willow canopy dominating the middle portion of the drainage. The lower tidally influenced portion of the drainage lacked a riparian canopy, with the primary vegetation consisting of pickle weed and salt grass.

During the site assessment and surveys, an adult WPT and two juvenile California red-legged frogs (*Rana draytonii*) were observed in duckweed in an isolated pool in the upper portion of the drainage within the site. The pool is located approximately 61 m (200 ft) south of the northern property boundary. When full, this pool measures approximately 20 m (65 ft) long and 1–4 m (3–13 ft) wide. The water temperature was 14.5° C (59° F), with a maximum water depth of approximately 1 m (3 ft), a minimum depth of 0.2 m (0.6 ft), and an average depth of 0.5 m (1.5 ft).

Overhanging vegetation, consisting of grasses, rushes, and ferns was present around 90% of the pool perimeter, providing 35%–45% shade on the water at midday. Emergent vegetation was comprised of duckweed and water plantain which provided about 25% cover. Water clarity was relatively good and submerged vegetation, consisting of water milfoil, and filamentous green algae, provided at least 30% cover. The pond substrate was composed primarily of fine silt/mud (90%) with a small amount of sand (10%). The earthen banks around 70% of the pool were of moderate to high gradient except at the southern end of the pool.

Uplands habitat in the immediate vicinity of the pool consists primarily of grassland habitat (undisturbed by grazing). Terrestrial vegetation, including grasses, sedges, coyote brush, and blackberry, provided approximately 90% cover within 15 m (50 ft) of the pool. Little to no small mammal (pocket gopher) activity was observed in the vicinity of the pool; high grasses made visual observation difficult. There were no visible barriers to WPT movement or dispersal.

The middle portion of the drainage is located on the eastern property line, which is fenced. Due to the fencing and dense riparian canopy along the property line, access to the creek was not possible without cutting vegetation. Arroyo willow was dominant vegetation, providing 95% to 100% cover along the stream channel. The tidal portion of the drainage occurs immediately downstream of this dense riparian area.

3.4 Upland Habitat Description

Upland habitat within the site consists primarily of annual grasslands with riparian habitat present along the drainages, except in the tidally influenced portion of the drainage. Numerous seeps along with scattered spring boxes were also present within the grasslands.

Terrestrial cover near the drainages and ponds consisted of small mammal burrows (primarily Botta's pocket gopher) with burrow densities ranging from sparse to numerous depending on location; other cover consisted of riparian vegetation and shrubs (e.g., coyote brush) located along and adjacent to the drainages.

3.5 Visual Encounter Surveys

Initially, potential aquatic habitats were viewed from a distance (if possible) using binoculars to scan the shoreline, water surface, and any logs, wood, branches, rocks, etc. that could potentially provide basking habitat. If turtles were not observed, surveyors continued to slowly approach (in a crouched position) and view the features with and without binoculars. Eventually reaching the margin of the feature. Due to the extensive vegetation around Pond 3, surveyors had to come

within 4.5 to 9 m (15 to 30 ft) of the pond to be able to view some of the bank area, as well as the water surface, and potential basking habitat.

Due to channel incision and associated vegetation along the channel, initial observations at most sites required surveyors to approach within 4.5 to 9 m (15 to 30 ft) of the habitat to see the feature. Surveys along drainages ID-01 and ID-02 were conducted by two surveys walking slowly along the upper banks of the channel. However, the portion of the channel that still contained water was incised within the middle of the incised main channel with vegetation covering both sides obscuring the view from the channel banks. As a result, surveyors typically had to approach within 6 m (20 ft) or closer of the pools within the drainages to be able to view the feature. Additionally, due to the required close viewing proximity to the pond, sitting by the ponds/pools for long periods of time did not result in additional observations.

A northwestern pond turtle was observed in drainage ID-02 during the two-day surveys conducted on September 26 and 27, 2017, at drainages ID-01, ID-02, and Pond 3.

4 DISCUSSION

During the site assessment conducted on September 26 and 27, 2017, four of the six aquatic habitats evaluated as potential habitat for WPT contained water; although only Pond 3 was substantially inundated. Based on the habitat characteristics for each of the features, only ponds 1, 2, and 3, and pools within intermittent drainages ID-01 and ID-02 provide suitable aquatic habitat for WPT. The habitat assessment conducted at Pond 4 indicates that the maximum depth of the pond is likely less than 0.3 m (1 ft) with dense bulrush and no open water. As a result, Pond 4 does not provide suitable aquatic habitat for WPT.

During the surveys conducted on September 26 and 27, 2017, a WPT adult was observed in a residual pool in drainage ID-02. Additionally, a single WPT was identified near the mouth of drainage ID-01, just upstream of Estero Americano, during previous field visits to the site (personal communication with Richard Stabler, Sonoma County, September 27, 2017).

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5 CONCLUSIONS

Based on the results of the habitat assessment, suitable aquatic habitat is present in Pond 1 (at least during part of the year when the pond is inundated), Pond 3, and both intermittent drainages (ID-01 and ID-02). Due to the shallow water depth and lack of cover in Pond 2 and the shallow water depth and presence of dense bulrush in Pond 4, it is unlikely that either of these features provide suitable aquatic habitat for WPT; although WPT may utilize Pond 2 during the winter/spring while moving through the site.

Pond 1 is a seasonal feature and may provide suitable aquatic habitat during the winter/spring and early summer. Suitable nesting and aestivation habitat is present in the grasslands around this pond. Pond 3 appears to be perennial in most years and provides suitable aquatic habitat year-round. Vegetative cover occurs around much of the pond and upland nesting and aestivation habitat is common to abundant in the grasslands surrounding the pond. Both drainages ID-01 and ID-02 provide suitable aquatic habitat for WPT and the adjacent grasslands provide nesting and aestivation habitat for this species.

During the daytime surveys conducted on September 26 and 27, 2017, a WPT adult was observed in an isolated pool in drainage ID-02.

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6 RECOMMENDATIONS

Ponds 1, 2, and 3 and drainages ID-01 and ID-02 provide potentially suitable aquatic habitat (at least for a portion of the year) for WPT. With the exception of the pedestrian crossing proposed on ID-01 near the northern property boundary, the existing bridge located on ID-01 east of the barn, and Pond 2 which occur within 15 m (50 ft) of the proposed trail alignment, the proposed trail will be located greater than 30 m (100 ft) from suitable aquatic features (ponds 1, 2, and 3, and drainages ID-01 and ID-02).

To protect ponds 1 through 3 and drainages ID-01 and ID-02, 30 m (100 ft) buffer areas should be established around the ponds and along both drainages. Additionally, WPT utilize upland grassland habitat near watercourses for nesting and aestivation, typically within 100 m (325 ft) of aquatic sites (but can extend to 200 m [650 ft] or greater). As a result, ground disturbance activities should not occur within 100 m of these aquatic sites during the late spring through fall unless pre-construction surveys are conducted to locate any nesting or aestivation sites. If nesting and/or aestivation sites are identified, these areas should be avoided during construction activities. If avoidance is not possible, the nest and/or turtle should be removed by a qualified biologist and relocated to an appropriate location (following approval from CDFW) to avoid impacting the species.

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7 REFERENCES

CDFW (California Department of Fish and Wildlife). 2017. "*Actinemys marmorata marmorata*." Element Occurrence Query. California Natural Diversity Database (CNDDB). RareFind, Version 4.0 (Commercial Subscription). Sacramento, California: CDFW, Biogeographic Data Branch. Accessed October 2017 https://www.wildlife.ca.gov/Data/CNDDB/Maps-and-Data.

Feldman, M. 1982. Notes on reproduction in *Clemmys marmorata.* Herpetol. Rev. 13: 10-l 1.

Holland, D.C. 1991. A synopsis of the ecology and status of the western pond turtle *(Clemmys marmorata*) in 1991. Report to the U.S. Fish and Wildlife Service, National Ecology Research Center.

Jennings, M.R., and Hayes, M.P. 1994. Western Pond Turtle. Amphibian and Reptile Species of Special Concern in California. California Department of Fish and Game. http://www.dfg.ca.gov/wildlife/nongame/publications/docs/herp_ssc.pdf#page=9>. 2010 June 15.

Nussbaum, R. A., E. D. Brodie, and R. M. Storm. 1983. Amphibians and reptiles of the Pacific Northwest. University of Idaho Press, Moscow, ID.

Storer, T. I. 1930. Notes on the range and life history of the Pacific freshwater turtle *(Clemmys marmorata).* Univ. Calif. Publ. Zool. 32:429-441.

USDA (U.S. Department of Agriculture). 2017. Web Soil Survey. USDA Natural Resources Conservation Service, Soil Survey Staff. Accessed October 2017. http://websoilsurvey.nrcs.usda.gov/.

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ATTACHMENT A

CNDDB Summary Data Sheets for WPT Occurrences

SciName	ComName	TaxonGroup	ElmCode	FedList	CalList	GRank	SRank	RPlantRank
Emys marmorata	western pond turtle	Reptiles	ARAAD02030	None	None	G3G4	S3	

Emys marmorata	western pond turtle	Reptiles	ARAAD02030	None	None	G3G4	S3	

OthrStatus	OccNumber	EOndx	Mapndx	ElmDate	SiteDate	Sensitive	OccRank	Presence
BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_VU-Vulnerable | USFS_S-Sensitive	425	21696	33159	19960812	19960812	N	B-Good	Presumed Extant
BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_VU-Vulnerable | USFS_S-Sensitive	641	63917	63822	20051112	20051112	N	B-Good	Presumed Extant

Accuracy	AccuracyOrder	Trend	OccType	County	Quad	Elevation	Latitude	Longitude	UTM
Circular feature with a 300 meter radius (1/5 mile)	50	Unknown	Natural/Native occurrence	Sonoma	Valley Ford (3812238)	90	38.34749	-122.98526	Zone-10 N4244371 E501288
Specific bounded area with an 80 meter radius	10	Unknown	Natural/Native occurrence	Sonoma	Valley Ford (3812238)	100	38.3456	-122.96957	Zone-10 N4244161 E502659

PLSS	Location	LocDetails	Ecological	ThreatList
T06N, R10W, Sec. 20 (M)	ALONG SALMON CREEK, 0.6 MILE WNW OF THE TOWN OF BODEGA.	LOCATED ALONG SALMON CREEK AND IN A SMALL FARM POND ADJACENT TO THE CREEK.	HABITAT CONSISTS OF BAY/ALDER RIPARIAN ALONG SALMON CREEK; CREEK IS DEEPLY INCISED, WITH STEEP, WELL-VEGETATED BANKS. CREEK GOES NEARLY DRY DURING SUMMER. LIGHTLY GRAZED PASTURE ADJACENT TO CREEK AND POND. CREEK SUPPORTS SYNCARIS PACIFICA.	Erosion/runoff
T06N, R10W, Sec. 21 (M)	SALMON CREEK, JUST EAST OF BODEGA.		HABITAT CONSISTS OF A COASTAL STREAM CONTAINING POOLS UP TO 5' DEEP, RIFFLES WITH A GRAVEL/COBBLE SUBSTRATE, AND AN INSTREAM SHELTER OF ROOTWADS, LEDGES, AND LARGE WOODY DEBRIS; MATURE CANOPY OF RED ALDER, ABOUT 75% SHADE.	Surface water diversion | Erosion/runoff

Threat	General	OwnerMgt	LastUpdate	KeyQuad	UTMZone	UTME	UTMN
SOME CREEK AREAS ARE THREATENED BY SEVERE BANK EROSION.	LANDOWNER REPORTED SEEING 4-INCH JUVENILE TURTLES IN 1995. IN 1996, LANDOWNER REPORTED SEEING 3-INCH JUVENILES; 16 ADULTS WERE OBSERVED ON 12 AUGUST 1996.	PVT	9/12/1996 0:00	Valley Ford (3812238)	10	501288	4244371
THREATENED BY EXCESSIVE SEDIMENT, DECREASING CHANNEL DEPTH; LOW SUMMER FLOWS DUE TO DIVERSIONS; EROSION FROM FARMLANDS.	1 ADULT MALE (~8" CARAPACE LENGTH) OBSERVED BASKING ON 12 NOV 2005.	PVT	1/30/2006 0:00	Valley Ford (3812238)	10	502659	4244161

ATTACHMENT B

Copies of Field Data Sheets

also Referenced in Reese, D.A. 2006

Western Pond Turtle Field Survey Form (Holland 1991) and Holland 1992

Site Ref #/name Drainage 1 - Estero Trail Date 9/27/17

Roll and Photo @#s County Sonoma

Surveyors cselterich, P keating Begin Time 1100 End Time 1240

Quad/Map Ref Valley Ford T 5N R 10W S QS

Exact Site Location (road/other) Drainage 1 - approx. 150 east of creek crossing south of barn

Elevation ~26'

Ownership/Contact (if known) Estero Trail - Sonoma County

Watersource Type (pond, lake, oxbow, river, reservoir, etc) stream

Estimated Site Dimensions 10-18' wide by 50' long

Water Turbidity low Current (est) —

Substrate Type earthen - mostly fines Air T Begin 77° F Water T Begin 56° F

Air T End 78° F Water T End 56° F

Vegetation

Woody Dominants willow

Non-woody Elements Himalayan blackberry, rushes, grasses, sedges

Aquatics (emergents and floating) duckweed, filamentous green algae

Habitat Disturbance Elements (structures, pasture, farmland, other)

None observed, although some cattle trampling is present outside the channel

Distance from Nearest Disturbance (est) 160' west northwest - cattle

Grazed (cattle, horse) cattle

Bullfrogs (# adults, subadults, larvae) none observed

Introduced Fishes (bass, sunfish, carp) mosquito fish, minnow

Other Species Noted

Total # Turtles Observed: Clemmys None Chrysemys Other (specify)

Clemmys: Males Total # Size(s)

Females Total # Size(s)

Juveniles Total # Size(s)

Animals Marked at Site

Basking Site Description and Habitat Assessment Banks, partially vegetated ~~primarily~~ and relatively steep (~~most~~ steep) - small earthen bank for basking at western and eastern ends of pool

also Referenced in Reese, D.A. 2006

Western Pond Turtle Field Survey Form (Holland 1991) and Holland 1992

Site Ref #/name Drainage 2 – Estero Trail | Date 9/27

Roll and Photo @#s | County Sonoma

Surveyors CPS, PK | Begin Time 1200 – | End Time 1300

Quad/Map Ref Valley Ford | T 5N R 10W S QS

Exact Site Location (road/other) Drainage 2 - ~200 ft west of eastern property boundary along drainage 2

Elevation 45'

Ownership/Contact (if known) Sonoma County

Watersource Type (pond, lake, oxbow, river, reservoir, etc) stream

Estimated Site Dimensions 70' long by 3-12' wide

Water Turbidity clear | Current (est) None

Substrate Type sediment (Mostly fines) | Air T Begin 80° F | Water T Begin 59° F

Air T End 81° F | Water T End 59° F

Vegetation

Woody Dominants NA

Non-woody Elements blackberry (Himalayan), grasses, rushes, sedges, forbs, ferns, coyote brush

Aquatics (emergents and floating) some sedges and duckweed on surface

Habitat Disturbance Elements (structures, pasture, farmland, other) Disturbance not observed

Distance from Nearest Disturbance (est) ~ 400' (barn and associated disturbance)

Grazed (cattle, horse) No

Bullfrogs (# adults, subadults, larvae) None observed

Introduced Fishes (bass, sunfish, carp) " "

Other Species Noted A few aquatic insects (CRF juveniles - 2)

Total # Turtles Observed: Clemmys 1 | Chrysemys | Other (specify)

Clemmys: Males Total # Unk. | Size(s) Adult (~6" carapace)

Females Total # " | Size(s)

Juveniles Total # " | Size(s)

Animals Marked at Site

Basking Site Description and Habitat Assessment Not much in the way of basking sites some limited earthen bank - walls of pool fairly steep and mostly vegetated - no logs, etc. Stream habitat assessment on CRF field data sheet for Drainage 2.

ATTACHMENT C

Photographs of Aquatic and Upland Habitats

ATTACHMENT C
Photographs of Aquatic and Upland Habitats



1. View of Drainage 2 looking North from pool where Western Pond Turtle was located.



2. View of Drainage 2 looking South from pool where Western Pond Turtle was located.



3. Pond 1



4. Pond 3

DUDEK

November 8, 2017 10330

Rich Stabler
Sonoma County Agricultural Preservation and Open Space District
2550 Ventura Avenue
Santa Rosa, California 95403

Subject: Biological Resources Assessment for the Estero Trail Project, Sonoma County, California

Dear Mr. Stabler:

On September 26, 2017, Dudek biologist Lisa Achter conducted a reconnaissance biological field survey at the Estero Trail project site in Sonoma County, California (Figure 1). Additional field work conducted at the project site included wetland delineations on May 25-26, 2017 and September 27, 2017; rare plant surveys performed on April 13-14, 2017, May 25-26, 2017, and August 2-3, 2017; and surveys and habitat assessments for western pond turtle (*Emys marmorata*) and California red-legged frog (*Rana draytonii*) conducted on September 26, 2017. The focus of the surveys was to characterize existing conditions and biological resources on the site and to summarize potential biological constraints associated with future trail and infrastructure development on the site. Descriptions of the methods and results of the biological surveys and related recommendations are provided below.

1 SITE LOCATION AND PROJECT DESCRIPTION

The project site is located on the south side of State Route 1, approximately one mile south of Bodega, California, and approximately 2.5 miles west of Valley Ford, California at 17000 Valley Ford Cutoff (Figure 2). It is bounded on the north by State Route 1, on the south by the Estero Americano[1], and on the east and west by habitat similar to habitat found within the project site. Elevation within the project site varies from approximately 10 feet above mean sea level (AMSL) along the center of the site to 340 feet AMSL in the northwestern hills. The site is situated in Sections 27, 28, 33 and 34 of Township 6 North, and Range 10 West on the Valley Ford 7.5 minute quadrangle. The center of the site location corresponds to 38°19'24" north latitude and 122°57'42" west longitude. The site is mostly undeveloped and is dominated by annual grassland habitat within approximately 495 acres of rolling hills and open pasture that currently is and historically has been used for grazing (Figure 3). There is an access road that runs north to south through the center of the property.

[1] A coastal estuary at the base of Americano Creek. The Estero Americano is part of the Gulf of the Farallones National Marine Sanctuary, and is also part of the California Marine Protected Area network, designated as a State Marine Recreational Management Area.

The site is currently owned by the Bordessa family and is known as Bordessa Ranch. In 2010, the Bordessas submitted an inquiry to the Sonoma County Agricultural Preservation and Open Space District (District) about District purchase of a Conservation Easement over the property, including a public access trail. In 2012, the District prevented imminent subdivision of the ranch through purchase of a Conservation Easement. Under the terms of the agreement between the District and the Bordessas, the District will hold the Conservation Easement over the Property in perpetuity with the intention to preserve its important agricultural, natural, and scenic values, along with a trail easement to provide the public with outdoor recreational opportunities. Regional Parks and the District have since worked together to develop the trail easement and public access. With a grant from the State Coastal Conservancy, Regional Parks is providing environmental review and easement trail planning.

The proposed project would establish two main pedestrian-only trails and parking lots that would allow for low-intensity public recreational access. The proposed trail alignments would not be more than 5 miles in length and the parking lots would not be more than 1.5 acres in combined size (Figure 3). The proposed trail system is the principal means for providing public access to the property and the Estero Americano. The trails will be constructed for pedestrian use and hand-carried non-motorized boats, kayaks and canoes. The trail will be 5-feet wide and composed of compacted native material or other permeable surface, including rocked crossings only where the trail would span a stream. Several benches and trail marker posts would be placed along the trail. The existing main access road and gate are expected to remain in similar locations.

2 METHODS AND SITE EVALUATION

Preliminary Review

Special-status biological resources present or potentially present on the site were identified through a desktop literature search using the following sources: U.S. Fish and Wildlife Service (USFWS) Information, Planning and Conservation (IPaC) Trust Resource Report; California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB); and the California Native Plant Society (CNPS) online Inventory of Rare and Endangered Vascular Plants. The database searches for the CNDDB and CNPS reports included the 7.5' USGS Valley Ford quadrangle and surrounding eight quadrangles. The IPaC search included the project site and a five-mile buffer surrounding the site. California Rare Plant Rank (CRPR) 1 and 2 plant species were included in the CNPS search. Following a review of these resources, Dudek determined the potential for each species to occur within the site based on a review of vegetation communities and available land cover types, habitat types, soils, and elevation preferences, as well as the known geographic range of each species (Appendix A). Species were not expected to occur

when the site was clearly outside the known geographic range of the species or if there was no suitable habitat for the species on or adjacent to the site.

Additionally, the Natural Resources Conservation Service (USDA 2017), Web Soil Survey (WSS) was queried to determine soil types that exist within the boundary of the project site.

Field Assessment

The biological reconnaissance survey was performed by Dudek wildlife biologist Lisa Achter on September 26, 2017, and consisted of walking throughout the site and along the proposed trail alignment to collect data related to biological resources present or potentially present within the site. An aerial photograph (Google Earth 2017) with an overlay of the property boundary was utilized to map the vegetation communities and record any special-status or sensitive biological resources while in the field. Incidental observations of wildlife or wildlife sign (e.g., tracks, scat) were also recorded. Wildlife species were identified with and without binoculars. The field assessment included the project site only; however, general characteristics of adjacent properties were also noted.

Also on September 26, Dudek biologists Craig Seltenrich and Paul Keating performed an assessment of aquatic habitats on site to determine suitability for California red-legged frog and western pond turtle. Results of the assessment are included in Appendix B.

Dudek botanist Laura Burris performed a wetland delineation on the project site on May 25-26, 2017 and September 27, 2017. Potentially jurisdictional features were identified based on aerial signatures and field observations according to the Federal Manual for Identifying and Delineating Jurisdictional Wetlands, Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region, and the U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook. Results of the jurisdictional delineation are found in Appendix C.

Additionally, Ms. Burris conducted rare plant surveys at the site on April 13-14, 2017, May 25-26, 2017, and August 2-3, 2017, and determined the potential for these species to occur (Appendix D). During the rare plant surveys Ms. Burris compiled a comprehensive list of plant species present on the site (Appendix E).

3 RESULTS

Soils

According to the Natural Resources Conservation Service (USDA 2017), ten soil types are mapped within the project site (Figure 4). Blucher fine sandy loam (overwash), 0-2% slopes, is a somewhat poorly drained, non-saline to very slightly saline soil derived from sedimentary rock. Kneeland sandy loam (sandy variant), 2-15% and 15-30% slopes, are well-drained residuum weathered from sedimentary rock. Kneeland rocky sandy loam (sandy variant), 9-30% slopes, is a well-drained residuum weathered from sedimentary rock found on back and side slopes on marine terraces. Los Osos clay loam (thin solum), 30-50% slopes, is a well-drained residuum weathered from sedimentary rock found on hillsides. The remaining soil types are Steinbeck loam occurring on 2-9% slopes, 9-15% slopes, 9-15% slopes (eroded), 15-30% slopes (eroded), and 30-50% slopes (eroded). These are moderately well-drained residuum weathered from sandstone found on back and side slopes of terraces.

Vegetation Communities and Land Cover Types

The land cover within the project area consists of a combination of terrestrial non-vegetative land covers and natural vegetation communities, as well as aquatic land cover types. The vegetation communities and land covers have been adapted from A Manual of California Vegetation, Second Edition (Sawyer, et. al. 2009), and the California Wildlife Habitat Relationship System (originally published by Mayer and Laudenslayer in 1988). The following vegetation communities and land cover types have been documented on site and are described in further detail, below.

California Annual Grassland. The dominant habitat type in the project area, the California annual grassland is dominated by non-native grasses such as slender wild oats (*Avena barbata*), velvet grass (*Holcus lanatus*), rattlesnake grass (*Briza maxima*), little quaking grass (*Briza minor*), hedgehog dogtail grass (*Cynosurus echinatus*). Also present in this habitat are non-native forbs such as bull thistle (*Cirsium vulgare*), Italian thistle (*Carduus pycnocephalus*), birdsfoot trefoil (*Lotus corniculatus*), cat's ears (*Hypochaeris glabra; H. radicata*), pale flax (*Linum bienne*), and sheep sorrel (*Rumex acetosella*). Native grasses and forbs were present in less density than the non-natives and include: purple needlegrass (*Stipa pulchra*), meadow barley (*Hordeum brachyantherum*), yarrow (*Achillea millefolium*), dwarf brodiaea (*Brodiaea terrestris*), California poppy (*Eschscholzia californica*), annual lupine (*Lupinus bicolor*), blue-eyed grass (*Sisyrinchium bellum*), and western bracken fern (*Pteridium aquilinum*). Congested-headed hayfield tarplant (*Hemizonia congesta ssp. congesta*), a California Rare Plant Rank (CRPR) 1B.2 species, was present in large numbers in the grassland onsite.

Common Velvet Grass – Sweet Vernal Grass Grassland (*Holcus lanatus – Anthoxanthum oderatum* Herbaceous Semi-Natural Alliance). Common velvet grass – sweet vernal grass grasslands onsite is co-dominated by these two non-native grass species. This vegetation community generally occurs in more mesic areas of the California annual grassland in the western hills of the project site. Non-native sweet briar rose (*Rosa rubiginosa*) also occurs sporadically in this vegetation community.

Perennial Ryegrass Fields (*Lolium perennis (Festuca perenne)* Herbaceous Semi-Natural Alliance). Perennial ryegrass fields onsite contain nearly 100 percent cover of perennial ryegrass (*Festuca perennis*). This vegetation community occurs directly adjacent to the barn onsite and is typically associated with moist soils.

Slough Sedge Swards (*Carex obnupta* Herbaceous Alliance). Slough sedge swards occur in the grassland throughout the project site where moisture appears to be maintained in the soil due to the site's microtopography. This vegetation community is dominated by slough sedge (*Carex obnupta*), with some velvet grass, sweet vernal grass, and California blackberry (*Rubus ursinus*) interspersed.

Purple Needlegrass Grasslands (*Nassella (Stipa) pulchra* Herbaceous Alliance). Purple needlegrass grassland occurs sporadically throughout the grassland in the southern and western portions of the project site. This vegetation community is characterized by at least 10 percent total cover of purple needlegrass.

Coyote Brush Scrub (*Baccharis pilularis* Shrubland Alliance). Coyote brush (*Baccharis pilularis*) is the dominant shrub in this vegetation community. Coyote brush scrub occurs intermittently in the western portion of the project site, primarily on north- and east-facing hill slopes. Other shrub species observed in this vegetation community include sweet briar rose, coffeeberry (*Frangula californica*), hawthorn (*Craetagus* spp.), and gorse (*Ulex europaeus*). Scattered Monterey pine trees (*Pinus radiata*) are also present in low numbers within this vegetation community on the northwestern slopes within the project site. The herbaceous understory of this vegetation community contains grass and herb species consistent with those found in the California Annual Grassland, described above.

Arroyo Willow Thickets (*Salix lasiolepis* Shrubland Alliance). Arroyo willow (*Salix lasiolepis*) is the dominant tree cover along the two intermittent drainages onsite. Other tree species observed with the arroyo willow along the central drainage include Lombardy poplar (*Populus nigra*) and blue gum (*Eucalyptus globulus*). The understory of this vegetation community primarily consisted of rushes (*Juncus patens* and *J. effusus*), and bracken fern (*Pteridium aquilinum*).

Eucalyptus Groves (*Eucalyptus* [*globulus*, *camaldulensis*] Woodland Semi-Natural Alliance). Several eucalyptus (also known as blue gum; *Eucalyptus globulus*) groves occur onsite, one along an ephemeral drainage in the western portion of the project site and the other along the main, central intermittent drainage. This vegetation community is dominated by blue gum in the overstory, with sporadic shrub and small tree species in the understory including arroyo willow, hawthorn (*Craetagus spp.*), poison oak (*Toxicodendron diversilobum*), and California blackberry. Bracken fern and grasses typical of the California annual grassland described above were common in the herbaceous layer.

Baltic and Mexican rush marshes (*Juncus* [*balticus*, *mexicanus*] Herbaceous Alliance). This vegetation community consisted of a mix of *Juncus* species including *Juncus balticus*, *J. mexicanus*, *J. patens*, and *J. effuses*. The rush marshes occurred along the drainages and adjacent to the Estero where they mixed with pickleweed (*Salicornia* spp.).

Ruderal Roadways and Structures. This land cover type consisted of the developed dirt and gravel access roads leading from State Route 1 to the barn onsite, as well as the barn and associated anthropogenic influences associated with cattle ranching. Vegetation is generally absent from the access road, and Himalayan blackberry (*Rubus armeniacus*) was common adjacent to the barn.

A total of 157 species of native or naturalized plants, 104 native (66%) and 53 non-native (34%), was recorded on the site (see Appendix E).

Special-Status Wildlife

Results of the CNDDB and IPaC searches indicated 28 special-status wildlife species known to occur within a five-mile radius of the site (Appendix A). Of these, 19 special-status wildlife species were removed from consideration as potentially occurring due to lack of suitable habitat on the site, or the site is outside of the species range. Of the remaining nine wildlife species, five are known to occur on the site and four have a moderate or greater potential to occur within the site. These nine species are discussed in more detail below.

Myrtle's silverspot butterfly (*Speyeria zerene myrtleae,* federally listed Endangered) is typically found in coastal dune or prairie habitat that is sheltered from wind at elevations below 820 feet AMSL. Suitable habitat for this species is present on the site and there are occurrence records just south of the Estero Americano on the southern boundary of the site.

California red-legged frog (federally listed Threatened) occurs in permanent and semi-permanent natural ponds and ponded backwater portions of streams. These frogs also breed in artificial impoundments including stock ponds, irrigation ponds, and siltation ponds. This species has

been documented on the site previously and was observed during surveys on September 26, 2017 in the intermittent drainage that runs from north to south through the center of the site (PD-01, Appendix B).

Western pond turtle (CDFW Species of Special Concern) utilizes rivers, lakes, streams, ponds, wetlands, ephemeral creeks, reservoirs, agricultural ditches, estuaries, and brackish waters, and upland habitats adjacent to these areas for nesting. This species was observed in the drainage on the eastern boundary of the site on September 26, 2017 (Appendix B).

Northern harrier (*Circus cyaneus,* CDFW Species of Special Concern) utilizes marshes, fields, and prairies and is found in open terrain (both wet and dry habitats) where there is sufficient ground cover. They are often found in marshes, especially during nesting season, but sometimes will nest in dry open fields. This species was observed flying over the site during the September 26, 2017 survey.

Yellow warbler (*Setophaga petechia,* CDFW Species of Special Concern) is associated with riparian habitat, particularly willow and alder thickets in montane areas and willow-cottonwood riparian habitats at lower elevations. This species was documented on site during surveys on April 14, 2017.

Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*, federally listed Threatened, California listed Threatened) is found in woodlands, thickets, orchards, and streamside groves. They are often found in willow groves around marshes and streamside trees in the west, including cottonwood-willow groves in arid country. There is suitable habitat along the riparian drainages on site for this species and there is a recorded occurrence of yellow-billed cuckoo approximately 1.5 miles north of the site near the town of Bodega.

American badger (*Taxidea taxus,* CDFW Species of Special Concern) is most abundant in drier open stages of most shrub, forest and herbaceous habitats with friable soils. Suitable habitat exists for this species within the project area, and there are occurrence records for this species on the site and approximately 1.5 miles north of the site near the town of Bodega.

Pallid bat (*Antrozous pallidus,* CDFW Species of Special Concern) occupies a variety of habitats including grassland, shrubland, woodland and forests from sea level up through mixed conifer forest. This species roosts in caves, mines, crevices and occasionally hollow trees or buildings and prefers open habitats for foraging. Suitable roosting habitat occurs within the trees and structures onsite and foraging habitat occurs throughout the site for this species.

Townsend's big-eared bat (*Corynorhinus townsendii,* CDFW Species of Special Concern) hibernates and roosts in caves and mines near entrances, or cave-like structures such as buildings

or under decks. It forages in a variety of habitats along open edges. This species is extremely sensitive to disturbance. It has potential to utilize the buildings on site for roosting and there is foraging habitat available throughout the site. There are several occurrence records for this species approximately 5 miles west of the site near the town of Bodega Bay.

Special-Status Plants

Results of the CNDDB and CNPS searches revealed 90 special-status plant species that have potential to occur in the vicinity of the project site. Of these, 80 were removed from consideration as potentially occurring due to lack of suitable habitat within or adjacent to the project area, or the project site is outside of the species' known range (Appendix D). Of the remaining ten special-status plant species with potential to occur on the site, eight have a moderate potential to occur, one has a high potential to occur, and one was present on the site during rare plant surveys. These are discussed in more detail below.

Congested-headed hayfield tarplant (*Hemizonia congesta* ssp. *congesta*, CNPS 1B.2) is an annual herb found in valley and foothill grassland habitats and occasionally along roadsides. It was observed in several areas of the site during the 2017 botanical surveys. These populations were mapped and are depicted in Appendix F.

Two-fork clover (*Trifolium amoenum,* federally listed Endangered) is an annual herb found in coastal bluff scrub and valley and foothill grassland habitat. It has a high potential to occur on the project site due to the availability of suitable habitat and a recent occurrence record from approximately one mile south of the site.

Plants with a moderate potential to occur include golden larkspur (*Delphinium luteum*, federally Endangered, California Rare), western leatherwood (*Dirca occidentalis,* CNPS 1B.2), fragrant fritillary (*Fritillaria liliacea,* CNPS 1B.2), woolly-headed gilia (*Gilia capitata* ssp. *tomentosa,* CNPS 1B.1), Baker's goldfields (*Lasthenia californica* ssp. *bakeri,* CNPS 1B.2), Point Reyes checkerbloom (*Sidalcea calycosa* ssp. *rhizomata,* CNPS 1B.2), purple-stemmed checkerbloom (*Sidalcea malviflora* ssp. *purpurea,* CNPS 1B.2), and San Francisco owl's-clover (*Triphysaria floribunda,* CNPS 1B.2).

Golden larkspur is a perennial herb found in chaparral, coastal prairie, and coastal scrub habitats. Western leatherwood is a perennial deciduous shrub found broadleaved upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, north coast coniferous forest, riparian forest, and riparian woodland habitats. Fragrant fritillary is perennial bulbiferous herb found in cismontane woodland, coastal prairie, coastal scrub, and valley and foothill grassland habitats. Woolly-headed gilia is an annual herb found in coastal bluff scrub and valley and foothill

grassland habitats. Baker's goldfields is a perennial herb found in closed-cone coniferous forest (openings), coastal scrub, meadows and seeps, and marshes and swamps. Point Reyes checkerbloom is a perennial rhizomatous herb that is found in marshes and swamps (freshwater and near the coast). Purple-stemmed checkerbloom is a perennial rhizomatous herb found in broadleaved upland forest and coastal prairie habitats. San Francisco owl's clover is an annual herb found in coastal prairie, coastal scrub and valley and foothill grassland habitats.

Suitable habitat for the above listed plant species is present within the site. However, only one of these species was observed during rare plant surveys in April, May, and August, 2017. A detailed botanical report is found in Appendix F.

Common Wildlife Species

Eighteen wildlife species were detected during the September 26, 2017 survey. Of these, 12 were birds and 6 were mammals (including sign). An additional 13 bird species were observed during the April 14, 2017 wetland delineation and are included in the list of common wildlife species observed on the site found in Table 1 below.

Table 1
Wildlife Species Observed on the Estero Trail Project Site

Scientific Name	Common Name
Mammals	
Canis latrans	coyote (scat)
Otospermophilus beecheyi	California ground squirrel (sign)
Microtus californicus	California vole (sign)
Sylvilagus bachmani	western brush rabbit
Thomomys bottae	Botta's pocket gopher (sign)
Odocoileus hemionus	mule deer
Birds (9/26/2017)	
Cathartes aura	turkey vulture
Buteo jamaicensis	red-tailed hawk
Falco sparverius	American kestrel
Circus cyaneus	Northern harrier
Sayornis saya	Say's phoebe
Callipepla californica	California quail
Psaltriparus minimus	bushtit
Ardea alba	great egret
Sialia mexicana	western bluebird
Passerculus sandwichensis	savannah sparrow
Corvus brachyrhynchos	American crow
Melospiza melodia	song sparrow

Table 1
Wildlife Species Observed on the Estero Trail Project Site

Scientific Name	Common Name
Birds (4/14/2017)	
Sturnus vulgaris	European starling
Sayornis nigricans	black phoebe
Melozone crissalis	yellow warbler
Agelaius phoeniceus	red-winged blackbird
Tachycineta bicolor	tree swallow
Spizella passerina	chipping sparrow
Anas platyrhynchos	mallard
Petrochelidon pyrrhonota	cliff swallow
Sturnella neglecta	western meadowlark
Setophaga coronata	yellow-rumped warbler
Branta canadensis	Canada goose
Tyrannus verticalis	western kingbird
Vermivora celata	orange-crowned warbler

Common wildlife species adapted to life in proximity to human development such as raccoon (*Procyon lotor*), Virginia opossum (*Didelphis virginiana*), striped skunk (*Mephitis mephitis*) and coyote (*Canis latrans*) are likely to move through the site on a regular basis to find food and cover resources. Several common native and non-native bird species are likely to use the site for nesting and foraging.

Potentially Jurisdictional Wetlands

A wetland delineation was performed on May 25-26, 2017 and September 27, 2017. Seven features were mapped, and included: seasonal wetland (2.72 acres), wet meadow (2.24 acres), vegetated roadside swale (1,320.76 linear feet), intermittent drainage (653.30 linear feet), ephemeral drainage (997.75 linear feet), and several ponds. Detailed results of the jurisdictional delineation are found in Appendix C.

Wildlife Corridors and Habitat Linkages

Wildlife corridors are linear features that connect large patches of natural open space and provide avenues for the migration of animals. Habitat linkages are small patches that join larger blocks of habitat and help reduce the adverse effects of habitat fragmentation; they may be continuous habitat or discrete habitat islands that function as stepping stones for wildlife dispersal.

Although the site is a non-linear feature, the site has value as a potential wildlife corridor or habitat linkage between areas of adjacent grassland, scrub and forest habitats. The intermittent and seasonal drainages that flow from the uplands in the northern portion of the site to the Estero Americano on the southern boundary of the site are likely used by several special-status and common wildlife species as cover and foraging habitat, and to move between adjacent similar habitats.

4 SUMMARY AND POTENTIAL CONSTRAINTS TO DEVELOPMENT

This section addresses potential impacts to sensitive biological resources that would result from future development of a trail and supporting infrastructure on the site.

Vegetation Communities, Land Cover Types, and Sensitive Natural Communities

The County of Sonoma Local Coastal Program defines wetlands, riparian areas, and coastal prairie and grasslands as environmentally sensitive habitat areas. Pursuant to Sections 30231 and 30233 of the California Coastal Act, the California Coastal Commission (CCC) requires that most development avoid and buffer wetland resources. Policies require the maintenance and restoration of the biological productivity and quality of wetlands, as well as limit the filling of wetlands. The filling of wetlands is generally limited to high priority uses, and must be avoided unless there "is no feasible less environmentally damaging alternative, and authorized fill must be fully mitigated." This is discussed in more detail in the jurisdictional delineation (Appendix C).

Of the 10 vegetation communities/land cover types that occur within the project site, three are considered sensitive habitats by CDFW, including riparian, wetlands and California annual grasslands. Sensitive natural communities (alliances and their associations) are defined by CDFW using Holland types (Sawyer, et. al. 2009). Ranking of alliances according to their degree of imperilment (as measured by rarity, trends, and threats) follows NatureServe's Heritage Methodology, in which all alliances are listed with a G (global) and S (state) rank. For alliances with State ranks of S1-S3, all associations within them are also considered to be highly imperiled.

Non-native annual grassland on the site is not considered a sensitive habitat type by CDFW; however, sensitive natural communities that occur within non-native annual grassland onsite, including slough sedge swards and purple needlegrass grasslands, would require either avoidance or other mitigation if proposed development results in impacts. Riparian habitat within the site is considered sensitive by CDFW, and any impacts to this habitat, including removal or trimming of vegetation, would require a Streambed Alteration Agreement (SAA) with CDFW under Section 1602 of the California Fish and Game Code. Likewise, any work within the stream

channel would require permits from the ACOE and RWQCB under Sections 401 and 404 of the Clean Water Act. All natural vegetation communities onsite provide suitable habitat for a variety of special-status plant and animal species, as discussed below.

Special-Status Plants and Wildlife

Although only one special-status plant species was observed during surveys (*Hemizonia congesta* ssp. *congesta*), the project site has potential to support several others and there are several occurrence records for these species within 0.7-5 miles of the project site. *Hemizonia congesta* ssp. *congesta* was mapped in several areas along the proposed trail alignment and seeds should be collected from this species before trail construction occurs. Additionally, rare plant surveys should be repeated on the site if more than one year elapses before the onset of construction, as most of the special-status plant species with potential to occur on site are annual species.

The project site is mostly undeveloped and the habitat types onsite support several special-status wildlife species, including California red-legged frog, western pond turtle, northern harrier, yellow warbler, and American badger; in addition, the habitat on site has the potential to support several other special-status species, including Myrtle's silverspot butterfly, western yellow-billed cuckoo, pallid bat and Townsend's big-eared bat (Figure 6). Prior to initiation of construction activities, a preconstruction roosting bat survey should be performed to identify potential bat roosts or maternity colonies within the structures on the site. If roosting bats or maternity colonies are detected, Dudek recommends consultation with CDFW to identify appropriate measures to be taken to avoid and/or minimize impacts to the species, which can include avoidance or approval to exclude any bats potentially found on the project site before demolition of any buildings if necessary.

California red-legged frog and western pond turtle were both observed on the site during the September 26, 2017 survey. Two separate reports were prepared as Appendices to this BTR and discusses habitat suitability within the project site for these species. As stated in these reports, to protect ponds 1-4 and drainages ID-01 and ID-02, a 100-ft buffer should be established around the ponds and along both drainages. Any activities that could potentially impact the ponds and drainages (ground disturbance, human activities, etc.) within the 100-ft buffer areas will require pre-construction surveys and a biological monitor during construction, even if CRLF are not observed within these aquatic habitats during the pre-construction survey. In any event, fencing must be installed around the work zone to prevent CRLF from entering the construction zone. If CRLF are present within the buffer areas, work should be postponed until either 1) the frogs move away from that location on their own, or 2) the frogs are removed and relocated to a safe location by a qualified biologist with approval from USFWS. Additionally, WPT utilize upland grassland habitat near watercourses for nesting and aestivation, typically within 100 m (325 feet)

of aquatic sites (but can extend to 200 m [650 feet] or greater). As a result, ground disturbance activities should not occur within 100 m of these aquatic sites during the late spring through fall unless pre-construction surveys are conducted to locate any nesting or aestivation sites. If nesting and/or aestivation sites are identified, these areas should be avoided during construction activities. If avoidance is not possible, the nest and/or turtle should be removed by a qualified biologist and relocated to an appropriate location (following approval from CDFW) to avoid impacting the species (Appendix B).

To avoid impacts to active badger dens, a preconstruction survey should be conducted by a qualified biologist for American badger no earlier than 24-hours prior to initiation of construction to ensure no suitable badger dens are present within the proposed disturbance area.

All native birds in California are protected by the federal Migratory Bird Treaty Act (MBTA) of 1918 and Section 3503.5 of the California Fish and Game Code, which specifically protects raptors. The site provides suitable foraging habitat for several common raptor and passerine species found in California, such as red-tailed hawk (*Buteo jamacensis*) and mourning dove (*Zenaida macroura*), and special-status raptor and passerine species such as northern harrier and yellow warbler.

Dudek recommends a nesting bird survey be completed by a qualified biologist no earlier than two weeks prior to construction during the nesting season (February 1-September 30) to determine if any native birds are nesting on or near the site (including a 200-foot buffer for raptors). If any active nests are observed during surveys, a suitable avoidance buffer from the nests will be determined by the qualified biologist and consultation with CDFW will be sought if necessary. The nest(s) will be flagged by the qualified biologist based on species, location and planned construction activity. These nests would be avoided until the chicks have fledged and the nests are no longer active, as determined by the qualified biologist. Dudek also recommends removing any habitat (i.e., trees and vegetation) outside of the breeding bird season to avoid impacts to nesting birds.

Wildlife Corridors and Nursery Sites

The project area could be utilized as a corridor or nursery site by several common and special-status wildlife species; however, common wildlife species adapted to life in the vicinity of human disturbance such as raccoon, Virginia opossum and coyote are unlikely to be impacted by construction activities. Preconstruction nesting bird surveys, roosting bat surveys and badger den surveys would serve to identify the presence of these species on the site prior to the onset of construction. Avoidance of any active nests, roosts or dens is recommended to prevent impacts to

breeding or foraging special-status wildlife species that could use the site as a temporary corridor or nursery site.

The drainages on site could potentially provide movement corridors for several special-status and common wildlife species such as migratory birds and California red-legged frog (Figure 6). To avoid impacts to species that could use these drainage corridors for movement and cover, a 100-buffer on either side of the drainages should be implemented during construction. If impacts from construction cannot be avoided and will occur within any drainages on site, a preconstruction survey for nesting birds, western pond turtle and California red-legged frog should be performed by a qualified biologist, as described above and in Appendix B.

Potentially Jurisdictional Wetlands

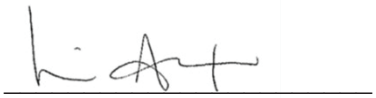
The project site is relatively undisturbed and adjacent land uses are similar to existing conditions on the site. The seven aquatic features on the site are most likely under the joint regulation of the ACOE, RWQCB, and CDFW. Impacts to jurisdictional features will require authorization from the resource agencies listed above in the form of wetland permits (e.g., Clean Water Act Section 404 Nationwide Permit, Section 401 Water Quality Certification, and CDFG Code Section 1602 Streambed Alteration Agreement respectively). Required compensatory mitigation would provide no net loss of jurisdictional habitats. Please refer to Appendix C for the detailed jurisdictional delineation report and related recommendations, which include the following:

- To the maximum extent feasible, trail and other improvements shall avoid wetlands and waterways. If this is not possible, consultation and appropriate authorizations will be required from the ACOE, RWQCB, CDFW, and USFWS for impacts to wetlands and federally-listed species habitat. Mitigation for all impacted wetlands will be required in the form of payment into conservation banks or through compensatory mitigation either onsite or offsite at similar wetlands. Exact mitigation ratios and methods will be determined through the permitting process.
- Appropriate avoidance buffers shall be established around any wetland or waterway adjacent to staging, parking, or roadway improvement areas. These buffers will consist of a 100-foot no-construction zone that will minimize disturbance to a wetland from adjacent development.
- Sediment and erosion control best management practices (BMPs) shall be utilized for all construction adjacent to wetlands. BMPs may include, but are not limited to, hydroseeding, installation of biodegradable straw wattles, covering stockpiles with tarps, and silt fencing.

- Minimize vegetation removal to the maximum extent feasible at the crossings of the central drainage. Vegetation removal and crossing installation will require authorization from the CDFW under Section 1602 of the Fish and Game Code. If feasible, install a clear-span crossing to minimize potential impacts below the top of bank of the stream.

If you have any questions about the biological reconnaissance survey or this report, please feel free to call me at 530.217.8952 or email lachter@dudek.com.

Sincerely,



Lisa Achter
Wildlife Biologist
DUDEK
lachter@dudek.com
530.217.8952

Att: *Figures 1 – 6C*
Appendix A – Wildlife PTO Table
Appendix B – California Red-legged Frog and Western Pond Turtle Habitat Assessment
Appendix C – Jurisdictional Delineation
Appendix D –Plant PTO Table
Appendix E – List of Plant Species Observed on Site
Appendix F – Botanical Report

References Cited

16 U.S.C. 703–712. Migratory Bird Treaty Act, as amended.

CDFW (California Department of Fish and Game). July 2017. "Special Animals (900 taxa)." California Natural Diversity Database. CDFG, Biogeographic Data Branch. Website http://www.dfg.ca.gov/wildlife/nongame/list.html

CDFW (California Department of Fish and Wildlife). 2017. California Natural Diversity Database (CNDDB). Rarefind, Version 5 (Commercial Subscription). Sacramento, California. Accessed October 2017. Website https://map.dfg.ca.gov/rarefind/Login.aspx?ReturnUrl= %2frarefind%2fview%2fRareFind.aspx

California Native Plant Society (CNPS), Rare Plant Program. 2017. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society, Sacramento, CA. Website http://www.rareplants.cnps.org/advanced.html (accessed August 2017).

List of Vegetation Alliances and Associations. Vegetation Classification and Mapping Program, California Department of Fish and Game. Sacramento, California. September 2010

Google Earth V 7.1.5.1557. (May 20, 2015). Auburn, California. 38°19'24" N, 122°57'42" W, Eye alt 5,830 feet. Digital Globe 2016. http://www.earth.google.com [October 4, 2017].

Sawyer, J.O., T. Keeler-Wolf, and J.M. Evens. 2009. A Manual of California Vegetation, Second Edition. California Native Plant Society, Sacramento. 1300 pp.

U.S. Army Corps of Engineers (ACOE). 1987. Corps of Engineers Wetlands Delineation Manual. Wetlands Research Program Technical Report Y-87- 1.

USDA (U.S. Department of Agriculture). 2017. Natural Resources Conservation Service (NRCS). Web Soil Survey. Accessed October 2017. http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm



SOURCE: ArcGIS Online Basemap

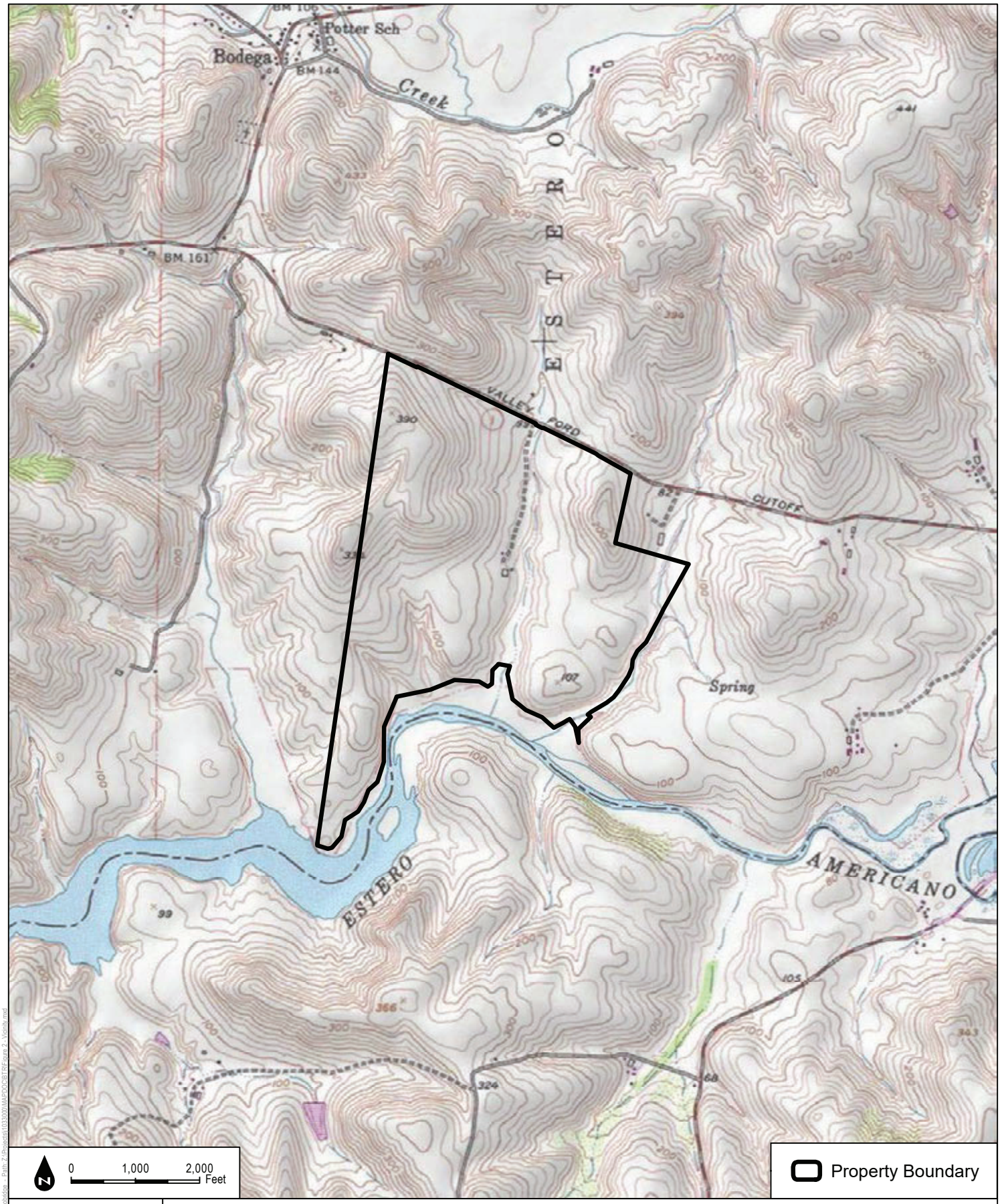
FIGURE 1

Regional Map

DUDEK

Bordessa Ranch - Estero Trail

Biological Technical Report



SOURCE: USGS 7.5-Minute Series Valley Ford Quadrangle
Township 6N; Range 10W; Sections 27, 28, 33, 34

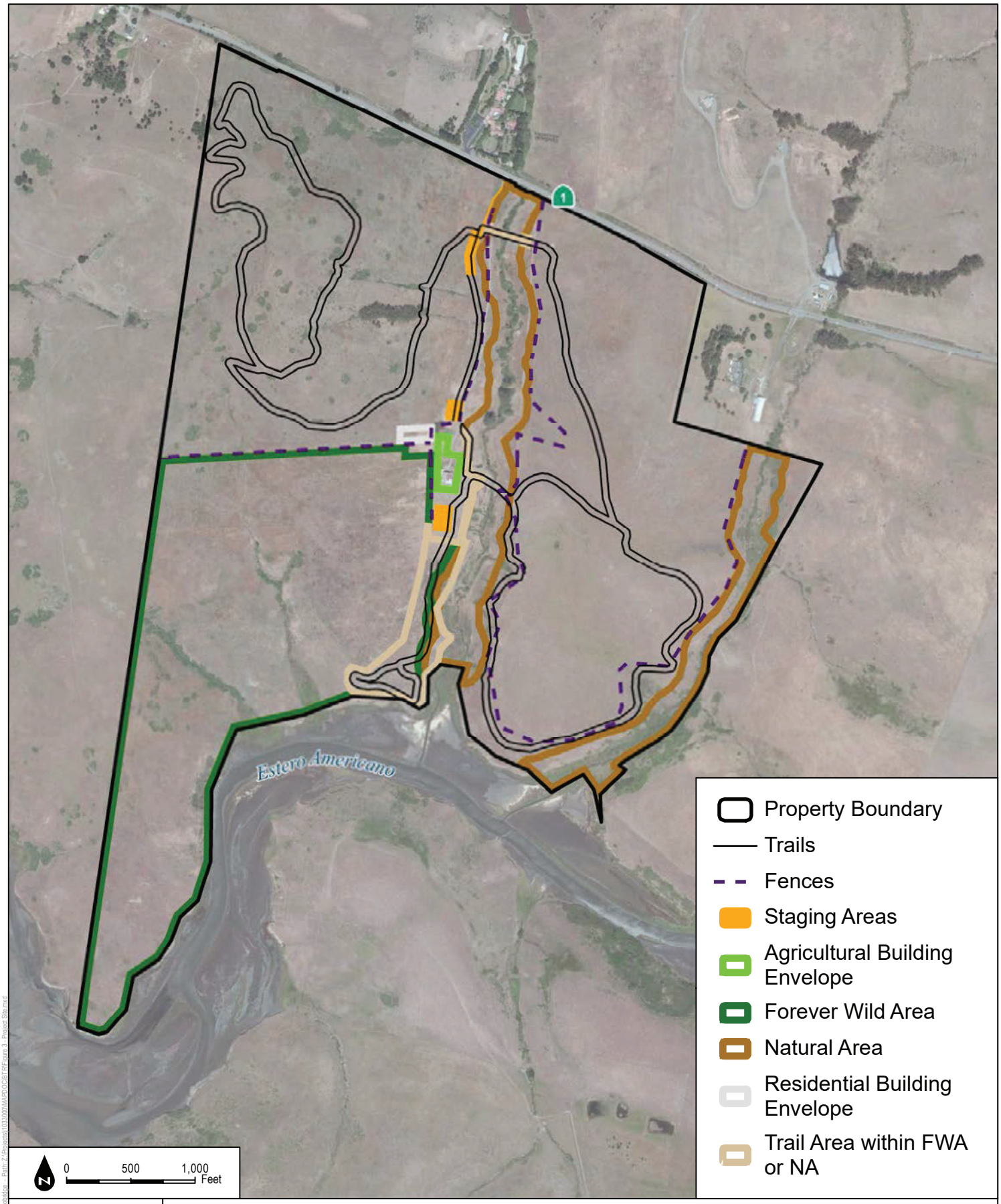
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FIGURE 2
Vicinity Map

Bordessa Ranch - Estero Trail

Biological Technical Report

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SOURCE: Bing Maps (Accessed 2017)

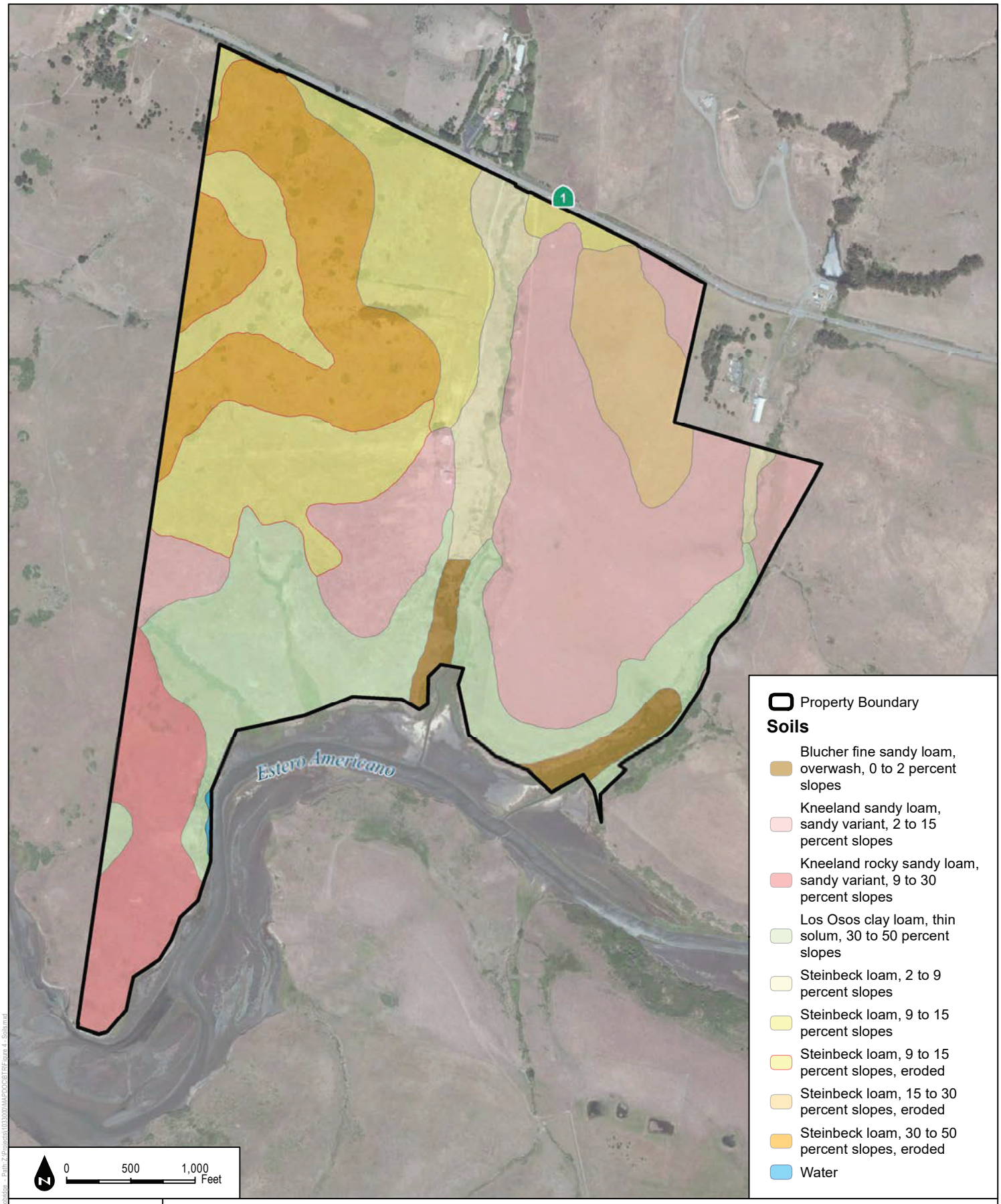
FIGURE 3

Project Site

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Bordessa Ranch - Estero Trail

Biological Technical Report



SOURCE: Bing Maps (Accessed 2017); USDA NRCS Soils

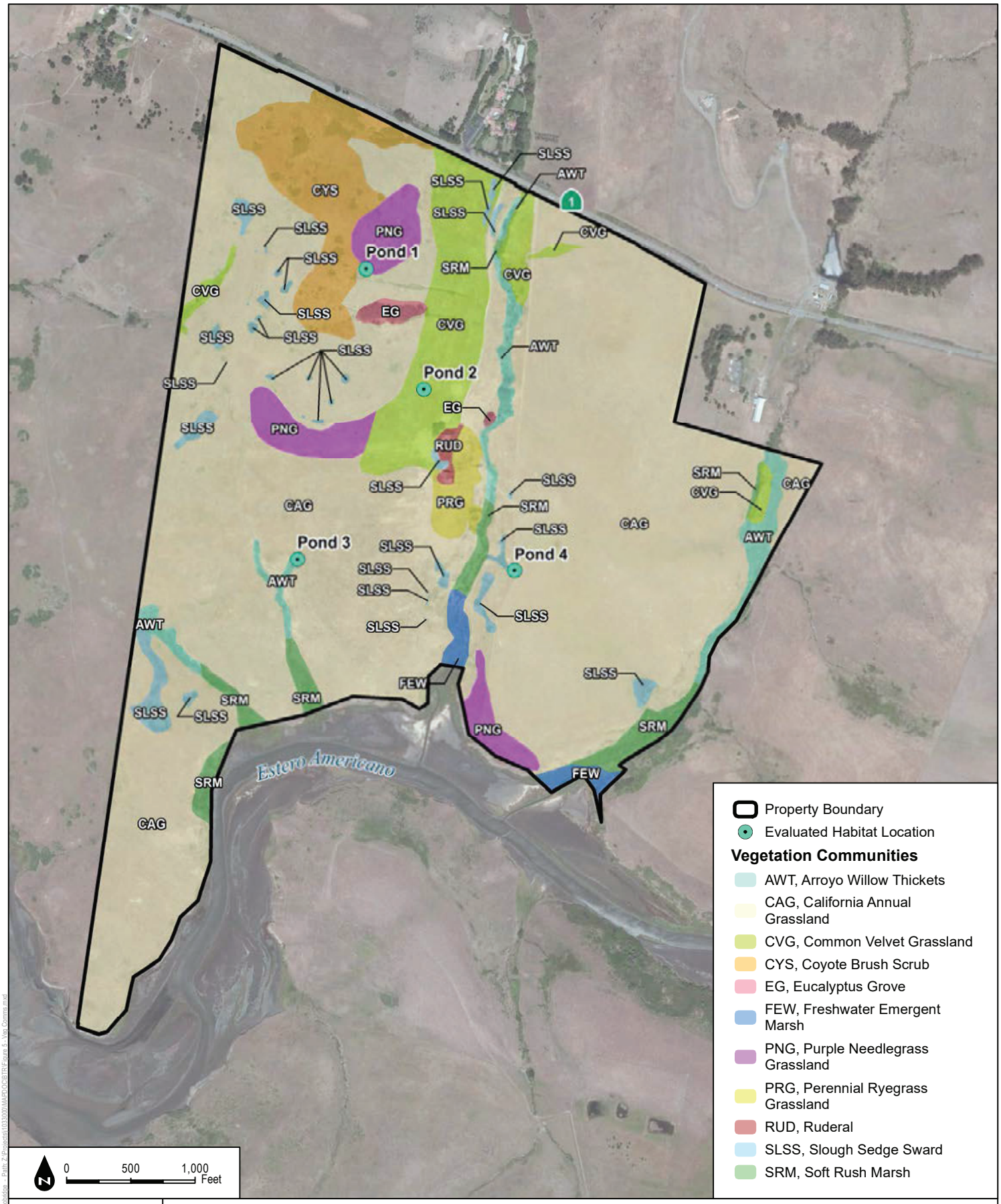
FIGURE 4

Soils Map

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Bordessa Ranch - Estero Trail

Biological Technical Report



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SOURCE: Bing Maps (Accessed 2017)

FIGURE 5

Vegetation Communities

Bordessa Ranch - Estero Trail

Biological Technical Report

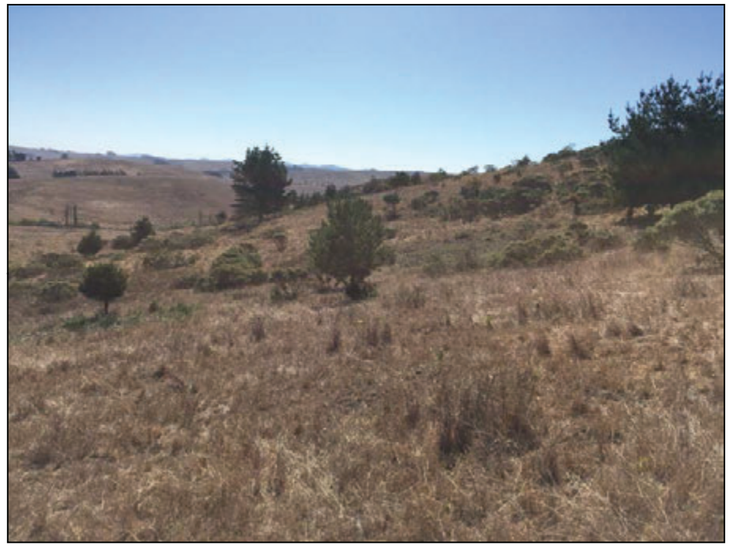
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Access road that runs north to south through the site



Barn and pumphouse in center of site



Coyote brush scrub in northwestern portion of site



Hillside in southeastern portion of site where proposed trail is located



Location of proposed trail in southern portion of site



Looking east toward the perennial drainage that runs parallel to the access road



Looking south across the site toward the Estero Americano



Looking southeast across the site from the proposed trail



Looking west across the site from the northern portion of the access road



Perennial drainage just east of access road



Eucalyptus grove in northwestern portion of the site



Looking north along drainage on the eastern boundary of the site

DUDEK

FIGURE 6C
Site Photos

Bordessa Ranch - Estero Trail

Biological Technical Report

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APPENDIX A

Wildlife PTO Table

APPENDIX A
Wildlife PTO Table

Common Name	Scientific Name	Federal/State Status	Habitat Associations	Potential to Occur in the Project Area
		Invertebrates		
California freshwater shrimp	*Syncaris pacifica*	Endangered/Endangered	California freshwater shrimp is found in low to moderate gradient creeks and streams where there is some emergent vegetation, high water quality, low levels of pollution and good oxygen levels. Some salinity is tolerated, although they are not found in any tidally influenced or brackish waters. Oviposition occurs in late spring and eggs hatch in June.	No potential to occur. Suitable habitat for this species is not present within or adjacent to the project area.
Myrtle's silverspot butterfly	*Speyeria zerene myrtleae*	Endangered/None	Myrtle's silverspot is a medium sized butterfly in the brush foot family. Wingspan is approximately 5.6 cm (2.2 inches). Adult butterflies are typically found in areas that are sheltered from the wind, below 250 m (820 feet) elevation, and within 3 miles of the coast. They are found in coastal dune or prairie habitat Four populations are known to inhabit western Marin and southwestern Sonoma counties, including the Point Reyes National Seashore.	Moderate potential to occur. Suitable habitat exists on the project site and there are documented occurrences of this species just south of the Estero Americano.
San Bruno elfin butterfly	*Callophrys mossii bayensis*	Endangered/None	The San Bruno Elfin Butterfly inhabits rocky outcrops and cliffs in coastal scrub in the coastal mountains near San Francisco Bay, in the fog-belt of steep north facing slopes that receive little direct sunlight. Elfin butterflies feed on other flowers in addition to their host plant, stonecrop (*Sedum spathulifolium*), which is associated with rocky outcrops. Adult food plants have not been fully determined. All known locations are restricted to San Mateo County.	No potential to occur. Suitable habitat for this species is not present within or adjacent to the project area.
		Fish		
coho salmon - central California coast ESU	*Oncorhynchus kisutch*	Endangered/Endangered	Coho spend approximately the first half of their life cycle rearing and feeding in streams and small freshwater tributaries. Spawning habitat is small streams with stable gravel substrates. The remainder of the life cycle is spent foraging in estuarine and marine waters of the Pacific Ocean. They feed on plankton and insects in freshwater and switch to a diet of small fishes while in the ocean.	No potential to occur. Suitable habitat for this species is not present within or adjacent to the project area.

Common Name	Scientific Name	Federal/State Status	Habitat Associations	Potential to Occur in the Project Area
eulachon	*Thaleichthys pacificus*	Threatened/None	Eulachon are an anadromous forage fish and are endemic to the northeastern Pacific Ocean; they range from northern California to southwest and south-central Alaska and into the southeastern Bering Sea. The southern DPS of eulachon is comprised of fish that spawn in rivers south of the Nass River in British Columbia to, and including, the Mad River in California. Adult eulachon typically spawn at age 2-5 in the lower portions of rivers. The spawning migration usually occurs between December and June.	No potential to occur. Suitable habitat for this species is not present within or adjacent to the project area.
longfin smelt	*Spirinchus thaleichthys*	Candidate Threatened/ Threatened, SSC	The longfin smelt is a pelagic estuarine fish. Longfin smelt generally spawn in freshwater and then move downstream to brackish water to mature. The life cycle of most longfin smelt generally requires estuarine conditions. Juvenile and adult longfin smelt have been found throughout the year in salinities ranging from pure freshwater to pure seawater, although once past the juvenile stage, they are typically collected in waters with salinities ranging from 14 to 28 parts per thousand. Longfin smelt are thought to be restricted by high water temperatures, generally greater than 22 degrees °C. Most longfin smelt in the San Francisco Bay are believed to breed in the lower reaches of the Sacramento and San Joaquin Rivers.	No potential to occur. Suitable habitat for this species is not present within or adjacent to the project area.
steelhead	*Oncorhynchus mykiss irideus* – central California coast DPS (NMFS)	Threatened/None	Central California coast steelhead (and their progeny) spawns in streams from the Russian River to Aptos Creek, Santa Cruz County, California (inclusive). They also occur in drainages of San Francisco and San Pablo Bays. Regardless of life history strategy, for the first year or two of life rainbow trout and steelhead are found in cool, clear, fast-flowing permanent streams and rivers where riffles predominate over pools, there is ample cover from riparian vegetation or undercut banks, and invertebrate life is diverse and abundant.	No potential to occur. Suitable habitat for this species is not present within or adjacent to the project area.

Common Name	Scientific Name	Federal/State Status	Habitat Associations	Potential to Occur in the Project Area
tidewater goby	*Eucyclogobius newberryi*	Endangered/None, SSC	The tidewater goby is endemic to California and found primarily in waters of coastal lagoons, estuaries, and marshes. They are benthic in nature, and habitat is characterized by brackish, shallow lagoons and lower stream reaches where the water is fairly still but not stagnant. Tidewater gobies prefer a sandy substrate for breeding, but they can be found on rocky, mud, and silt substrates as well. Tidewater gobies have been documented in waters with salinity levels from 0 to 42 parts per thousand, temperature levels from 8 to 25 degrees Celsius (46 to 77 degrees Fahrenheit), and water depths from 25 to 200 centimeters (10 to 79 inches). The tidewater goby appears to spend all life stages in lagoons, estuaries, and river mouths. Tidewater gobies may enter marine environments only when flushed out of lagoons, estuaries, and river mouths by normal breaching of the sandbars following storm events.	No potential to occur. Suitable habitat for this species is not present within or adjacent to the project area.
Amphibians and Reptiles				
California red-legged frog	*Rana draytonii*	Threatened/None, SSC	California red-legged frogs occur in different habitats depending on their life stage, the season, and weather conditions. Breeding habitat includes coastal lagoons, marshes, springs, permanent and semi-permanent natural ponds, and ponded and backwater portions of streams. These frogs also breed in artificial impoundments including stock ponds, irrigation ponds, and siltation ponds. Creeks and ponds with dense growths of woody riparian vegetation, especially willows (*Salix* spp.) are preferred, although the absence of vegetation at an aquatic site does not rule out the possibility of occupancy. Adult frogs prefer dense, shrubby or emergent riparian vegetation near deep (≥2 to 3 feet), still or slow moving water, especially where dense stands of overhanging willow and an intermixed fringe of cattail occur adjacent to open water.	Present. This species was observed during surveys on September 26, 2017.

Common Name	Scientific Name	Federal/State Status	Habitat Associations	Potential to Occur in the Project Area
California tiger salamander	*Ambystoma californiense*	Threatened/Threatened	California tiger salamander (CTS) may be found in riparian and wet meadow habitats, but is more common in grasslands. CTS spend most of its life cycle underground in adjacent valley oak woodland or grassland habitat, primarily in rodent burrows. Breeding takes place following the first heavy winter rains. Temporary or permanent freshwater pools or slowly flowing streams are required for egg-laying and larval development. They appear to be absent in waters containing predatory game fish.	No potential to occur. Suitable habitat for this species is not present within or adjacent to the project area and the site is outside of the species range.
foothill yellow-legged frog	*Rana boylii*	None/Candidate Threatened, SSC	Frequents rocky streams and rivers with rocky substrate and open, sunny banks, in forests, chaparral, and woodlands. Sometimes found in isolated pools, vegetated backwaters, and deep, shaded, spring-fed pools.	No potential to occur. Suitable habitat for this species is not present within or adjacent to the project area.
western pond turtle	*Emys marmorata*	None/SSC	Western pond turtles use both aquatic and terrestrial habitats. They are found in rivers, lakes, streams, ponds, wetlands, ephemeral creeks, reservoirs, agricultural ditches, estuaries, and brackish waters. Western pond turtles prefer areas that provide cover from predators, such as vegetation and algae, as well as basking sites for thermoregulation. Adults tend to favor deeper, slow moving water, whereas hatchlings search for slow and shallow water that is slightly warmer. Terrestrial habitats are used for wintering and usually consist of burrows in leaves and soil. Western pond turtles also lay their eggs in terrestrial habitats. They are rarely found at altitudes above 1,500 meters.	Present. This species was observed during surveys on September 26, 2017.
			Birds	
bank swallow	*Riparia riparia*	None/Threatened	Restricted to riparian, lacustrine, and coastal areas with vertical banks, bluffs, and cliffs with fine-textured or sandy soils, into which it digs nesting holes. Feeds predominantly over open riparian areas, but also over brushland, grassland, wetlands, water, and cropland.	No potential to occur. Suitable habitat for this species is not present within or adjacent to the project area.

Common Name	Scientific Name	Federal/State Status	Habitat Associations	Potential to Occur in the Project Area
burrowing owl	*Athene cunicularia*	None/SSC	The burrowing owl utilizes abandoned ground squirrel burrows in open habitats and grasslands, also disturbed areas. Diet consists of insects, small mammals, reptiles and amphibians. Commonly uses burrows on levees or mounds where there are unobstructed views of possible predators such as raptors or foxes.	Low potential to occur. Although some ground squirrel burrows were observed on the site, the nearest occurrence is approximately 5 miles west of the site near Bodega Bay, and nesting in Sonoma County is fairly rare for this species.
California black rail	*Laterallus jamaicensis coturniculus*	None/Threatened, FP	California black rail occurs near freshwater marshes along the margins of ponds, lakes, and water impoundments; also herb dominated wetlands on sloped ground associated with springs, canal leaks, seepage from impoundments and agricultural irrigation. Needs water depths of about 1 inch that do not fluctuate during the year and dense vegetation for nesting habitat.	No potential to occur. Suitable habitat for this species is not present within or adjacent to the project area.
California Ridgway's rail	*Rallus obsoletus obsoletus*	Endangered/Endangered, FP	Populations of the California Ridgway's rail now live almost exclusively in the marshes of the San Francisco estuary. They inhabit a range of salt and brackish water marshes and tidal sloughs. They typically utilize salt marshes dominated by both pickleweed (*Salicornia virginica*) and Pacific cordgrass (*Spartina foliosa*).	No potential to occur. Suitable habitat for this species is not present within or adjacent to the project area and the site is outside of the species range.
marbled murrelet	*Brachyramphus marmoratus*	Threatened/Endangered	Marbled murrelet forages in coastal waters and bays, and breeds inland on mountains near coast. Generally on calm protected waters near coast, as in bays, inlets, among islands; does most foraging in fairly shallow water. Sometimes found on lakes near coast. Nests on mountainsides on islands or well inland in mature forest habitat.	No potential to occur. Suitable habitat for this species is not present within or adjacent to the project area.

Common Name	Scientific Name	Federal/State Status	Habitat Associations	Potential to Occur in the Project Area
northern harrier	*Circus cyaneus*	None/SSC	Northern harrier utilizes marshes, fields, and prairies. Found in open terrain, both wet and dry habitats, where there is sufficient ground cover. Often found in marshes, especially during nesting season, but sometimes will nest in dry open fields. Usually hunts by flying low over fields, scanning the ground.	Present. This species was observed during surveys on September 26, 2017.
northern spotted owl	*Strix occidentalis caurina*	Threatened/Threatened, SSC	Northern spotted owls generally inhabit older stands of forested habitats that contain the necessary habitat characteristics for nesting and foraging, including multi-layered, multi-species canopy with moderate to high canopy closure. These stands typically contain a high number of trees with large cavities and other types of deformities; large snags (standing dead trees); an abundance of large, dead wood on the ground; and open space within and below the upper canopy for spotted owls to fly.	No potential to occur. Suitable habitat for this species is not present within or adjacent to the project area.
short-eared owl	*Asio flammeus*	None/SSC	Short-eared owl lives in open terrain throughout California, such as prairies and marshes. Nests on the ground and eats small mammals.	Low potential to occur. Although suitable habitat exists for this species on site, there are no documented occurrences in the vicinity of the site. However, the landowner potentially identified several short-eared owls on the site during the winters of 2010-2011 and 2011-2012.
tricolored blackbird	*Agelaius tricolor*	None/Candidate Endangered, SSC	Tricolored blackbird is a colonial species found almost exclusively in California. It utilizes wetlands, marshes and agricultural grain fields for foraging and nesting. The tricolored blackbird population has declined significantly in the past 6 years due to habitat loss and harvest of grain fields before young have fledged.	No potential to occur. Suitable habitat for this species is not present within or adjacent to the project area.

Common Name	Scientific Name	Federal/State Status	Habitat Associations	Potential to Occur in the Project Area
western snowy plover	*Charadrius alexandrines nivosus*	Threatened/None, SSC	Western snowy plover is a small shorebird, approximately the size of a sparrow. During the breeding season (March through September), plovers can be seen nesting along the shores, peninsulas, offshore islands, bays, estuaries, and rivers of the United States' Pacific Coast. Plovers will use almost anything they can find on the beach to make their nests, including kelp, driftwood, shells, rocks, and even human footprints	No potential to occur. Suitable habitat for this species is not present within or adjacent to the project area.
western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Threatened/Endangered	Western yellow-billed cuckoo inhabits woodlands, thickets, orchards, streamside groves. Breeds mostly in dense deciduous stands, including forest edges, tall thickets, dense second growth, overgrown orchards, scrubby oak woods. Often in willow groves around marshes. In the west, mostly in streamside trees, including cottonwood-willow groves in arid country. Forages by scaling through shrubs and trees, gleaning insects from foliage and branches.	Moderate potential to occur. Suitable riparian habitat occurs within and adjacent to the site, and there is an occurrence record for this species just north of the site near Bodega, CA.
yellow warbler	*Setophaga petechia*	None/SSC	Associated with riparian habitat, particularly willow and alder thickets in montane areas, and willow cottonwood riparian at lower elevations.	Present. This species was observed during surveys on April 14, 2017.
			Mammals	
American badger	*Taxidea taxus*	None/SSC	American badger is most abundant in drier open stages of most shrub, forest and herbaceous habitats with friable soils. Will dig burrows for cover. Will reuse burrows occasionally but also may dig new burrows each night in summer. Diet consists of rodents, small mammals, reptiles, insects, birds and carrion.	Moderate potential to occur. Suitable habitat exists within the project area, and there are occurrence records for this species on the site and just north of the site near Bodega, CA.
pallid bat	*Antrozous pallidus*	None/SSC	Pallid bat occupies a variety of habitats including grassland, shrubland, woodland and forests from sea level up through mixed conifer forest. Roosts in caves, mines, crevices and occasionally hollow trees or buildings. Prefers open habitats for foraging.	Moderate potential to occur. Suitable foraging habitat exists within the project area, and structures and trees within the project area could provide suitable roosting habitat.

Common Name	Scientific Name	Federal/State Status	Habitat Associations	Potential to Occur in the Project Area
San Francisco dusky-footed woodrat	*Neotoma fuscipes annectens*	None/SSC	Dusky-footed woodrats are found in forest and shrubland communities throughout much of California. They are well known for their large terrestrial stick houses, some of which can last for twenty or more years. Houses typically are placed on the ground against or straddling a log or exposed roots of a standing tree, and are often located in dense brush. Nests are also placed in the crotches and cavities of trees and in hollow logs.	No potential to occur. Suitable habitat for this species is not present within or adjacent to the project area.
Townsend's big-eared bat	*Corynorhinus townsendii*	None/SSC	Townsend's big-eared bat is found throughout most of western North America. Hibernates and roosts in caves and mines near entrances, or cave like structures such as buildings or under decks. Forages in forested habitats, along open edges.	Moderate potential to occur. Suitable foraging habitat exists within the project area, and structures within the project area could provide suitable roosting habitat. There are several occurrence records for this species approximately 5 miles west of the site in Bodega Bay, CA.

APPENDIX B

California Red-legged Frog and Western Pond Turtle Habitat Assessment

California Red-Legged Frog (*Rana draytonii*) Habitat Assessment and Surveys Report for the Estero Trail Project Sonoma County, California

Prepared For:

County of Sonoma

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NOVEMBER 2017

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California Red-Legged Frog (*Rana draytonii*) Habitat Assessment and Surveys Report for the Estero Trail Project

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California Red-Legged Frog (*Rana draytonii*) Habitat Assessment and Surveys Report for the Estero Trail Project

1 INTRODUCTION

At the request of Sonoma County, Dudek conducted a habitat assessment and daytime survey within the Estero Trail project (study area) for the federally threatened California red-legged frog (*Rana draytonii*) (CRF). The study area is located within an elevation range from sea level to 119 meters (m) (0 to 390 feet [ft]) above mean sea level, and is located along the Estero American 2 miles west of the town of Valley Ford (Figures 1 and 2, Regional and Vicinity Maps). The site occurs within Section 33, Township 6 North, and Range 10 West of the "Valley Ford" 7.5-minute topographic quadrangles. The approximate center of the study area is located at 38°19'25" North and 122°57'41" West.

The site is currently owned by the Bordessa family and is known as Bordessa Ranch. In 2010, the Bordessa family submitted an inquiry to the Sonoma County Agricultural Preservation and Open Space District (District) about District purchase of a Conservation Easement over the property, including a public access trail. In 2012, imminent subdivision of the ranch was prevented by the District through purchase of a Conservation Easement. Under the terms of the agreement between the District and the Bordessa family, the District will hold the Conservation Easement over the Property in perpetuity with the intention to preserve its important agricultural, natural, and scenic values, along with a trail easement, to provide the public with outdoor recreational opportunities. Regional Parks and the District have since worked together to develop the trail easement and public access. With a grant from the State Coastal Conservancy, Regional Parks is providing environmental review and easement trail planning.

The proposed project would establish two main pedestrian only trails and parking lots that would allow for low-intensity public recreational access. The proposed trail alignments would not be more than 5 miles in length and the parking lots would not be more than 1.5 acres in combined size (Figure 3, Project Site). The proposed trail system is the principal means for providing public access to the property and the Estero. The trails will be constructed for pedestrian use and hand-carried non-motorized boats, kayaks and canoes. The trail will be 5 ft wide and composed of compacted native material or other permeable surface, including rocked crossings only where the trail would span a stream. Several benches and trail marker posts would be placed along the trail. The existing main access road and gate are expected to remain in similar locations.

The study area contains four man-made ponds, two unnamed intermittent drainages (ID-01 and ID-02), several small ephemeral drainages, and several seeps and springs (spring boxes). The CRF habitat assessment and daytime surveys were conducted on September 26 and 27, 2017, by senior aquatic ecologist Craig Seltenrich and biologist Paul Keating of Dudek.

1.1 Environmental Setting

The site and study area are located in primarily non-native annual grassland habitat, although the southern portion of the site includes tidal habitat along drainages ID-01 and ID-02 located in the center and eastern portions of the site (Figure 4, Vegetation Communities).

1.1.1 Vegetation Community Types

California Annual Grassland. The dominant habitat type in the project area, the California annual grassland is dominated by non-native grasses such as slender wild oats (*Avena barbata*), velvet grass (*Holcus lanatus*), rattlesnake grass (*Briza maxima*), little quaking grass (*Briza minor*), hedgehog dogtail grass (*Cynosurus echinatus*). Also present in this habitat are non-native forbs such as bull thistle (*Cirsium vulgare*), Italian thistle (*Carduus pycnocephalus*), birdsfoot trefoil (*Lotus corniculatus*), cat's ears (*Hypochaeris glabra*; *H. radicata*), pale flax (*Linum bienne*), and sheep sorrel (*Rumex acetosella*). Native grasses and forbs were present in less density than the non-natives and include: purple needlegrass (*Stipa pulchra*), yarrow (*Achillea millefolium*), dwarf brodiaea (*Brodiaea terrestris*), California poppy (*Eschscholzia californica*), annual lupine (*Lupinus bicolor*), blue-eyed grass (*Sisyrinchium bellum*), and scattered coyote brush (*Baccharis pilularis*).

Coyote Brush Scrub (*Baccharis pilularis* Shrubland Alliance). Coyote brush (*Baccharis pilularis*) is the dominant shrub in this vegetation community. Coyote brush scrub occurs intermittently in the western portion of the project site, primarily on north- and east-facing hill slopes. Other shrub species observed in this vegetation community include coffeeberry (*Frangula californica*), hawthorn (*Crataegus* spp.), and gorse (*Ulex europaeus*). Scattered Monterey pine trees (*Pinus radiata*) are also present in low numbers within this vegetation community. The herbaceous understory of this vegetation community contains grass and herb species consistent with those found in the California Annual Grassland, described above.

Arroyo Willow Thickets (*Salix lasiolepis* Shrubland Alliance). Arroyo willow (*Salix lasiolepis*) is the dominant tree cover along the two intermittent drainages ID-01 and ID-02. Other tree species observed with the arroyo willow along the central drainage ID-01 include Lombardy poplar (*Populus nigra*) and blue gum (*Eucalyptus globulus*). The understory of this vegetation community primarily consisted of rushes (*Juncus patens* and *J. effusus*), and bracken fern (*Pteridium aquilinum*).



SOURCE: ArcGIS Online Basemap

FIGURE 1

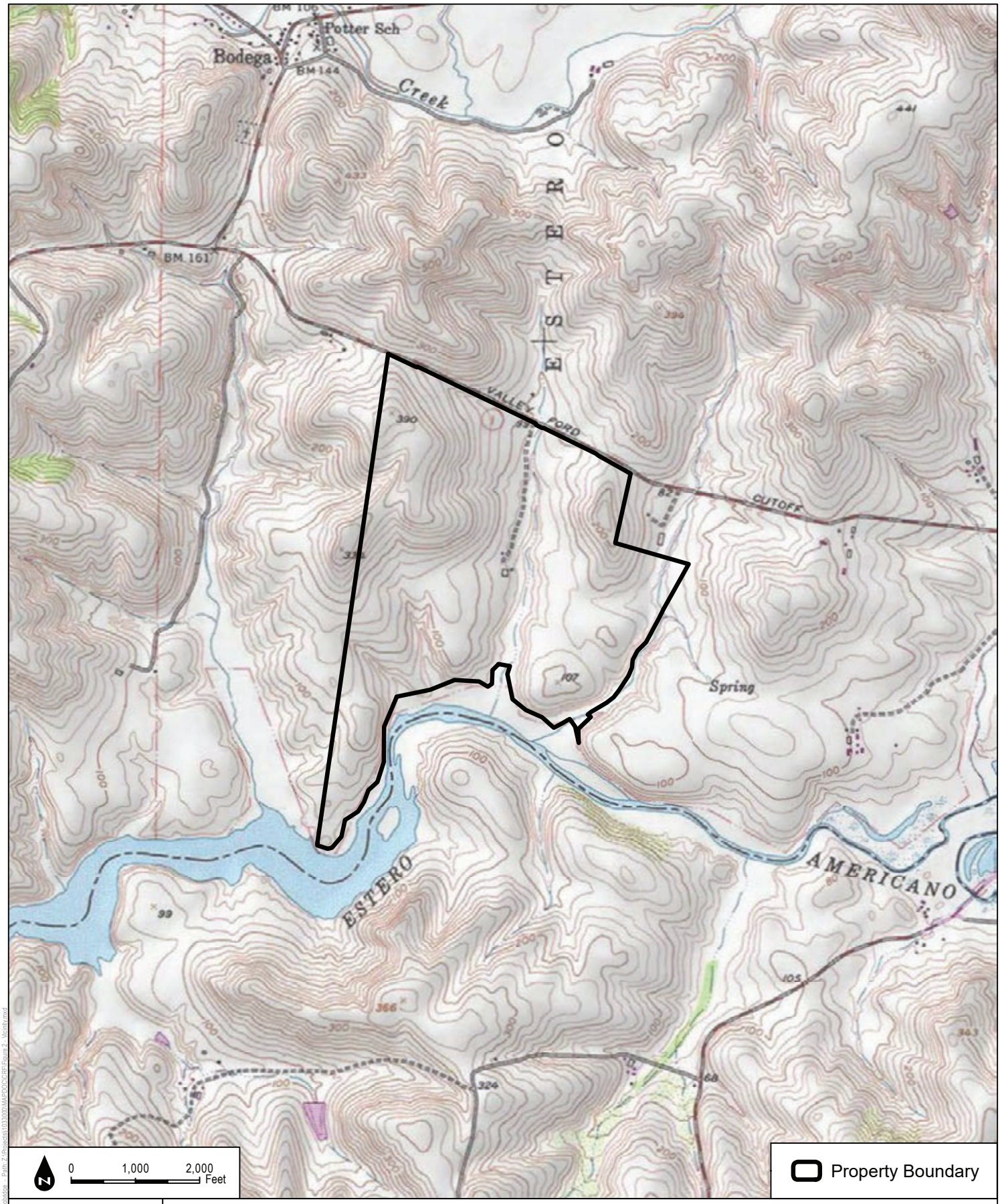
Regional Map

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Bordessa Ranch - Estero Trail

California Red-legged Frog Habitat Assessment and Surveys Report

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SOURCE: USGS 7.5-Minute Series Valley Ford Quadrangle
Township 6N; Range 10W; Sections 27, 28, 33, 34

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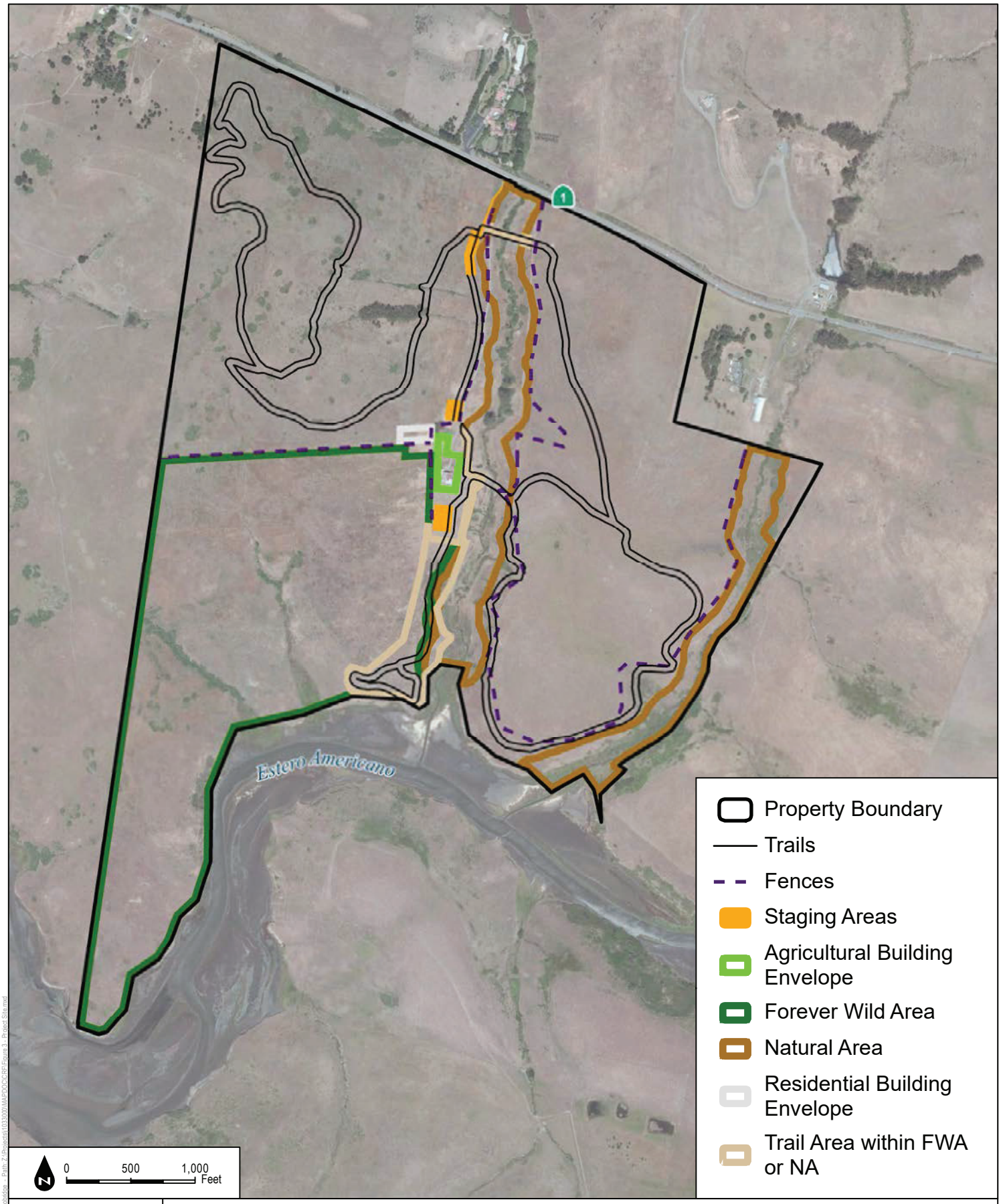
FIGURE 2
Vicinity Map

Bordessa Ranch - Estero Trail

California Red-legged Frog Habitat Assessment and Surveys Report

Date: 11/3/2017 - Last saved by: mtoyofuku - Path: Z:\Projects\103300\MAPDOCS\CRF\Figure 2_Vicinity.mxd

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SOURCE: Bing Maps (Accessed 2017)

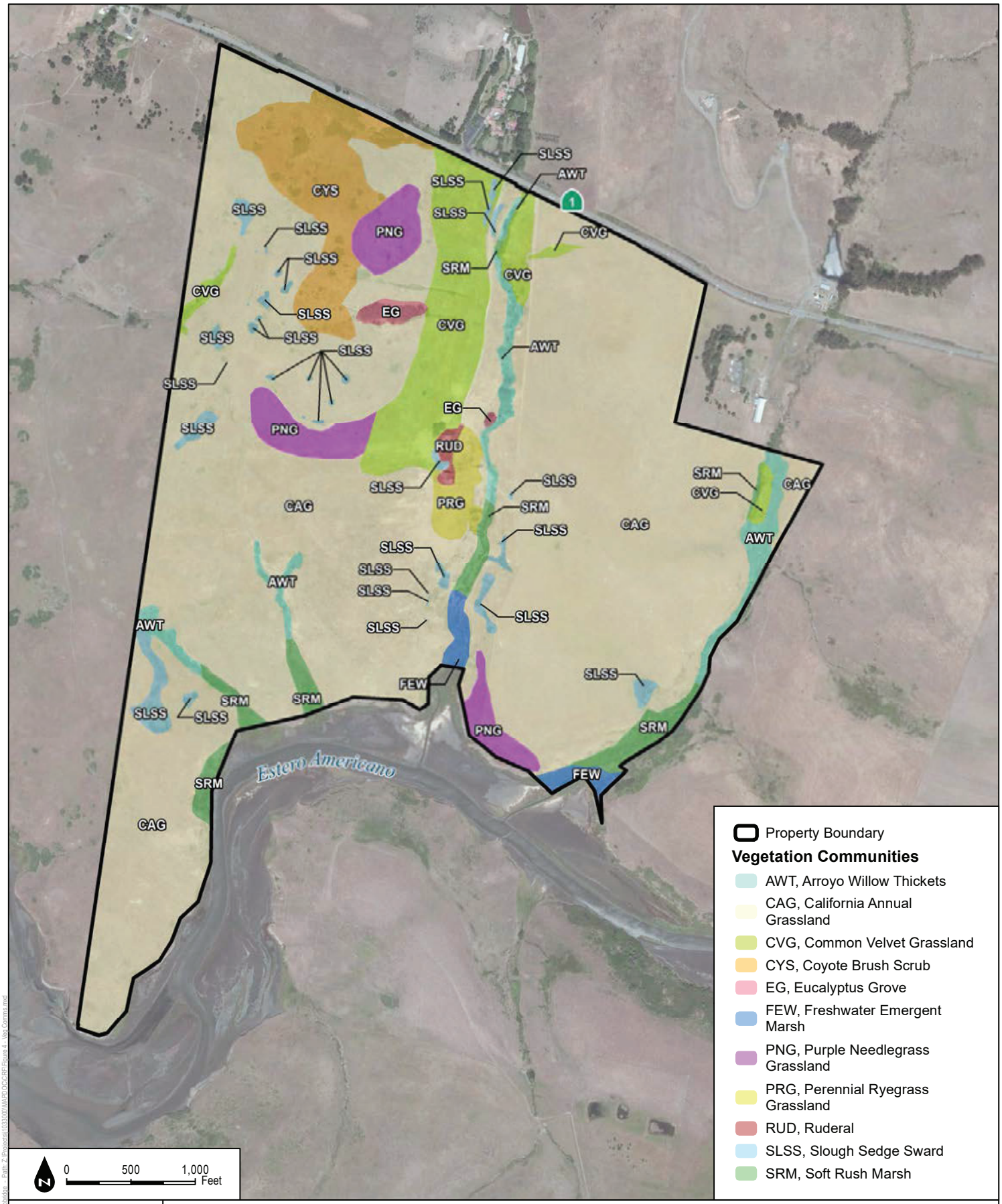
FIGURE 3
Project Site

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Bordessa Ranch - Estero Trail

California Red-legged Frog Habitat Assessment and Surveys Report

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SOURCE: Bing Maps (Accessed 2017)

FIGURE 4

Vegetation Communities

Bordessa Ranch - Estero Trail

California Red-legged Frog Habitat Assessment and Surveys Report

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Eucalyptus Groves (*Eucalyptus* (*globulus, camaldulensis*) Woodland Semi-Natural Alliance). Several eucalyptus (*Eucalyptus globulus*) groves occur on site, one along an ephemeral drainage in the western portion of the project site and the other along drainage ID-01.

Slough Sedge Swards (*Carex obnupta* Herbaceous Alliance). Slough sedge swards occur in the grassland throughout the project site where moisture appears to be maintained in the soil due to the site's micro-topography. This vegetation community is dominated by slough sedge (*Carex obnupta*), with some velvet grass, sweet vernal grass (*Anthoxanthum odoratum*), and California blackberry (*Rubus ursinus*) interspersed.

1.1.2 Aquatic Features

Aquatic habitats present within the site include four man-made ponds, some of which appear to be perennial in average and above average water years, two intermittent drainages ID-01 and ID-02, and several ephemeral drainages, springs and seeps, and numerous other small shallow ephemeral features.

1.1.3 Soils

Soils information for the site was obtained from the Natural Resources Conservation Service Soil Survey of Sonoma County, California, Western Part (USDA 2017). Steinbeck loam and Kneeland sandy loam, on varying slopes, are the most common soil types present and both are found throughout the eastern and western hills. Los Osos clay loam, thin solum, 30%–50% slopes occurs on the south facing slopes of both hills. Bulcher fine sandy loam, overwash 0–2% slopes is also present along drainages ID-01 and ID-02 where they meet with the Estero Americano (Figure 5, Natural Resources Conservation Service Soils Types).

1.2 California Red-Legged Frog General Ecology

1.2.1 Status

The CRF was listed as a threatened species by the U.S. Fish and Wildlife Service (USFWS) on May 23, 1996 (USFWS 1996). In 2002, the USFWS published the *Recovery Plan for the California Red-Legged Frog* (*Rana aurora draytonii,* now *Rana draytonii*) (USFWS 2002). The CRF was listed as a threatened species by the USFWS on May 23, 1996 (USFWS 1996), and in 2002, the USFWS published the *Recovery Plan for the California Red-Legged Frog* (Rana aurora draytonii) (USFWS 2002). On April 13, 2006, the USFWS designated critical habitat for the CRF (Federal Register Vol. 70, No. 71: 19243-19346) pursuant to the Endangered Species Act of 1973, as amended.

1.2.2 Distribution

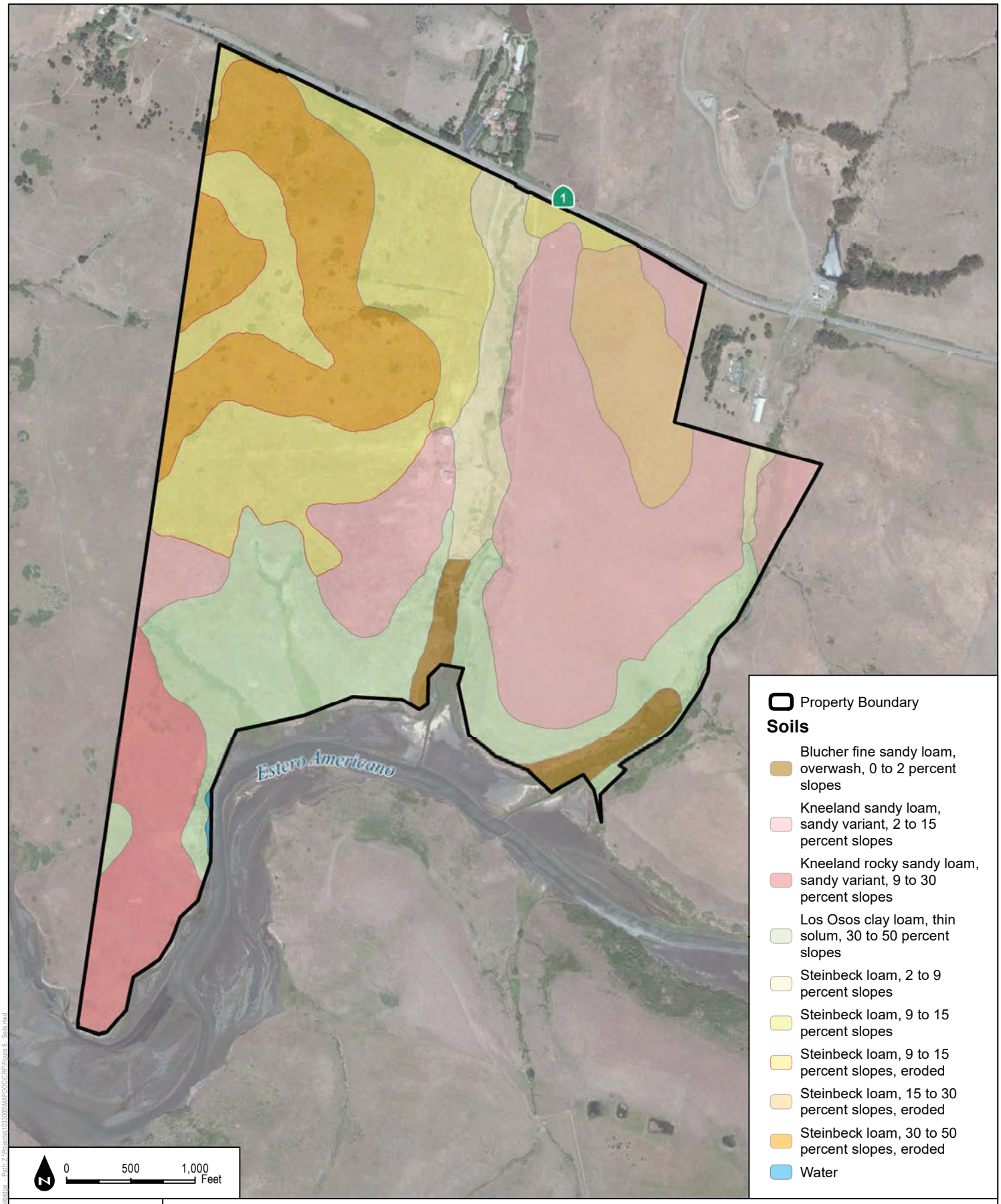
The historic range of the CRF extended coastally from the vicinity of Elk Creek in Mendocino

County, California, and inland from the vicinity of Redding in Shasta County, California, southward to northwestern Baja California, Mexico (Fellers 2005; Jennings and Hayes 1985; Hayes and Krempels 1986). CRF were historically documented in 46 counties; however, they are now restricted to 238 streams or drainages within 23 counties. This represents a loss of 70% of its former range (USFWS 2002). CRF are still locally abundant within portions of the San Francisco Bay Area and the Central Coast. Within the current distribution of the species, only isolated populations have been documented in the Sierra Nevada, northern coast, and northern Transverse Ranges. CRF are believed to be extirpated from the southern Transverse and Peninsular Ranges, but are still present in Baja California, Mexico.

1.2.3 Adults

Adult CRF prefer dense, shrubby or emergent riparian vegetation closely associated with deep >0.7 m (>2.3 ft), still, or slow-moving water (Hayes and Jennings 1988). However, frogs have also been found breeding in ephemeral creeks and drainages and in ponds that may or may not have riparian vegetation, and depths less than 0.7 m (2.3 ft) (C. Seltenrich and A. Pool, personal observations). The largest densities of CRF are typically associated with deep pools with dense stands of overhanging willows (*Salix* species) and an intermixed fringe of cattails (*Typha latifolia*) (Jennings 1988). CRF disperse upstream and downstream of their breeding habitat, as well as across upland areas, to forage and seek sheltering habitat.

During the non-breeding season, habitat includes nearly any area within one to two miles of a breeding site that remains moist and cool through the summer (Fellers 2005), which can include vegetated areas with coyote bush (*Baccharis pilularis*), California blackberry thickets (*Rubus ursinus*), and root masses associated with willow (*Salix* spp.) and California bay trees (*Umbellularia californica*). Non-breeding habitat used by CRF can be extremely limited in size (e.g., non-breeding CRF have been found in a 2 m [6 ft] wide coyote bush thicket growing along a tiny intermittent creek surrounded by heavily grazed grassland [Fellers 2005]). Sheltering habitat for CRF potentially includes all aquatic, riparian, and upland areas within the range of the species. In addition, any landscape features that provide cover (such as existing animal burrows, boulders or rocks, organic debris such as downed trees or logs, and industrial debris) or agricultural features (such as drains, watering troughs, spring boxes, abandoned sheds, or hay stacks) may also be used by CRF. Incised stream channels with portions narrower and depths greater than 0.45 m (1.5 ft) may also provide important summer sheltering habitat. Accessibility to sheltering habitat is essential for the survival of CRF within a watershed, and can be a factor limiting population numbers and survival.



SOURCE: Bing Maps (Accessed 2017); USDA NRCS Soils

FIGURE 5

Natural Resources Conservation Service Soil Types

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Bordessa Ranch - Estero Trail

California Red-legged Frog Habitat Assessment and Surveys Report

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The diet of adult and sub-adult CRFs is highly variable; although, studies have shown that invertebrates were the most common food items; although, vertebrates, such as Pacific chorus frogs (*Pseudacris regilla*) and California mice (*Peromyscus californicus*) represent over half the prey mass eaten by larger frogs (Hayes and Tennant 1985). Juvenile frogs were generally active diurnally and nocturnally, whereas adult frogs were largely nocturnal. Feeding activity probably occurs primarily along the shoreline and on the surface of the water (Hayes and Tennant 1985).

1.2.4 Breeding

Sexual maturity normally is reached at three to four years of age (Storer 1925; Jennings and Hayes 1985), and frogs may live eight to 10 years (Jennings et al. 1992). Populations of CRF fluctuate from year to year, and when conditions are favorable, this species can experience extremely high rates of reproduction and thus produce large numbers of dispersing young and a concomitant increase in the number of occupied sites. When conditions are stressful (e.g., drought), CRF may temporarily disappear from an area.

CRF do not have a distinct breeding migration (Fellers 2005). Adults are often associated with permanent bodies of water with some frogs remaining at breeding habitat all year while others disperse. Dispersal distances are typically less than 0.8 kilometer (km) (0.5 mile [mi]), with a few individual moving up to 1.6 to 3.2 km (1 to 2 mi) (Fellers 2005). Movements are typically along riparian corridors, but some individuals, especially on rainy nights, may move directly from one site to another through normally inhospitable habitats, such as heavily grazed pastures or oak-grassland savannas (Fellers 2005). Dispersing frogs in northern Santa Cruz County were documented to travel distances from 0.4 km (0.25 mi) to more than 3.2 km (2 mi) without apparent regard to topography, vegetation type, or riparian corridors (Bulger et al. 2003). Fellers and Kleeman (2007) and Bulger et al. (2003) found that CRF migration corridors can be less "pristine" (e.g., closely grazed fields, plowed agricultural lands) than breeding or non-breeding habitats. Bulger et al. (2003) observed that CRF did not appear to avoid or prefer any landscape feature or vegetation type. Tagged frogs were documented crossing agricultural land, including recently tilled fields and areas with mature crops. Threats facing migrating CRF include being run over by vehicles on roads (Gibbs 1998; Vos and Chardon 1998), degradation of habitat (Vos and Stumpel 1995; Findlay and Houlahan 1997; Gibbs 1998), predation (Gibbs 1998), and desiccation (Rothermel and Semlistch 2002).

1.2.5 Eggs

Egg masses contain about 2,000 to 6,000 moderate\-sized (measuring between 2 and 3 millimeters in diameter), dark reddish brown eggs and are typically attached to vertical emergent

vegetation, such as bulrushes (*Scirpus* species) or cattails (Jennings et al. 1992). However, egg masses have also been found laying in depressions along the margins of ponds (C. Seltenrich and A. Pool, personal observations). CRF are often prolific breeders, laying their eggs during or shortly after large rainfall events in late winter and early spring (Hayes and Miyamoto 1984). The egg mass is well defined and about the size of a softball. Eggs hatch in 6 to 14 days (Jennings 1988). In coastal lagoons, the most significant mortality factor in the pre-hatching stage is water salinity (Jennings et al. 1992). Eggs exposed to salinities greater than 4.5 parts per thousand results in 100% mortality (Jennings and Hayes 1990). Increased siltation during the breeding season can cause asphyxiation of eggs and small larvae.

1.2.6 Larvae

CRF larvae (tadpoles) range from 14 to 80 millimeters (0.5 to 3.5 inches) in length and undergo metamorphosis in 3.5 to 7 months after hatching (Storer 1925; Wright and Wright 1949; Jennings and Hayes 1990).

Of all CRF life stages, larvae probably experience the highest mortality rates, with less than 1% of eggs laid reaching metamorphosis (Jennings et al. 1992). The diet of CRF larvae has not been well studied, but their diet is likely similar to other ranid larvae that feed on algae, diatoms, and detritus by grazing on the surface of rocks and vegetation (Fellers 2005; Kupferberg 1996a, 1996b).

1.2.7 Reasons for Decline

In California, the decline and eventual local disappearance of California and northern red-legged frogs has been observed in systems supporting bullfrogs (Jennings and Hayes 1990; Twedt 1993), red swamp crayfish (*Procambarus clarkia*), signal crayfish (*Pacifastacus leniusculus*), and several species of warm water fish including sunfish (*Lepomis* spp.), goldfish (*Carassius auratus*), common carp (*Cyprinus carpio*), and mosquitofish. These declines and disappearances have been attributed to predation, competition, and reproduction interference. Habitat loss, non-native species introduction, and urban encroachment are the primary factors that have adversely affected the CRF throughout its range.

Twedt (1993) documented bullfrog predation of juvenile northern red-legged frogs, and indicated that bullfrogs may also prey on subadult northern red-legged frogs as well. Bullfrogs may also have a competitive advantage over red-legged frogs, since bullfrogs are larger and posses more generalized food habitats (Bury and Whelan 1984), and bullfrog larvae are unpalatable to predatory fish (Kruse and Francis 1977). In addition, bullfrogs have an extended breeding season (Storer 1933) during which an individual female can produce as many as 20,000 eggs (Emlen

1977). Bullfrogs can also interfere with red-legged frog reproduction, since California and northern red-legged frogs have been observed in amplexus with both male and female bullfrogs (Jennings and Hayes 1990; USFWS 1993; Twedt 1993). Thus, bullfrogs are able to prey upon and out-compete red-legged frogs, especially in sub-optimal habitat.

The urbanization of land within and adjacent to CRF habitat has also adversely affected this species. These declines are attributed to channelization of riparian areas, enclosure of the channels by urban development that blocks CRF dispersal, and the introduction of predatory fishes and bullfrogs. The conversion and isolation of perennial pool habitats resulting from urbanization is an ongoing threat to CRF.

1.3 Occurrence Records within 1.6 Kilometers (1.0 Mile) of the Site, and Critical Habitat

The California Natural Diversity Data Base (CNDDB) (CDFW 2017) was queried for CRF occurrences within 1.6 km (1 mi) of the project area (Figure 6, CNDDB Occurrences (and Documented Field Observations) of California Red-Legged Frog). The closest CNDDB occurrence is located within the study area (Occurrence Record #1423) at Pond 2 and drainage ID-01. The next closest record is located approximately 1.6 km (1 mi) north of the study area and represents an observation of a juvenile CRF along Salmon creek near the town of Bodega (Occurrence Record (#1456; observed in 2016). Two additional unprocessed occurrence records also occur within approximately one mile of the project site. Both occurrence records (#743 and #845) occur north of the study area; although, the exact locations have been suppressed. Location information provided by CDFW indicates that both records are situated in separate locations within one mile of the project site. Both occurrence records represent adult CRF. Copies of the CNDDB occurrence records are provided in Attachment A.

The nearest critical habitat unit is located immediately adjacent to the project site on the other side of the Estero Americano (MRN-1, Estero), California (see Figure 6).

1.4 Aquatic Habitats within 1.6 km (1.0 mi) of the Site

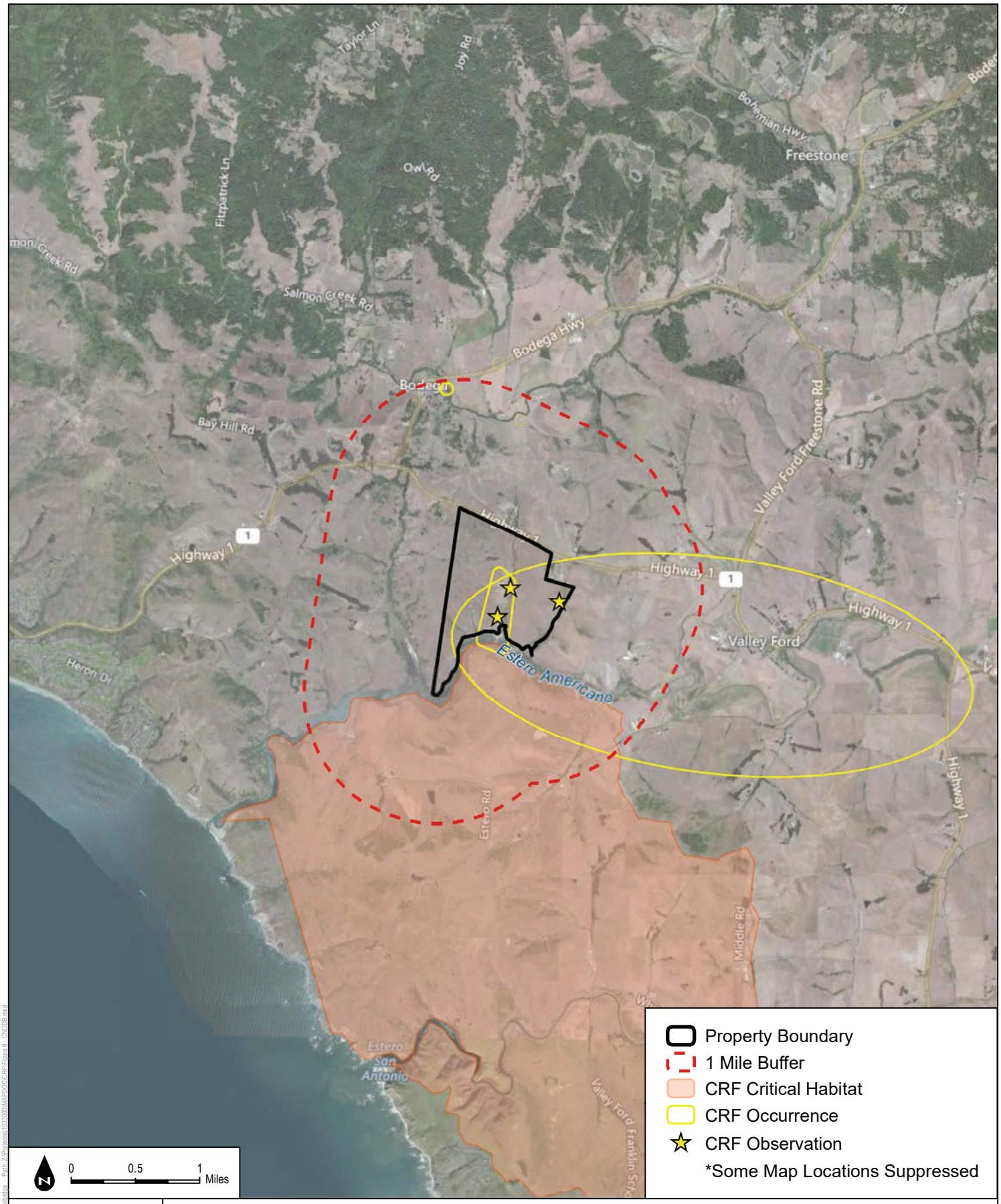
Aquatic habitats located outside the study area on private property were not evaluated as part of the field assessment; however, USFWS guidelines require a cursory assessment of potential aquatic the habitats within 1.6 km (1.0 mi) of project boundaries. Information on aquatic habitats in the vicinity of the study area was obtained from aerial photographs, and from the "Valley Ford, California" USGS 7½ minute topographic quad.

Based on available information and a thorough review of the topographic map and several aerial photographs (Google Earth 2017), several aquatic features are present within 1.6 km of the site. Six perennial ponds were identified within 1.6 km of the site including two *stock* ponds located approximately 1.5 km (1 mi) east, one pond located approximately 0.2 km (0.1 mi) west, and three ponds north of the site across Highway 1. Given the extent of grazing in the surrounding area, several other ponds were observed in the general area on Google Earth but historical inundation patterns could not be determined.

The area surrounding the project site is similar in character, consisting of rolling hills vegetated with annual grasslands used primarily for grazing. Within these rolling hills numerous unnamed ephemeral drainages of varying sizes exist. A drainage 0.8 km (0.5 mi) to the west appears to have similar characteristics to the two intermittent drainages evaluated on site. Both of the ponds east of the site are relatively large stock ponds that appear to be perennial in most years and receive intensive livestock use. Based on aerial photographs both ponds lack any surrounding vegetation and appear heavily trampled. North of the project site, there are two perennial ponds just north of Highway 1, each located on the two drainages (ID-01 and ID-02) that flow through the site. Further to the northwest, there are two additional perennial stock ponds (located 1 km (0.6 mi) northwest of the site and 0.3km (0.2 mi) west of the site which appear to receive less intensive use than the ponds east of the site. These ponds have surrounding vegetation and cover present. Several ponds are also present within Critical Habitat Unit MRN-1 located south of the project site; however, they are geographically isolated by the Estero Americano.

1.5 Adjacent Land Use

Similar to the project site, land use in the surrounding area are rural, agricultural and livestock grazing. The surrounding area is characterized by annual grasslands with similar topography (rolling hills). The only other land use in the immediate vicinity is the Sonoma Coast Villa and Spa located immediately east of the project site and Highway 1.



SOURCE: Bing Maps (Accessed 2017); CNDDB (2017)

FIGURE 6

CNDDB Occurrences (and Documentation of Field Observations) of California Red-Legged Frog

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2 METHODS

On the September 25 and 26, 2017, Dudek biologist Craig Seltenrich and Paul Keating performed daytime visual encounter surveys for CRF at all aquatic sites that still contained water (ponds 3 and 4 and drainages ID-01 and ID-02) prior to conducting habitat assessments for each aquatic site and associated upland areas within the study area. Qualifications for conducting habitat assessments for these species are provided in Attachment B. Aquatic habitat areas evaluated as part of the habitat assessment included four man-made ponds (ponds 1–4), two intermittent drainages (ID-01 and ID-02), and several springs/seeps.

Initially, the CNDDB was queried for CRF occurrences within the "Valley Ford, California" quadrangle. Surveys were conducted by approaching each water body slowly and visually scanning the water, banks, and aquatic plants (using binoculars) for presence of CRF. Following the use of binoculars, each habitat was slowly approached and scanned visually by naked eye. Habitat evaluations were conducted by walking around the perimeter of all potential aquatic habitats and through adjacent upland areas. At each site, general and specific habitat conditions (e.g., type and location, physical parameters, upland habitat information) were recorded for both aquatic and adjacent terrestrial environments. Additionally, photographs were taken to document existing habitat conditions.

The CRF habitat assessment and daytime surveys were based on habitat requirements and survey protocols as described in the *Revised Guidance on Site Assessments and Field Surveys for the California Red-Legged Frog* (USFWS 2005). Aquatic habitats and potential aquatic habitats, and adjacent uplands, were evaluated by assessing their potential to support breeding, foraging activities, provide refuge and/or aestivation habitat, and as dispersal corridors for adult and juvenile frogs. In addition, habitats were also evaluated based on personal knowledge and experience with CRF in northern and central California. Information collected during the site survey, and from environmental documents, included data on the following site characteristics:

- Terrain – elevation and topography
- Land use – historic and current for the project area and adjacent lands
- Plant communities
- Upland habitat
- Aquatic habitat types and aquatic features – vegetation present, water surface area and depth, approximate drying date of water body
- Potential underground refugia

- Potential foraging habitat
- Potential breeding habitat

3 RESULTS

Site and habitat characteristics (both aquatic and terrestrial) and a summary of the formal survey results at each pond location are described below. Copies of habitat assessment data sheets completed for each of the sites are provided in Attachment C. Photographs of the aquatic habitats and representative upland areas within the site are provided in Attachment D.

3.1 Aquatic Habitat Descriptions

At the time of the site assessment conducted in September 2017, a total of six aquatic features (ponds 1–4, and intermittent drainages ID-01 and ID-02) were evaluated as potential CRF breeding habitat. Additional wetland features were evaluated during the assessment; however, most are likely only inundated during the winter and early spring. These ephemeral features are too shallow to provide suitable breeding habitat for CRF, but may provide foraging areas when inundated.

Site-specific descriptions are provided for the six primary aquatic habitats (ponds 1–4 and intermittent drainages ID-01 and ID-02) documented during the site assessment (Figure 7, Aquatic Habitats Evaluated within the Estero Trail Study Area). The other remaining drainages are all highly ephemeral and do not appear to pond water for a sufficient period to provide suitable breeding habitat and limited summer refugia for CRF. Multiple seeps occur in the surrounding upland areas, and several spring boxes or watering troughs for cattle are present as well. These features may provide for dispersal, foraging habitat, and cover during various seasons. In addition to the aquatic habitat characteristics at each site, a description of the surrounding uplands and presence of terrestrial cover in the vicinity of the feature is also provided.

3.2 Man-Made Ponds

3.2.1 Pond 1

Pond 1 is located in the northern portion of the study area approximately 925 ft (282 m) west of the access road. This man-made stock pond is situated on a hillside and is fed by a small ephemeral drainage that originates approximately 425 ft (130 m) uphill of the pond. This drainage continues immediately south of the pond and conveys pond overflow to drainage ID-01, located just east of the access road. At the time of the September 2017 site visit, this seasonal pond was almost dry. The only water remaining had low turbidity and occurred in depressions left by cattle hooves in the deepest portion of the pond. When full, this pond measures approximately 12 m (40 ft) long and 12 m (40 ft) wide with a maximum water depth of about 2.25 m (7.4 ft) when full. The small ephemeral drainage below the pond was also dry during the September 2017 site visit.

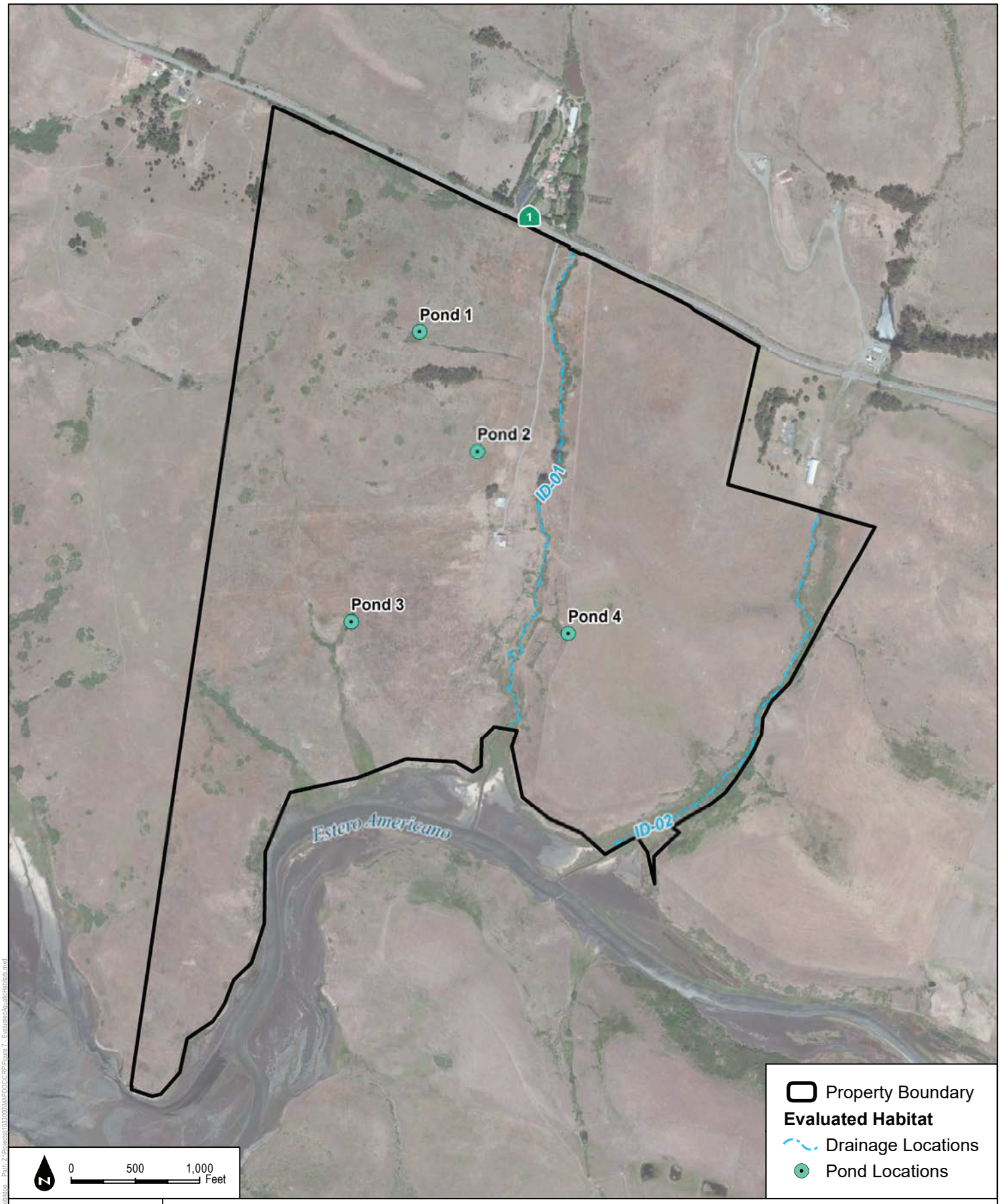
Emergent vegetation consisted of bulrush and creeping spikerush, and provided about 10% cover throughout the pond. Submerged vegetation was absent since the pond was almost dry. Most of the pond perimeter was earthen banks (70%) although coyote brush, spikerush, grasses, various forbs, and a small redwood tree were also present around the pond. Much of the vegetation in the upper portion of the pond has been recently disturbed and consisted of primarily of gorse, which had been mechanically removed. Very little overhanging vegetation occurred around the margin of the pond; and at mid-day, bulrush, coyote brush, and a small redwood tree provide about 15% shade on the water. The pond substrate was composed primarily of fine silt/mud (90%) with a small amount of sand (10%). The earthen banks were of moderate-high gradient along the pond berm and the remainder of the pond was of moderate gradient.

Uplands in the immediate vicinity of the pond consist of disturbed areas (grazing and mechanical weed control) with varying amounts of vegetation. Low to moderate small mammal (pocket gopher) activity was observed in the vicinity of the pond. Terrestrial vegetation including forbs, grasses, and coyote brush provide approximately 15% cover within 15 m (50 ft) of the pond. There are no visible barriers to CRF movement or dispersal.

Pond 1 was almost dry at the time of the survey conducted on September 26, 2017. It is difficult to ascertain when the pond typically dries from aerial imagery; however, given the presence of bulrush and the timing of this survey it is assumed that the pond remains inundated for a sufficient period to potentially support successful breeding through metamorphosis in some years. If it stays inundated through August in most years, the pond may provide breeding habitat and summer refugia for CRF. No wildlife species, either terrestrial or aquatic, were observed during the site visit.

3.2.2 Pond 2

Pond 2 is located approximately 305 m (1,000 ft) south-southeast of Pond 1 and about 100 m (330 ft) west of the access road. This man-made stock pond is located on the side of a hill and is not associated with a drainage. The pond berm appears to have been breached at some point in the past, reducing the overall depth and volume of the pond. At the time of the site assessment, this seasonal pond was completely dry and when full is estimated to measure approximately 10 m (33 ft) long and 6 m (20 ft) wide with an estimated maximum water depth of 0.5 m (1.5 ft).



SOURCE: Bing Maps (Accessed 2017)

FIGURE 7

Aquatic Habitats Evaluated within the Estero Trail Study Area

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Emergent vegetation consisting of rushes was present around a portion (10%) of the pond margin, providing limited cover and no shade on the water at mid-day. Submerged vegetation was not present due to the absence of water. The pond substrate was composed primarily of silt (90%) with a small amount of sand (10%). The relatively smooth earthen banks extended around the perimeter of the pond and are of moderate to high gradient.

Uplands in the immediate vicinity of the pond consist of disturbed areas with little or no vegetation. Very little small mammal activity was observed in the vicinity of the pond, and other types of cover (other than limited vegetation) were not present. Terrestrial vegetation around the pond has been disturbed by grazing. There are no visible barriers to CRF movement or dispersal.

The on-site occurrence record (#1423), and personal communications with Richard Stabler of Sonoma County (September 27, 2017) indicate that this pond has been historically used by CRF; however, based on current conditions it doesn't appear the pond remains inundated for sufficient period to support successful CRF reproduction. No wildlife species, either terrestrial or aquatic, were observed during the site visit.

3.2.3 Pond 3

Pond 3 is located in the south-western portion of study area near the upper end of an ephemeral drainage that flows into the Estero Americano. The man-made stock pond is fenced off with barbed wire precluding access by cattle, and as a result, very little disturbance was observed around the pond. At the time of the site assessment, this apparently perennial pond was at least 75% inundated, and measured approximately 24 m (80 ft) in length and 11.5 m (38 ft) in width. Due to the heavy growth of duckweed fern (*Azolla* sp.), the maximum and average water depths could not be determined. The drainage leading from the pond to the Estero Americano was dry at the time of the September 2017 site visit.

Emergent vegetation consisted primarily of duckweed fern (which covered the entire surface of the pond) along with scattered sedges, grasses, and forbs. Arroyo willow and coffeeberry provided cover along the eastern margin of the pond. Submerged vegetation could not be evaluated due to the heavy mat of duckweed fern. Overhanging willows and other bank vegetation provided about 20% shade on the water at mid-day. Earthen banks, wood planks, and algal mats provided potential basking sites, and willow branches and potentially root balls underneath the overhanging willows provide additional cover. The pond substrate was composed primarily of silt/mud (90%) with about 10% sand. The mostly earthen banks range from low to moderate in gradient.

Uplands in the immediate vicinity of the pond consist primarily of grassland habitat (highly disturbed in some areas due to grazing) outside the barbed wire fence surrounding the pond, and undisturbed wetland/riparian and upland habitat within the fence area adjacent to the pond. Small mammal activity was generally sparse observed in the vicinity of the pond. Terrestrial vegetation including forbs, grasses, and coyote brush provide approximately 15% cover within 15 m (50 ft) of the pond. There are no visible barriers to CRF movement or dispersal.

During the September 26th site visit, audible "plops" were heard from under the overhanging willows and coffeeberry along the eastern bank of the pond. No "squeek" accompanied the plops. Due to the heavy cover, a visual confirmation of the species could not be confirmed. However, since the edge of the pond did not appear to be very steep under the willows, the "plop" was likely not due to a western pond turtle, which would have slid into the water rather than "plop." Based on the suitability of the pond to support CRF and the presence of CRF in drainage ID-01 not far from the pond, there is higher likelihood that the "plop" was due to a CRF. Even though CRF were not observed during the two surveys, the pond provides highly suitable habitat for this species and would expect the pond is utilized by this species. No other wildlife species, either terrestrial or aquatic, were observed during the site visit.

3.2.4 Pond 4

Pond 4 is a man-made stock pond located in the southern portion of study area approximately 240 ft (73 m) east of drainage ID-01. A narrow drainage occurs below the pond that conveys pond overflow to drainage ID-01. A perimeter fence occurs around this pond precluding cattle access, and as a result, very little disturbance was observed around the pond. The entire pond is currently filled with bulrush, providing about 95% shade on the water at midday. Due to the dense vegetation, the level of inundation could not be determined, although it appeared that the water depth was less than 6 inches. The pond measured approximately 12 m (39 ft) in length and 20 m (68 ft) in width.

Emergent vegetation consisted almost entirely of bulrush which covered the majority (95%) of the pond. Submerged vegetation was not observed since the pond was covered with bulrush. The majority of the pond margin and bank was vegetated with grasses and sedges. Overhanging margin and bank vegetation, which was comprised mostly of grasses, sedges, ferns and blackberry, provides about 15% cover. The pond substrate was composed primarily of fine silt/mud (85%) with a small amount of sand (15%). Earthen banks were highly limited around the pond and where present were of moderate to high gradient.

Uplands in the immediate vicinity of the pond consisted of disturbed and undisturbed areas with varying amounts of vegetation. Low to moderate small mammal (pocket gopher) activity was observed in the vicinity of the pond. Terrestrial vegetation including sedges, grasses, ferns, blackberry, coffeeberry, and coyote brush provided approximately 80% cover within 15 m (50 ft) of the pond. This pond drains into drainage ID-01 and water was still seeping through the area providing potential CRF foraging habitat. There are no visible barriers to CRF movement or dispersal.

3.3 Unnamed Intermittent Drainages

3.3.1 Drainage ID-01

Drainage ID-01 is located approximately 60 m (200 ft) east of the access road and originates approximately 0.5 mile north of Highway 1. This drainage enters the study area through a culvert under Highway 1 and terminates at the Estero Americano. Stream characteristics and riparian cover varies within drainage ID-01 from the northern to southern ends of the study area. The upper third of the drainage had dense riparian cover with a few small, isolated shallow pools, the middle portion of the drainage contained less dense riparian cover interspersed with open areas lacking riparian cover, and the lower portion of the drainage is tidally influenced upstream of the Estero Americano. The stream channel is relatively narrow and contained periodic isolated pools including a few plunge pools (that were narrow with varying length) that still contained water. The largest pools (in length) occurred in the tidally influenced portion of the drainage.

The upper third of the drainage contained fairly dense riparian vegetation, consisting of arroyo willow, eucalyptus, and Lombardy poplar, which provided approximately 90% canopy cover. Pools in this section were small and relatively shallow and most were dry, although a few pools still contained a small amount of water. Channel substrates consisted primarily of gravel and cobble with some areas containing finer sediments. The heavy canopy cover was dominated by arroyo willow with scattered eucalyptus and Lombardy poplar.

Riparian cover in the middle portion of the drainage (which extends to the tidally influenced portion of the creek) was less dense and of limited extent (relative to the upper portion of the drainage) interspersed with open areas lacking riparian cover. The primary riparian cover in this portion of the drainage consisted primarily of arroyo willow. This portion of the drainage contained more pools than in the upper part of the drainage, with varying levels of inundation. The average maximum pool depth in this section was estimated at about 1 m (3 ft), with the deepest pool recorded at approximately 2 m (6 ft). Average pool length was approximately 8 m (25 ft) with the longest pool measured at 45 m (150 ft) and widths varied from 1.5 to 3.5 m (5 to 11.5 ft).

Emergent vegetation was present in some of the pools, consisting of common rush (*Juncus effuses*), bulrush (*Scirpus* sp.), cattail (*Typha latifolia*), lanceleaf water plantain (*Alisma lanceolatum*), and several forbs. Other plants observed in drainage ID-01 include slough sedge (*Carex obnupta*), velvet grass (*Holcus lanatus*), sweet vernal grass (*Anthoxanthum oderatum*), horsetail (*Equisetum telmateia*), western brackenfern (*Pteridium aquilinum*), and western swordfern (*Polystichum munitum*). A filamentous green alga (*Cladophora* sp.) along with water milfoil (*Myriophyllum* sp.) comprised the majority of submerged vegetation. Channel substrates consisted primarily of silt/mud (85%) and sand (15%). Overhanging, emergent, and submerged vegetation and undercut banks provided the majority of the aquatic cover which averaged 40% along pool margins. Pools generally had moderate to high gradient earthen banks. Terrestrial cover (primarily vegetation) along the stream channel provides up to 90% cover. Western mosquitofish and an unidentified minnow were observed in many of the pools that still contained water.

Upland habitat along the middle portion of the drainage consists primarily of non-native annual grassland, with scattered small mammal (Botta's pocket gopher) burrows, sedges, and shrubs (coyote brush) which provide cover outside of the channel.

The lower portion of the drainage is located within the tidally influenced portion of the creek. Riparian cover was absent in this portion of the drainage. Vegetation along the channel consisted primarily of pickle weed (*Salicornia* sp.) and salt grass (*Distichlis* sp.). The channel varied in width from about 2 m (6 ft) to 4 m (12 ft). In general, the tidal portion of the drainage consisted of one long pool with varying depth. Channel substrates consisted primarily of silt/mud (85%), sand (5%), and cobble (10%). The channel banks were earthen and generally high gradient. A filamentous green alga was present throughout most of this portion of the drainage. Overhanging and submerged vegetation and undercut banks provided the majority of the aquatic cover which averaged greater than 90% along the channel. Abundant terrestrial cover (vegetation) along the stream channel provides up to 100% cover.

During the survey of drainage ID-01, an adult and juvenile CRF were observed in one of the pools in the middle portion of the drainage, approximately 45 m (150 ft) north of the bridge crossing and 83 m (275 ft) east of the barn. The adult CRF was observed on the earthen bank underneath the solitary overhanging willow and the juvenile was observed basking on duckweed. When full, this pool is approximately 14.5 m (48 ft) long and 3.5 m (12 ft) wide. The pool had a maximum water depth of about 1 m (3 ft), with a minimum depth of 0.1 m (0.3 ft), and an average depth of 0.6 m (2 ft). The water was relatively clear with a temperature was 13° C (56° F). Emergent vegetation was comprised of grasses, rushes, forbs, and arroyo willow, providing 40% cover and 35% shade at mid-day. Submerged vegetation consisted of duckweed, water primrose (*Ludwigia hexapetala*) and water plantain (*Alisma* sp.), which covered about 50% of

the pool. The pool substrate was composed primarily of fine silt/mud (90%) with a small amount of sand (10%). Moderate to high gradient earthen banks were present around 70% of the pool, except at the downstream end where the banks were low gradient.

Uplands in the immediate vicinity of the pool consist primarily of grassland habitat (slightly disturbed by grazing) with scattered shrubs and sedges. Terrestrial vegetation, including rushes, grasses, shrubs, and blackberry, provided approximately 40% cover within 15 m (50 ft) of the pool. Very little small mammal (pocket gopher) activity was observed in the vicinity of the pool. Western mosquitofish (*Gambusia affinis*) and minnows were observed in the pool.

3.3.2 Drainage ID-02

Drainage ID-02 is located along the eastern boundary of the study area. This drainage originates approximately 0.75 miles north of Highway 1, entering the study area through a culvert under Highway 1 and terminating at the Estero Americano. In general, stream characteristics were similar to drainage ID-01 with habitat characteristics and riparian cover varying from the northern to southern ends of the study area. The upper third of the drainage was fairly incised and relatively open with some scattered willow, the middle portion of the drainage was less incised and contained dense riparian cover that precluded access to the stream channel, and the lower portion of the drainage is tidally influenced upstream of the Estero Americano and lacks riparian cover. The overall channel width varies from approximately 6 to 15 m (20 to 50 ft) in areas that could be accessed. The stream gradient was low (0–1%) in the upper third of the drainage, with increased gradient (1%–3%) in the middle portion, and low gradient (0–1%) again in the lower third of the drainage upstream of the Estero Americano. The upper portion of the drainage is fairly open with sedges, grasses, and scattered willow providing limited canopy cover, with grasses and dense willow canopy dominating the middle portion of the drainage. The lower tidally influenced portion of the drainage lacked a riparian canopy, with the primary vegetation consisting of pickle weed and salt grass.

During the site assessment, two juvenile CRF were observed basking on duckweed in an isolated pool. The pool is located approximately 61 m (200 ft) south of the northern property boundary. When full, this pool measures approximately 20 m (65 ft) long and 1-4 m (3-13 ft) wide. The water temperature was 14.5° C (59° F), with a maximum water depth of approximately 1 m (3 ft), a minimum depth of 0.2 m (0.6 ft), and an average depth of 0.5 m (1.5 ft).

Overhanging vegetation, consisting of grasses, rushes, and ferns was present around 90% of the pool perimeter, providing 35-45% shade on the water at midday. Emergent vegetation was comprised of duckweed and water plantain which provided about 25% cover. Water clarity was

relatively good and submerged vegetation, consisting of water milfoil, and filamentous green algae, provided at least 30% cover. The pond substrate was composed primarily of fine silt/mud (90%) with a small amount of sand (10%). The earthen banks around 70% of the pool were of moderate to high gradient except at the southern end of the pool.

Uplands habitat in the immediate vicinity of the pool consists primarily of grassland habitat (undisturbed by grazing). Terrestrial vegetation, including grasses, sedges, coyote brush, and blackberry, provided approximately 90% cover within 15 m (50 ft) of the pool. Little to no small mammal (pocket gopher) activity was observed in the vicinity of the pool; high grasses made visual observation difficult. There were no visible barriers to CRF movement or dispersal. A western pond turtle was also found basking in the duckweed with the CRF juveniles.

The middle portion of the drainage is located on the eastern property line, which is fenced. Due to the fencing and dense riparian canopy along the property line, access to the creek was not possible without cutting vegetation. Arroyo willow was dominant vegetation, providing 95% to 100% cover along the stream channel. The tidal portion of the drainage occurs immediately downstream of this dense riparian area.

3.4 Upland Habitat Description

Upland habitat within the site consists primarily of annual grasslands with riparian habitat present along the drainages, except in the tidally influenced portion of the drainage. Numerous seeps along with scattered spring boxes were also present within the grasslands.

Terrestrial cover near the drainages and ponds consisted of small mammal burrows (primarily Botta's pocket gopher) with burrow densities ranging from sparse to numerous depending on location; other cover consisted of riparian vegetation and shrubs (e.g., coyote brush) located along and adjacent to the drainages.

3.5 Visual Encounter Surveys

CRF were observed in both drainages (ID-01 and ID-02) during the two daytime surveys conducted on September 26 and 27, 2017, at each location; and have been previously documented in Pond 2, drainage ID-01, and in the 'spring box' located approximately 320 m (1,050 ft) south of the barn. Suitable habitat is present in Pond 4 but CRF was not positively identified during the surveys.

4 DISCUSSION

During the site assessment conducted on September 26 and 27, 2017, four of the six aquatic habitats evaluated as potential breeding and summer refugia habitat for CRF contained water; although only Pond 3 was substantially inundated. Based on the habitat characteristics for each of the features, all of them provide aquatic habitat for CRF; however, only Pond 3 and possibly Pond 1 (during some years), and drainages ID-01 and ID-02 appear to retain water for a sufficient period in most years to support successful CRF breeding through metamorphosis. Habitat assessments conducted at ponds 2 and 4 indicate that water depth and the typical length of the inundation period are not sufficient to support successful breeding. The maximum depth of Pond 2 was estimated at less than 1 ft.

During the surveys, CRF were observed in residual pools in both of the drainages. Additionally, during the survey at Pond 3, an audible plop (with no "squeek") was heard from under the overhanging willows and coffeeberry along the eastern bank of the pond. Based on the relatively low bank gradient along that side of the pond, it is unlikely that the sound came from a western pond turtle which would have slid into the pond, and was more likely a CRF. This conclusion is supported by the fact that CRF were observed in drainage ID-01 not far from the pond and that the same "plop" sound was heard in both drainages during the initial survey, and were later positively identified as CRF.

Based on the relatively short length of both drainages (each approximately 1.3 mi long from the headwaters to the Estero Americano), flows in the creek during the winter and early spring are likely not sufficient to preclude breeding in the creek. Additionally, the presence of CRF juveniles and an adult in residual pools in both drainages increases the likelihood that breeding occurs in both creeks, although frogs could have also moved from Pond 3 and possibly Pond 1 if breeding is occurring in these ponds.

In addition to the four ponds and the drainages, several seeps and springs with associated spring boxes also occur within the study area. CRF have been observed in the spring box located approximately 320 m (1,050 ft) south of the barn during a previous site visit (personal communication with Richard Stabler, September 2017, Sonoma County), and may use other spring boxes on the site as temporary refugia.

4.1 Upland Habitat

Suitable upland habitat for CRF is common to abundant in the vicinity of all four ponds, consisting primarily of vegetative cover and small mammal burrows (Botta's pocket gopher). Extensive vegetative cover occurs in and immediately adjacent to both drainages upstream of the

tidally influenced portions of each drainage, and surrounding Pond 3. Vegetative cover in the vicinity of the other three ponds is generally sparse; however, small mammal burrows are present in varying abundance.

5 CONCLUSIONS

Based on the results of the habitat assessment, suitable breeding habitat is present in Pond 3 and likely Pond 1 (in some years), as well as both intermittent drainages (ID-01 and ID-02). Additionally, during the daytime survey, a CRF juvenile and adult were observed in drainage ID-01 and two juvenile CRF were observed in drainage ID-02.

Pond 1 is seasonal but has sufficient depth to support breeding in some years (likely only in average or above average rainfall years) and Pond 3 (which is generally perennial) appears to provide suitable breeding habitat in most years. Ponds 2 and 3 are relatively shallow and are unlikely to support breeding in most if not all years; however, CRF may utilize these ponds in the winter and spring/early summer for cover and foraging. Both of the intermittent drainages appear to provide suitable breeding habitat in most years, since high flashy flows are not likely to occur due to the short length of both drainages (approximately 1.3 miles each).

Additionally, some of the seeps and springs provide refugia and forage habitat for CRF during the spring and summer. CRFR have been observed using the spring box located 320 m (1,050 ft) south of the barn.

Suitable upland habitat is present adjacent to or in close proximity to all of the ponds and both intermittent drainages.

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6 RECOMMENDATIONS

To protect ponds 1–4 and drainages ID-01 and ID-02, 100 ft buffer areas should be established around the ponds and along both drainages. The proposed trail alignment is situated greater than 100 ft from potential CRF breeding locations (ponds 1 and 3, and drainages ID-01 and ID-02), with the exception of the pedestrian crossing proposed on ID-01 near the northern property boundary and the existing bridge located on ID-01 east of the barn. However, ponds 2 and 4, which provide suitable non-breeding habitat for CRF during the winter and spring/early summer, occur within approximately 50 ft of the trail alignment.

Any activities that could potentially impact the ponds and drainages (ground disturbance, human activities, etc.) within the 100 ft buffer areas will require pre-construction surveys and a biological monitor during construction even if CRF are not observed within these aquatic habitats during the pre-construction survey. In any event, fencing must be installed around the work zone to prevent CRF from entering the construction zone. If CRF are present within the buffer areas, work should be postponed until either 1) the frogs move away from that location on their own, or 2) the frogs are removed and relocated to a safe location by a qualified biologist with approval from USFWS.

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7 REFERENCES

Bulger, J.B., N.J. Scott Jr., and R.B. Seymour. 2003. Terrestrial activity and conservation of adult California red-legged frogs *Rana aurora draytonii* in coastal forests and grasslands. *Biological Conservation* 11:85-95

Bury, B. R., and J. A. Whelan. 1984. Ecology and management of the bullfrog. Resources Publication 155, U.S. Fish and Wildlife Service, Washington, DC. 23 pp.

CDFW (California Department of Fish and Wildlife). 2017. "*Rana draytonii*." Element Occurrence Query. California Natural Diversity Database (CNDDB). RareFind, Version 4.0 (Commercial Subscription). Sacramento, California: CDFW, Biogeographic Data Branch. Accessed October 2017 https://www.wildlife.ca.gov/Data/CNDDB/Maps-and-Data.

Emlen, S.T. 1977. "Double clutching" and its possible significance in the bullfrog. *Copeia* 1977 (4):749-751.

Fellers, G. M. 2005. *Rana draytonii* Baird and Girard 1852, California Red-Legged Frog. *In* Lannoo, M., editor. ed. *Amphibian Declines: The Conservation Status of United States Species*. Volume 2. 552–554.University of California Press. Berkeley.

Fellers, G.M. and P.M. Kleeman. 2007. California red-legged frog (*Rana draytonii*) movement and habitat use: Implications for conservation. *Journal of Herpetology* 41(2):271-281.

Findlay, C.S. and J. Houlahan. 1997. Anthropogenic correlates of species richness in southeastern Ontario wetlands. *Conservation Biology* 11:1000-1009.

Gibbs, J.P. 1998. Amphibian movements in response to forest edges, roads, and streambeds in southern New England. *Journal of Wildlife Management* 62: 584-589.

Google Earth. 2017. Mapping data. Accessed September 2017.

Hayes, M.P., and M.R. Jennings. 1988. Habitat correlates of distribution of the California red-legged frog (*Rana aurora draytonii*) and the foothill yellow-legged frog (*Rana boylii*): implications for management. Pages 144-158 *in* R. Sarzo, K.E. Severson, and D.R. Patton (technical coordinators). Proceedings of the symposium on the management of amphibians, reptiles, and small mammals in North America. United States Department of Agriculture, Forest Service, Rocky Mountain Range and Experiment Station, Fort Collins, Colorado. General Technical Report (RM-166): 1-458.

Hayes, M.P. and D.M. Krempels. 1986. Vocal sac variation among frogs of the genus Rana from western North America. *Copeia* 1986(4):927-936.

Hayes, M.P. and M.M. Miyamoto. 1984. Biochemical, behavioral and body size differences between *Rana aurora aurora* and *R.a. draytonii. Copeia* 1984(4): 1018-1022.

Hayes, M.P., and M.R. Tennant. 1985. Diet and feeding behavior of the California red-legged frog, *Rana aurora draytonii* (Ranidae). Southwestern Naturalist 30(4): 601-605.

Jennings, M.R. 1988. Natural history and decline of native ranids in California. Pages 61-72 in H.F. De Lisle, P.R. Brown, B. Kaufman, and B. McGurty (editors). Proceedings of the Conference on California Herpetology. Southwestern Herpetologists Society Special Publication 4:1-143.

Jennings, M.R., and M.P. Hayes. 1985. Pre-1900 overharvest of California red-legged frog (*Rana aurora draytonii*): The inducement for bullfrog (*Rana catesbeiana*) introduction. Herpetological Review 31(1):94-103.

Jennings, M.R., and M.P. Hayes. 1990. Final report of the status of the California red-legged frog (*Rana aurora draytonii*) in the Pescardero Marsh Natural Preserve. Final report prepared for the California Department of Parks and Recreation, Sacramento, California, through Agreement (4-823-9018). Department of Herpetology, California Academy of Sciences, Golden Gate Park, San Francisco, California. 30 pages.

Jennings, M.R., M.P. Hayes, and D.C. Holland. 1992. A petition to the U.S. Fish and Wildlife Service to place the California red-legged frog (*Rana aurora draytonii*) and the western pond turtle (*Clemmys marmorata*) on the list of endangered and threatened wildlife and plants. 21 pages.

Kruse, K.C. and M.G. Francis. 1977. A predation deterrent in larvae of the bullfrog, *Rana catesbeiana*. Transactions of the American Fisheries Society 106(3):248-252.

Kupferberg, S.J. 1996a. Hydrologic and geomorphic factors affecting conservation of a river-breeding frog (*Rana boylii*). Ecological Applications 6:1322-1344.

Kupferberg, S.J. 1996b. The ecology of native tadpoles (*Rana boylii* and *Hyla regilla*) and the impacts of invading bullfrogs (*Rana catesbeiana*) in a northern California river. PhD dissertation. University of California, Berkeley, California.

Rothermel, R.B. and R.D. Semlitsch. 2002. An experimental investigation of landscape resistance of forest versus old-field habits to emigrating juvenile amphibians. Conservation Biology 16: 1324-1332.

Storer, T.I. 1925. A synopsis of the amphibian of California. University of California Publications in Zoology 27:1-1-342.

Storer, T.I. 1933. Frogs and their commercial use. California Department of Fish and Game 19(3)203-213.

Twedt, B. 1993. A comparative ecology of *Rana aurora* Baird and Girard and *Rana catesbeiana* Shaw at Freshwater Lagoon, Humboldt County, California. Unpublished. Master of Science thesis. Humboldt State University, Arcata, California. 53 pages plus appendix.

USDA (U.S. Department of Agriculture). 2017. Web Soil Survey. USDA Natural Resources Conservation Service, Soil Survey Staff. Accessed October 2017. http://websoilsurvey.nrcs.usda.gov/.

USFWS (U.S. Fish and Wildlife Service). 1996. Endangered and threatened wildlife and plants; determination of threatened status for the California Red-Legged Frog. Federal Register 61: 25813-25833.

USFWS. 2002. Recovery plan for the California red-legged frog (*Rana aurora draytonii*). Portland, Oregon. 173 pages.

USFWS. 2005. *Revised Guidance on Site Assessments and Field Surveys for the California Red-Legged Frog*

Vos, C.C. and J.P. Chardon. 1998. Effects of habitat fragmentation and road density on the distribution pattern of moor frog, *Rana arvalis*. Journal of Applied Ecology 35: 44-56.

Vos, C.C. and A.H.P. Stumpel. 1995. Comparison of habitat-isolation parameters in relation to fragmentation distribution patterns in the tree frog (*Hyla arborea*). Landscape Ecology 11:203-214.

Wright, A.H. and A.A. Wright. 1949. Handbook of frogs and toads of the United States and Canada. Comstock Publishing Company, Inc., Ithaca, New York. 640 pages.

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ATTACHMENT A

CNDDB Summary Data Sheets for CRF Occurrences

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Species IS (Rana draytonii)
 AND Quad IS (Valley Ford (3812238))

Map Index Number: 20324
EO Index: 16266
Key Quad: Valley Ford (3812238)
Element Code: AAABH01022
Occurrence Number: 41
Occurrence Last Updated: 1992-03-04

Scientific Name: *Rana draytonii*
Common Name: California red-legged frog

Listing Status: **Federal:** Threatened
State: None
Rare Plant Rank:
Other Lists: CDFW_SSC-Species of Special Concern
IUCN_VU-Vulnerable

CNDDB Element Ranks: **Global:** G2G3
State: S2S3

General Habitat:

LOWLANDS AND FOOTHILLS IN OR NEAR PERMANENT SOURCES OF DEEP WATER WITH DENSE, SHRUBBY OR EMERGENT RIPARIAN VEGETATION.

Micro Habitat:

REQUIRES 11-20 WEEKS OF PERMANENT WATER FOR LARVAL DEVELOPMENT. MUST HAVE ACCESS TO ESTIVATION HABITAT.

Last Date Observed: 1991-04-01
Occurrence Type: Natural/Native occurrence
Last Survey Date: 1991-04-01
Occurrence Rank: Unknown
Owner/Manager: UNKNOWN
Trend: Unknown
Presence: Presumed Extant

Location:

STEMPLE CREEK, TRIBUTARY TO ESTERO DE SAN ANTONIO, JUST DOWNSTREAM FROM THE HWY 1 BRIDGE, 0.25 MI SE OF FALLON.

Detailed Location:

3 FROGS LOCATED ALONG ONE 3-METER STRETCH OF BANK.

Ecological:

Threats:

MAIN THREAT IS GRAZING.

General:

THE 3 FROGS, ALONG WITH EMYS MARMORATA, WERE FOUND DURING A SURVEY FOR SYNCARIS PACIFICA.

PLSS: T05N, R10W, Sec. 13, SE (M)
Accuracy: 1/5 mile
Area (acres): 0
UTM: Zone-10 N4235958 E508496
Latitude/Longitude: 38.27163 / -122.90286
Elevation (feet): 10

County Summary:

Marin

Quad Summary:

Valley Ford (3812238)

Sources:

SER91R0001 SERPA, L. - UNPUBLISHED REPORT (20 MAY 1991) PLUS ADDENDUM (4 SEPT 91) DETAILING SAMPLING ON STEMPLE CREEK. 1991-XX-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 24830
EO Index: 6465
Key Quad: Valley Ford (3812238)
Element Code: AAABH01022
Occurrence Number: 62
Occurrence Last Updated: 2009-04-22

Scientific Name: *Rana draytonii*
Common Name: California red-legged frog

Listing Status: **Federal:** Threatened
State: None
Rare Plant Rank:
Other Lists: CDFW_SSC-Species of Special Concern
IUCN_VU-Vulnerable

CNDDB Element Ranks: **Global:** G2G3
State: S2S3

General Habitat:

LOWLANDS AND FOOTHILLS IN OR NEAR PERMANENT SOURCES OF DEEP WATER WITH DENSE, SHRUBBY OR EMERGENT RIPARIAN VEGETATION.

Micro Habitat:

REQUIRES 11-20 WEEKS OF PERMANENT WATER FOR LARVAL DEVELOPMENT. MUST HAVE ACCESS TO ESTIVATION HABITAT.

Last Date Observed: 1993-04-05
Occurrence Type: Natural/Native occurrence
Last Survey Date: 1993-04-05
Occurrence Rank: Good
Owner/Manager: PVT
Trend: Unknown
Presence: Presumed Extant

Location:

0.3 MILE NORTH OF THE MOUTH OF ESTERO DE SAN ANTONIO, 2 MILES NNW OF DILLON BEACH.

Detailed Location:

Ecological:

HABITAT CONSISTS OF A LOW DRAINAGE IN COASTAL PRAIRIE.

Threats:

THREATENED BY DEVELOPMENT OF A PROPOSED GOLF RESORT AND INVASIVE EXOTICS.

General:

ONE OBSERVED IN 1993.

PLSS: T05N, R10W, Sec. 17 (M)
Accuracy: 1/5 mile
Area (acres): 0
UTM: Zone-10 N4236269 E502076
Latitude/Longitude: 38.27447 / -122.97626
Elevation (feet): 200

County Summary:

Marin

Quad Summary:

Valley Ford (3812238)

Sources:

CCB93F0005 CENTER FOR CONSERVATION BIOLOGY - STANFORD UNIVERSITY - FIELD SURVEY FORM FOR RANA DRAYTONII 1993-04-05

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 24978
Key Quad: Valley Ford (3812238)
Occurrence Number: 74

EO Index: 20061
Element Code: AAABH01022
Occurrence Last Updated: 1993-12-29

Scientific Name: *Rana draytonii*
Common Name: California red-legged frog

Listing Status: **Federal:** Threatened
State: None

Rare Plant Rank:

Other Lists: CDFW_SSC-Species of Special Concern
IUCN_VU-Vulnerable

CNDDB Element Ranks: **Global:** G2G3
State: S2S3

General Habitat:

LOWLANDS AND FOOTHILLS IN OR NEAR PERMANENT SOURCES OF DEEP WATER WITH DENSE, SHRUBBY OR EMERGENT RIPARIAN VEGETATION.

Micro Habitat:

REQUIRES 11-20 WEEKS OF PERMANENT WATER FOR LARVAL DEVELOPMENT. MUST HAVE ACCESS TO ESTIVATION HABITAT.

Last Date Observed: 1993-04-20
Last Survey Date: 1993-04-20
Owner/Manager: UNKNOWN
Presence: Presumed Extant

Occurrence Type: Natural/Native occurrence
Occurrence Rank: Good
Trend: Unknown

Location:

SOUTH OF ESTERO AMERICANO, 1 MILE NORTH OF ESTERO DE SAN ANTONIO, AND WEST OF FRANKLIN SCHOOL ROAD, NW MARIN COUNTY.

Detailed Location:

Ecological:

HABITAT CONSISTS OF DEEP, PERMANENT PLUNGE POOLS WITHIN AN EPHEMERAL DRAINAGE.

Threats:

THREATENED BY A PROPOSED GOLF COURSE DEVELOPMENT AND AN ADJACENT RESIDENTIAL DEVELOPMENT.

General:

10+ OBSERVED BETWEEN THIS AND AN ADJACENT DRAINAGE TO THE NORTH; LIFE STAGE UNKNOWN.

PLSS: T05N, R10W, Sec. 08 (M)
Accuracy: nonspecific area
Area (acres): 53

UTM: Zone-10 N4237203 E501409
Latitude/Longitude: 38.28289 / -122.98389
Elevation (feet): 250

County Summary:

Marin, Pacific Ocean

Quad Summary:

Valley Ford (3812238)

Sources:

VOU93F0004 VOUCHILAS, C. - FIELD SURVEY FORM FOR RANA DRAYTONII 1993-04-20

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 24977
Key Quad: Valley Ford (3812238)
Occurrence Number: 75
EO Index: 6360
Element Code: AAABH01022
Occurrence Last Updated: 1993-12-29

Scientific Name: *Rana draytonii*
Common Name: California red-legged frog

Listing Status: **Federal:** Threatened
State: None
CNDDB Element Ranks: **Global:** G2G3
State: S2S3
Rare Plant Rank:
Other Lists: CDFW_SSC-Species of Special Concern
IUCN_VU-Vulnerable

General Habitat:

LOWLANDS AND FOOTHILLS IN OR NEAR PERMANENT SOURCES OF DEEP WATER WITH DENSE, SHRUBBY OR EMERGENT RIPARIAN VEGETATION.

Micro Habitat:

REQUIRES 11-20 WEEKS OF PERMANENT WATER FOR LARVAL DEVELOPMENT. MUST HAVE ACCESS TO ESTIVATION HABITAT.

Last Date Observed: 1993-04-20
Last Survey Date: 1993-04-29
Owner/Manager: PVT
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Good
Trend: Unknown

Location:

SOUTH OF ESTERO AMERICANO, 1.5 MILES NORTH OF ESTERO SAN ANTONIO, AND WEST OF FRANKLIN SCHOOL ROAD, NW MARIN COUNTY.

Detailed Location:

Ecological:

HABITAT CONSISTS OF DEEP, PERMANENT PLUNGE POOLS WITHIN AN EPHEMERAL DRAINAGE.

Threats:

THREATENED BY A PROPOSED GOLF COURSE DEVELOPMENT AND BY AN ADJACENT RESIDENTIAL DEVELOPMENT.

General:

10+ OBSERVED BETWEEN THIS AND A SECOND DRAINAGE TO THE SOUTH; LIFE STAGE UNKNOWN.

PLSS: T05N, R10W, Sec. 08 (M)
Accuracy: nonspecific area
Area (acres): 69
UTM: Zone-10 N4238065 E501440
Latitude/Longitude: 38.29066 / -122.98353
Elevation (feet): 250

County Summary:	Quad Summary:
Marin	Valley Ford (3812238)

Sources:

VOU93F0004 VOUCHILAS, C. - FIELD SURVEY FORM FOR RANA DRAYTONII 1993-04-20

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 45155
EO Index: 45155
Key Quad: Valley Ford (3812238)
Element Code: AAABH01022
Occurrence Number: 423
Occurrence Last Updated: 2001-11-15

Scientific Name: *Rana draytonii*
Common Name: California red-legged frog

Listing Status: **Federal:** Threatened
State: None
Rare Plant Rank:
Other Lists: CDFW_SSC-Species of Special Concern
IUCN_VU-Vulnerable

CNDDB Element Ranks: **Global:** G2G3
State: S2S3

General Habitat:

LOWLANDS AND FOOTHILLS IN OR NEAR PERMANENT SOURCES OF DEEP WATER WITH DENSE, SHRUBBY OR EMERGENT RIPARIAN VEGETATION.

Micro Habitat:

REQUIRES 11-20 WEEKS OF PERMANENT WATER FOR LARVAL DEVELOPMENT. MUST HAVE ACCESS TO ESTIVATION HABITAT.

Last Date Observed: 2001-03-13
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2001-03-13
Occurrence Rank: Good
Owner/Manager: PVT
Trend: Unknown
Presence: Presumed Extant

Location:

EBABIAS CREEK AND AN UNNAMED TRIBUTARY, TRIBUTARY TO ESTERO AMERICANO, 2 MILES NNE OF VALLEY FORD.

Detailed Location:

Ecological:

HABITAT CONSISTS OF CREEKS AND A FARM POND; SURROUNDED BY FALLOW GRASSLAND / PASTURE.

Threats:

THREATENED BY CONVERSION TO VINEYARDS.

General:

1 JUVENILE FOUND IN A WETLAND ASSOCIATED WITH EBABIAS CREEK AND 5 ADULTS FOUND IN A FARM POND ON 12 MAR 2001. 1 JUVENILE OBSERVED ON 13 MAR 2001.

PLSS: T06N, R09W, Sec. 19, SW (M)
Accuracy: specific area
Area (acres): 34
UTM: Zone-10 N4244994 E508284
Latitude/Longitude: 38.35307 / -122.90519
Elevation (feet): 100

County Summary:	Quad Summary:
Sonoma	Valley Ford (3812238)

Sources:

KJE01F0001	KJELDSEN, D. (KJELDSEN BIOLOGICAL CONSULTING) - FIELD SURVEY FORM FOR RANA DRAYTONII 2001-03-13
KJE01F0002	KJELDSEN, D. & C. KJELDSEN (KJELDSEN BIOLOGICAL CONSULTING) - FIELD SURVEY FORM FOR RANA DRAYTONII 2001-03-12

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 45290
Key Quad: Valley Ford (3812238)
Occurrence Number: 429

EO Index: 45290
Element Code: AAABH01022
Occurrence Last Updated: 2001-05-01

Scientific Name: *Rana draytonii*
Common Name: California red-legged frog

Listing Status: **Federal:** Threatened
State: None

CNDDB Element Ranks: **Global:** G2G3
State: S2S3

Rare Plant Rank:

Other Lists: CDFW_SSC-Species of Special Concern
IUCN_VU-Vulnerable

General Habitat:

LOWLANDS AND FOOTHILLS IN OR NEAR PERMANENT SOURCES OF DEEP WATER WITH DENSE, SHRUBBY OR EMERGENT RIPARIAN VEGETATION.

Micro Habitat:

REQUIRES 11-20 WEEKS OF PERMANENT WATER FOR LARVAL DEVELOPMENT. MUST HAVE ACCESS TO ESTIVATION HABITAT.

Last Date Observed: 2001-04-25
Last Survey Date: 2001-04-25
Owner/Manager: PVT-ST ANTHONY'S MONASTERY
Presence: Presumed Extant

Occurrence Type: Natural/Native occurrence
Occurrence Rank: Fair
Trend: Unknown

Location:

HEADWATER OF AN UNNAMED DRAINAGE FLOWING INTO ESTERO SAN ANTONIO, 0.7 MILE NORTH OF DILLON BEACH.

Detailed Location:

FROGS WERE FOUND IN SMALL, MUD-BOTTOMED POOLS (15" DEEP). A POTABLE WATER RESERVOIR AND TWO SEWAGE SETTLING PONDS AT THE HEAD OF THE STREAM ARE PROBABLE BREEDING SITES.

Ecological:

HABITAT CONSISTS OF SMALL, MUD-BOTTOMED POOLS IN A GULLIED AREA OF PASTURE.

Threats:

THREATENED BY EROSION / SILTATION CAUSED BY CATTLE TRAMPLING STREAM EDGES.

General:

2 ADULTS OBSERVED ON 25 APR 2001.

PLSS: T05N, R10W, Sec. 21, SE (M)
UTM: Zone-10 N4234793 E503395

Accuracy: 80 meters
Latitude/Longitude: 38.26117 / -122.96119

Area (acres): 0
Elevation (feet): 350

County Summary:

Marin

Quad Summary:

Valley Ford (3812238)

Sources:

FAW01F0001 FAWCETT, M.H. - FIELD SURVEY FORM FOR RANA DRAYTONII 2001-04-25

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 55177
EO Index: 55177
Key Quad: Two Rock (3812237)
Element Code: AAABH01022
Occurrence Number: 742
Occurrence Last Updated: 2004-04-15

Scientific Name: *Rana draytonii*
Common Name: California red-legged frog

Listing Status: **Federal:** Threatened
*** SENSITIVE *** **State:** None
CNDDB Element Ranks: **Global:** G2G3
State: S2S3

Rare Plant Rank:
Other Lists: CDFW_SSC-Species of Special Concern
IUCN_VU-Vulnerable

General Habitat:

LOWLANDS AND FOOTHILLS IN OR NEAR PERMANENT SOURCES OF DEEP WATER WITH DENSE, SHRUBBY OR EMERGENT RIPARIAN VEGETATION.

Micro Habitat:

REQUIRES 11-20 WEEKS OF PERMANENT WATER FOR LARVAL DEVELOPMENT. MUST HAVE ACCESS TO ESTIVATION HABITAT.

Last Date Observed: 2004-03-08
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2004-03-08
Occurrence Rank: Good
Owner/Manager:
Trend: Unknown
Presence: Presumed Extant

Location:

SENSITIVE LOCATION INFORMATION SUPPRESSED.

Detailed Location:

PLEASE CONTACT THE CALIFORNIA NATURAL DIVERSITY DATABASE, CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE, FOR MORE INFORMATION: (916) 322-2493

Ecological:

HABITAT CONSISTS OF CREEK BANKS LINED BY FORBS AND GRASSES; SITE IS LOCATED ADJACENT TO GRAZED PASTURE.

Threats:

POSSIBLY THREATENED BY CATTLE GRAZING.

General:

PLSS:
Accuracy: nonspecific area
Area (acres): 208
UTM:
Latitude/Longitude:
Elevation (feet): 45

County Summary:	Quad Summary:
Sonoma	Two Rock (3812237), Valley Ford (3812238)

Sources:

MIC04F0003 MICHAUD, J. (PRUNUSKE CHATHAM, INC.) - FIELD SURVEY FORM FOR RANA DRAYTONII 2004-03-08

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 55178
EO Index: 55178
Key Quad: Valley Ford (3812238)
Element Code: AAABH01022
Occurrence Number: 743
Occurrence Last Updated: 2004-04-15

Scientific Name: *Rana draytonii*
Common Name: California red-legged frog

Listing Status: **Federal:** Threatened
*** SENSITIVE *** **State:** None
CNDDB Element Ranks: **Global:** G2G3
State: S2S3

Rare Plant Rank:
Other Lists: CDFW_SSC-Species of Special Concern
IUCN_VU-Vulnerable

General Habitat:

LOWLANDS AND FOOTHILLS IN OR NEAR PERMANENT SOURCES OF DEEP WATER WITH DENSE, SHRUBBY OR EMERGENT RIPARIAN VEGETATION.

Micro Habitat:

REQUIRES 11-20 WEEKS OF PERMANENT WATER FOR LARVAL DEVELOPMENT. MUST HAVE ACCESS TO ESTIVATION HABITAT.

Last Date Observed: 2004-03-08
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2004-03-08
Occurrence Rank: Good
Owner/Manager:
Trend: Unknown
Presence: Presumed Extant

Location:

SENSITIVE LOCATION INFORMATION SUPPRESSED.

Detailed Location:

PLEASE CONTACT THE CALIFORNIA NATURAL DIVERSITY DATABASE, CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE, FOR MORE INFORMATION: (916) 322-2493

Ecological:

HABITAT CONSISTS OF CREEK BANKS LINED BY JUNCUS, GRASSES, AND MISCELLANEOUS ANNUALS; SITE IS LOCATED ADJACENT TO GRAZED PASTURE.

Threats:

POSSIBLY THREATENED BY CATTLE GRAZING.

General:

PLSS:
Accuracy: nonspecific area
Area (acres): 4,336
UTM:
Latitude/Longitude:
Elevation (feet): 80

County Summary:	Quad Summary:
Marin, Sonoma	Valley Ford (3812238)

Sources:

MIC04F0004 MICHAUD, J. (PRUNUSKE CHATHAM, INC.) - FIELD SURVEY FORM FOR RANA DRAYTONII 2004-04-08

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 62499
Key Quad: Valley Ford (3812238)
Occurrence Number: 845
EO Index: 62536
Element Code: AAABH01022
Occurrence Last Updated: 2005-09-07

Scientific Name: *Rana draytonii*
Common Name: California red-legged frog

Listing Status: **Federal:** Threatened
*** SENSITIVE *** **State:** None
CNDDB Element Ranks: **Global:** G2G3
State: S2S3

Rare Plant Rank:
Other Lists: CDFW_SSC-Species of Special Concern
IUCN_VU-Vulnerable

General Habitat:

LOWLANDS AND FOOTHILLS IN OR NEAR PERMANENT SOURCES OF DEEP WATER WITH DENSE, SHRUBBY OR EMERGENT RIPARIAN VEGETATION.

Micro Habitat:

REQUIRES 11-20 WEEKS OF PERMANENT WATER FOR LARVAL DEVELOPMENT. MUST HAVE ACCESS TO ESTIVATION HABITAT.

Last Date Observed: 2005-08-29
Last Survey Date: 2005-08-29
Owner/Manager:
Presence: Presumed Extant

Occurrence Type: Natural/Native occurrence
Occurrence Rank: Good
Trend: Unknown

Location:

SENSITIVE LOCATION INFORMATION SUPPRESSED.

Detailed Location:

PLEASE CONTACT THE CALIFORNIA NATURAL DIVERSITY DATABASE, CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE, FOR MORE INFORMATION: (916) 322-2493

Ecological:

HABITAT CONSISTS OF A SHALLOW POOL WITH MUD BANKS FOR BASKING AND EMERGENT VEGETATION FOR BREEDING. SITE IS VEGETATED BY RIPARIAN / WETLAND PLANTS AND POOL MARGINS LINED WITH JUNCUS. SURROUNDING LAND IS PASTURE.

Threats:

POTENTIAL THREAT FROM GRAZING CATTLE AND SEDIMENTATION.

General:

PLSS:
UTM:
Accuracy: 80 meters
Latitude/Longitude:
Area (acres): 0
Elevation (feet): 2

County Summary:	Quad Summary:
Marin	Valley Ford (3812238)

Sources:

MIC05F0002 MICHAUD, J. (PRUNUSKE CHATHAM, INC.) - FIELD SURVEY FORM FOR RANA DRAYTONII 2005-08-29

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 99452
Key Quad: Valley Ford (3812238)
Occurrence Number: 1423

EO Index: 101006
Element Code: AAABH01022
Occurrence Last Updated: 2016-03-21

Scientific Name: *Rana draytonii*
Common Name: California red-legged frog

Listing Status: **Federal:** Threatened
State: None

Rare Plant Rank:

Other Lists: CDFW_SSC-Species of Special Concern
IUCN_VU-Vulnerable

CNDDB Element Ranks: **Global:** G2G3
State: S2S3

General Habitat:

LOWLANDS AND FOOTHILLS IN OR NEAR PERMANENT SOURCES OF DEEP WATER WITH DENSE, SHRUBBY OR EMERGENT RIPARIAN VEGETATION.

Micro Habitat:

REQUIRES 11-20 WEEKS OF PERMANENT WATER FOR LARVAL DEVELOPMENT. MUST HAVE ACCESS TO ESTIVATION HABITAT.

Last Date Observed: 2014-06-23
Last Survey Date: 2014-06-23
Owner/Manager: PVT
Presence: Presumed Extant

Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:

ALONG UNNAMED DRAINAGE ON N SIDE OF ESTERO AMERICANO, 1.2-1.6 MI SE OF HWY 1 AT BODEGA HWY & 2.0 MI W OF VALLEY FORD.

Detailed Location:

MAPPED TO PROVIDED DETECTION SITES: "POND 1" AT (38.32517, -122.96217), IN SEEP TO S, AND "IN THE CREEK BELOW" (EXACT LOCATIONS FOR THE LATTER TWO SITES NOT GIVEN).

Ecological:

PRIVATE LAND UNDER EASEMENT, USED FOR CATTLE GRAZING. BULLFROGS NOT FOUND IN THIS DRAINAGE DURING SURVEY, BUT WERE FOUND NEARBY.

Threats:

OVERGRAZING, BULLFROG COLONIZATION (2014).

General:

4 ADULTS FOUND IN POND, 1 IN ADJACENT SEEP, AND 2 IN THE CREEK BELOW ON 23 JUN 2014.

PLSS: T06N, R10W, Sec. 28, SE (M)
UTM: Zone-10 N4241860 E503316

Accuracy: nonspecific area
Latitude/Longitude: 38.32486 / -122.96206

Area (acres): 85
Elevation (feet): 50

County Summary:	Quad Summary:
Marin, Sonoma	Valley Ford (3812238)

Sources:

SON14M0001	SONOMA COUNTY - ESTERO TRAIL STUDY MAP 2014-11-XX
STA14F0002	STABLER, R. - FIELD SURVEY FORM FOR RANA DRAYTONII 2014-06-23

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: A3810
Key Quad: Valley Ford (3812238)
Occurrence Number: 1456

EO Index: 105466
Element Code: AAABH01022
Occurrence Last Updated: 2017-03-01

Scientific Name: *Rana draytonii*
Common Name: California red-legged frog

Listing Status: **Federal:** Threatened
State: None

CNDDB Element Ranks: **Global:** G2G3
State: S2S3

Rare Plant Rank:

Other Lists: CDFW_SSC-Species of Special Concern
IUCN_VU-Vulnerable

General Habitat:

LOWLANDS AND FOOTHILLS IN OR NEAR PERMANENT SOURCES OF DEEP WATER WITH DENSE, SHRUBBY OR EMERGENT RIPARIAN VEGETATION.

Micro Habitat:

REQUIRES 11-20 WEEKS OF PERMANENT WATER FOR LARVAL DEVELOPMENT. MUST HAVE ACCESS TO ESTIVATION HABITAT.

Last Date Observed: 2016-09-04
Last Survey Date: 2016-09-04
Owner/Manager: PVT
Presence: Presumed Extant

Occurrence Type: Natural/Native occurrence
Occurrence Rank: Good
Trend: Unknown

Location:

SALMON CREEK, ABOUT 0.1 MILES SE OF BODEGA HWY AT BODEGA LN IN BODEGA.

Detailed Location:

MAPPED TO PROVIDED COORDINATES.

Ecological:

INCISED STREAM ADJACENT TO 3' DEEP POOL, WITH SANDY SILT BOTTOM, MUD BANKS, & GRAVEL BAR. MUCH LWD IN & AROUND STREAM. SURROUNDING LAND USE DAIRIES, RURAL RESIDENCES. NO BULLFROGS SEEN AT THIS SITE BUT THEY HAVE BEEN OBSERVED IN THE AREA.

Threats:

BULLFROGS.

General:

1 JUVENILE OBSERVED ON 4 SEP 2016. A FROG HAD BEEN SPOTTED THE DAY BEFORE AT SAME SITE BUT NOT IDED; POSSIBLY THE SAME INDIVIDUAL.

PLSS: T06N, R10W, Sec. 21, S (M)
UTM: Zone-10 N4244203 E502635

Accuracy: 80 meters
Latitude/Longitude: 38.34597 / -122.96985

Area (acres): 5
Elevation (feet): 98

County Summary:	Quad Summary:
Sonoma	Valley Ford (3812238)

Sources:

FAW16F0008 FAWCETT, M. - FIELD SURVEY FORM FOR RANA DRAYTONII 2016-09-04

ATTACHMENT B

Qualifications of Surveyor

Statement of Qualifications

Craig Seltenrich, M.S.

Senior Aquatic Ecologist

Craig Seltenrich has 38 years of experience in the field of aquatic biology, including; amphibian ecology, aquatic toxicology, and freshwater and marine fisheries. Since 1999, he has specialized in amphibian ecology and has designed and conducted numerous studies for evaluating potential impacts on special-status amphibians throughout much of the western Sierras and in other areas of central and northern California. Mr. Seltenrich worked at Pacific Gas and Electric Company for 23 years and was the principle amphibian biologist for all Company projects. He has also written several survey protocols for native Ranids in California including the foothill yellow-legged frog, Sierra Nevada yellow-legged frog, Yosemite toad, Cascades frog, and northern leopard frog. Mr. Seltenrich currently possesses a 10(A)(1)(a) permit for both CRF and the California tiger salamander (CTS).

Mr. Seltenrich has extensive experience conducting habitat assessments and surveys for CTS throughout much of central and northern California, as well as collection and handling of larvae and adults. During these surveys Mr. Seltenrich has observed CTS breeding, eggs, larvae, juveniles, and adults; and has documented numerous new populations in the San Francisco Bay area while working for PG&E. Currently, Mr. Seltenrich is the manager and dedicated biologist for the 5-year Potrero Landfill Expansion Site CTS capture and relocation project in Suisun and for CRF and CTS capture and relocation efforts at the Altamont Landfill and Resource Recovery Facility near Livermore. Additionally, he has conducted larval surveys and drift fence surveys in several locations in the Central Valley and coastal hills. Mr. Seltenrich has participated in CTS workshops and training sessions regarding larval and upland survey techniques. Mr. Seltenrich has also prepared Biological Assessments for CTS and has designed innovative approaches for minimizing impacts and conserving this species.

Mr. Seltenrich also has extensive experience conducting habitat assessments and surveys for the California red-legged frog (CRF) throughout much of central and northern California, as well as collection and handling of larvae and adults. He has conducted extensive surveys in the Altamont Pass area, along the southern flanks of Mount Diablo, in the Monterey Bay area, in the Central Valley, and in several locations in the Sierra foothills, and has documented numerous new CRF breeding locations. During these surveys, Mr. Seltenrich has observed breeding, egg masses, larvae, juveniles, and adults; and has documented numerous new populations in the San Francisco Bay area. He also conducted several CRF population assessments/surveys at the Big Gun Conservation Bank in Michigan Bluff, which is the largest population in the Sierra foothills. In addition, he has participated in CRF workshops and training sessions and has conducted CRF training workshops at the Big Gun Conservation Bank in Michigan Bluff for the last three years. Mr. Seltenrich has also prepared Biological Assessments for CRF, and has designed innovative approaches for minimizing impacts and conserving this species.

Mr. Seltenrich also has extensive knowledge and experience with Sierra Nevada and foothill yellow-legged frogs, and has worked with both Yosemite and spadefoot toads. He is senior author of two publications (in gray literature) on survey methodologies and techniques for the foothill yellow-legged frog (Seltenrich and Pool 2002), and for Yosemite toad, mountain yellow-legged frog, northern leopard frog, and Cascades frog (PG&E 2001). He managed and lead all of the amphibian surveys at PG&E associated with the relicensing of hydroelectric facilities throughout the Sierra Nevada Mountains. Mr. Seltenrich has also been an active member of the California/Nevada Amphibian Populations Task Force since 2002.

Publications

Pacific Gas & Electric Company. 2001. "Survey Protocols for Mountain Yellow-Legged Frog, Northern Leopard Frog, Cascades Frog, and Yosemite Toad: Standard Operating Procedures and Data Sheets for Amphibian Surveys and Habitat Assessments." Prepared by C. Seltenrich and A. Pool. May 2001.

Seltenrich, C.P., and A.C. Pool. 2002. "A Standardized Approach for Habitat Assessments and Visual Encounter Surveys for the Foothill Yellow-Legged Frog (*Rana boylii*)." Pacific Gas & Electric Company.

Stitt, E.W., and C.P. Seltenrich. 2010. California Red-Legged Frog (*Rana draytonii*) Diet. *Herpetological Review* 41(2):206.

ATTACHMENT C

Copies of Field Data Sheets

California Red-Legged Frog Habitat Assessment Form[1]

General Information

Project Name / County: Estero Trail / Sonoma Co.		Observers: C Seltenrich, P Keating
Date: 7-27-17	Site Number: Pool on Drainage 1	Site Elevation:
Additional Info: Pool in drainage located ~approx. 50 m east of creek bridge.		

Aquatic Habitat

Pond Lake	Natural / Man-made	Ephemeral / Perennial	
(Stream) Pool in stream	Ephemeral / (Intermittent)	Perennial	
	(Pools) No Pools	Size: variable	Depth: mostly shallow
	% Riffles: < 5	Stream Gradient: (Low) Moderate High	
Pools (along stream)	Ephemeral / Intermittent	Size:	Depth:
Other (describe): Pools were sporadic along reach, mostly narrow, short, shallow pools. The channel was dry, except in depressions and pools.			

Aquatic Features

Water: (Present) Absent	If Present, % Inundation: variable	Turbidity: (Low (clear)) Moderate High	
Size (meters)	Width: ~ 3.5	Length: ~ 14.5	
Depth (meters) 13°C/56°F	Maximum: ~1.40	Minimum: 0.1	Average: ~0.6
Est. Flow (CuFt/sec): no surface movement or flow			
Shade on water (mid-day)	35 %	Type: (Canopy) Overhang Floating	
Emergent Vegetation	% Cover: 20	Type: Duckweed/Water plantain, water primrose	
Submerged Vegetation	% Cover: 45-50	Type: filamentous green algae, milfoil	
Basking Sites	(Present) Absent	Type: earthen banks	Abundance: L (M) H
Substrate (%)	Fines 90 Sand 10 Gravel ____ Cobble ____ Boulder ____ Bedrock ____		
Comments: Pools tended to be longer in the lower portion of the drainage			

Shoreline Features

Overhanging Vegetation	% Cover: 40	Type: willow, rushes, grasses, forbs	
Earthen Banks	(Present) Absent	Extent: at least 75% of perimeter	
Undercut Banks	(Present) Absent	Extent: < 5 %	
Rootballs	Present (Absent)	Abundance: Low Moderate High	
Bank Gradient	Range (degrees):	Low (Moderate) High small amount of low	
Evidence of Disturbance	(Yes) No	(Low) Moderate High	
Type of Disturbance	(Livestock Trampling) Erosion Mining Other:		
Comments: Minor Relatively thin riparian around pool, open area of drainage			

Terrestrial Habitat and Features

General Habitat Description:	Non-native annual grasslands		
Barriers to Movement / Dispersal	Present (Absent)	Type:	Location:
Cover (within 50 ft of site)	% Cover: 40	Type: rushes, shrubs, grasses, blackberry	
Burrows / Cover Objects:	(Present) Absent	Type: pocket gopher	Abundance: low-mod
Project Site Land Use:	Primarily grazing - cattle		
Adjacent Land Use:	Grazing to the south - sheep, to the north cattle		
Comments:			

Wildlife Observed

Amphibians: 2 CRF	Fish: mosquitofish, unid. minnow
Reptiles:	Other:
Comments: 1 adult and 1 juvenile observed in the duckweed observed on shore	

Photo #	Description	Photo #	Description

[1] Based on habitat requirements in *Revised Guidance on Site Assessments and Field Surveys for the California Red-Legged Frog* (USFWS 2005).

California Red-Legged Frog Habitat Assessment Form[1]

General Information

Project Name / County: Estero Trail / Sonoma County		Observers: CSeltenrich / PKerting
Date: 7/27/17	Site Number: Pool on drainage 2	Site Elevation:
Additional Info: Pool in drainage located approx. 60 m west of property boundary		

Aquatic Habitat

Pond Lake	Natural / Man-made	Ephemeral / Perennial	
Stream: Pool in stream	Ephemeral / Intermittent	Perennial	
No surface flow in drainage	Pools / No Pools	Size: variable	Depth: variable
	% Riffles: <5	Stream Gradient: Low Moderate High	
Pools (along stream)	Ephemeral / Intermittent	Size:	Depth:

Other (describe): Only a few pools were observed in the upper part of the drainage, dense riparian cover precluded access to channel (on property boundary)

Aquatic Features

Water: Present Absent	If Present, % Inundation:	Turbidity: Low (clear) Moderate High	
Size (meters)	Width: 1 - 4 m	Length: 20-21 m	
Depth (meters) 14.5°C/59°F	Maximum: 1.0	Minimum: 0.2	Average: 0.5
Est. Flow (CuFt/sec): no surface movement or flow			
Shade on water (mid-day)	35-40%	Type: Canopy Floating	
Emergent Vegetation	% Cover: <5	Type: water plantain	
Submerged Vegetation	% Cover: 30	Type: Milfoil, filamentous green alga	
Basking Sites	Present Absent	Type: algal matts	Abundance: L (M) H
Substrate (%)	Fines 90 Sand 10 Gravel ___ Cobble ___ Boulder ___ Bedrock ___		

Comments: No access to middle and lower middle portion of drainage (fence, dense veg.) A few pools were present in the upper part of the drainage but were very small and shallow

Shoreline Features

Overhanging Vegetation	% Cover: 90	Type: sedges, blackberry, ferns, forbs
Earthen Banks	Present Absent	Extent: low - steep
Undercut Banks	Present Absent	Extent: low
Rootballs	Present Absent	Abundance: Low Moderate High
Bank Gradient	Range (degrees):	Low Moderate High
Evidence of Disturbance	Yes No	Low Moderate High
Type of Disturbance	Livestock Trampling Erosion Mining Other:	

Comments: stream channel incised

Terrestrial Habitat and Features

General Habitat Description:	Non-native annual grassland		
Barriers to Movement / Dispersal	Present Absent	Type:	Location:
Cover (within 50 ft of site)	% Cover: 90	Type: sedges, grasses, coyote brush, blackberry	
Burrows / Cover Objects:	Present Absent	Type: pocked gopher	Abundance: low
Project Site Land Use:	Primarily grazing - cattle		
Adjacent Land Use:	Grazing to the south - sheep, to the north - cattle		

Comments:

Wildlife Observed

Amphibians: 2 CRF juveniles	Fish:
Reptiles: western pond turtle	Other:

Comments: 2 juvenile CRF, 1 adult WPT observed in algal matt, WPT approx. 6" in length

Photo #	Description	Photo #	Description

[1] Based on habitat requirements in *Revised Guidance on Site Assessments and Field Surveys for the California Red-Legged Frog* (USFWS 2005).

use this info for general drainage info.

California Red-Legged Frog Habitat Assessment Form[1]

not the CRF pool

General Information

Project Name / County:		Observers:
Date: 9/27	Site Number: stream 1	Site Elevation:
Additional Info:		

Aquatic Habitat

Pond Lake	Natural / Man-made	Ephemeral / Perennial	
(Stream)	Ephemeral / (Intermittent)	Perennial	
	(Pools) No Pools	Size: variable	Depth:
	% Riffles:	Stream Gradient: (Low) (Moderate) High	
Pools (along stream)	Ephemeral / Intermittent	Size:	Depth:
Other (describe): → stream has periodic pools - generally fairly small and linear - some longer pools in bottom of drainage			

Aquatic Features

Approx 180' east of creek crossing South of barn 56° F

Water: (Present) Absent	If Present, % Inundation:	Turbidity: Low (clear)	Moderate High
Size (meters)	Width: 10-18	Length: 50'	
Depth (meters) 1-1.25m	Maximum: 1-~~1.25~~ ~~3~~ 1'	Minimum: .2'	Average: .75
Est. Flow (CuFt/sec):	—		
Shade on water (mid-day)	35 %	Type: (Canopy) Floating	
Emergent Vegetation	% Cover: 20	Type: unk. - duckweed?	
Submerged Vegetation	% Cover: ~~50~~ 50	Type: filamentous green algae	
Basking Sites	(Present) Absent	Type: earth banks	Abundance: L (M) H
Substrate (%)	Fines 85 Sand 15 Gravel ____ Cobble ____ Boulder ____		Bedrock ____

water plantain, milfoil, primrose, pondweed?

Comments:
→ Paul has picture of aquatic plant - duckweed?

Shoreline Features

Overhanging Vegetation	% Cover: 40	Type: willow, rushes, grasses
Earthen Banks	(Present) Absent	Extent: most of perimeter
Undercut Banks	(Present) Absent	Extent: <5
Rootballs	Present (Absent)	Abundance: Low Moderate High
Bank Gradient	Range (degrees): 35-80	Low (Moderate) (High)
Evidence of Disturbance	Yes (No)	Low Moderate High
Type of Disturbance minor	(Livestock Trampling) Erosion Mining Other:	

Comments:
rushes common along channel, willow dominated with sedges in places.

Populus lombardii, scattered eucalyptus, ~~sycamore~~ cottonwood

Terrestrial Habitat and Features

General Habitat Description: ~~Stream~~ some pools 90-100% shaded others open or with very little stream with periodic pools to 1-1.5m, most have high riparian cover

Barriers to Movement / Dispersal	Present (Absent)	Type:	Location:
Cover (within 50 ft of site)	% Cover: 40	Type: shrubs, rushes, blackberry	
Burrows / Cover Objects:	(Present) Absent	Type: PG	Abundance: Low-mod
Project Site Land Use:			
Adjacent Land Use:			

Comments: blackberry present in locations along stream
Picture taken (Paul) of aquatic plant / Riparian willow mostly, (2+ species) Eucalyptus, ~~sycamore~~ cottonwood
→ get pool location from Paul

Wildlife Observed

Amphibians: 2 CRF, Juv. & adult	Fish:
Reptiles: → fish in pool	Other: Harrier
Comments: mosquito fish, minnow	

Photo #	Description	Photo #	Description

[1] Based on habitat requirements in *Revised Guidance on Site Assessments and Field Surveys for the California Red-Legged Frog* (USFWS 2005).

CRF observed in spring southwest of barn

California Red-Legged Frog Habitat Assessment Form[1]

General Information

Project Name / County:		Observers:
Date: 9/27	Site Number: Stream 2	Site Elevation:
Additional Info:	1200	

Aquatic Habitat

Pond Lake	Natural / Man-made	Ephemeral / Perennial	
(Stream)	Ephemeral / Intermittent	Perennial	
	(Pools) No Pools	Size: variable	Depth: variable
	% Riffles:	Stream Gradient: Low Moderate High	
Pools (along stream)	Ephemeral / Intermittent	Size:	Depth:
Other (describe):			

Aquatic Features

59°F

Water: (Present) Absent	If Present, % Inundation:	Turbidity: (Low (clear)) Moderate High	
Size (meters)	Width: 3 - 12'+	Length: 70'	
Depth (meters)	Maximum: 1 m	Minimum: .2	Average: .5
Est. Flow (CuFt/sec):			
Shade on water (mid-day) 35-40 %		Type: (Canopy) blackberry, ferns, sedges, forbs Floating	
Emergent Vegetation	% Cover: 0	Type:	
Submerged Vegetation	% Cover: 30	Type: water plantain, filamentous green algae, Mitella	
Basking Sites	(Present) Absent	Type: algal mats	Abundance: L (M) H
Substrate (%)	Fines 85 Sand 15 Gravel ____ Cobble ____ Boulder ____ Bedrock ____		
Comments: pools infrequent, no access to lower 2/3 of creek (fence, dense rip)			

Shoreline Features

Overhanging Vegetation	% Cover: 90	Type: sedges, blackberry, ferns, forbs	
Earthen Banks	(Present) Absent	Extent: low - steep	
Undercut Banks	(Present) Absent	Extent: low	
Rootballs	Present (Absent)	Abundance: Low Moderate High	
Bank Gradient	Range (degrees):	Low (Moderate) (High)	
Evidence of Disturbance	Yes (No)	Low Moderate High	
Type of Disturbance	Livestock Trampling Erosion Mining Other:		
Comments: stream habitat - incised, with periodic pools, areas of dense riparian at the western 2/3 - open areas in upper 1/3 - willow, coyote brush, riparian			

Terrestrial Habitat and Features

General Habitat Description:			
Barriers to Movement / Dispersal	Present (Absent)	Type:	Location:
Cover (within 50 ft of site)	% Cover: 90	Type: grasses, sedges, shrubs, blackberry	
Burrows / Cover Objects:	(Present) Absent	Type: pc	Abundance: very low
Project Site Land Use:			
Adjacent Land Use:			
Comments:			

Wildlife Observed

Amphibians: 2 CRF juveniles	Fish:
Reptiles: 1 adult WPT	Other:
Comments:	

Photo #	Description	Photo #	Description

[1] Based on habitat requirements in *Revised Guidance on Site Assessments and Field Surveys for the California Red-Legged Frog* (USFWS 2005).

California Red-Legged Frog Habitat Assessment Form[1]

General Information

Project Name / County:		Observers: CPS - PK
Date: 9-26-17	Site Number: 1	Site Elevation: 287
Additional Info:		

Aquatic Habitat

(Pond) Lake	Natural / (Man-made)	(Ephemeral) / Perennial	
Stream	Ephemeral / Intermittent	Perennial	
	Pools No Pools	Size:	Depth:
	% Riffles:	Stream Gradient: Low Moderate High	
Pools (along stream)	Ephemeral / Intermittent	Size:	Depth:
Other (describe):			

Aquatic Features

Water: (Present) Absent	If Present, % Inundation: <1%	Turbidity: (Low (clear)) Moderate High	
Size (meters)	Width: 40?	Length: 40?	
Depth (meters) 2-2.25	Maximum: 2.25	Minimum: 1'	Average: 3'+
Est. Flow (CuFt/sec):			
Shade on water (mid-day)	15 %	Type: (Canopy) Floating	
Emergent Vegetation	% Cover: spike rush	Type:	
Submerged Vegetation	% Cover: Dry	Type:	
Basking Sites	(Present) Absent	Type: earth banks	Abundance: L (M) H
Substrate (%)	Fines 90 Sand 10 Gravel ____ Cobble ____ Boulder ____ Bedrock ____		
Comments:			

Shoreline Features

Overhanging Vegetation	% Cover: 10%	Type: coyote brush	
Earthen Banks	(Present) Absent	Extent: 70% northern portion	
Undercut Banks	Present (Absent)	Extent:	
Rootballs	Present (Absent)	Abundance: Low Moderate High	
Bank Gradient	Range (degrees): 10-30+	Low (Moderate) High	
Evidence of Disturbance	(Yes) No	Low (Moderate) High	vegetation removal
Type of Disturbance	Livestock Trampling (Erosion) Mining Other:		
Comments:	coyote brush, bull rush on southern boundary redwood? Spike rush on northern margin		

Terrestrial Habitat and Features

General Habitat Description:	grassland and coyote brush - riparian area to west		
Barriers to Movement / Dispersal	Present (Absent)	Type:	Location:
Cover (within 50 ft of site)	% Cover: 15	Type: coyote brush	
Burrows / Cover Objects:	(Present) Absent	Type: pocket gopher	Abundance: Low Mod ~~High~~ (mostly downhill of pond)
Project Site Land Use:	Grazed		
Adjacent Land Use:			
Comments:			

Wildlife Observed

Amphibians: none	Fish:
Reptiles:	Other:
Comments:	

Photo #	Description	Photo #	Description

[1] Based on habitat requirements in *Revised Guidance on Site Assessments and Field Surveys for the California Red-Legged Frog* (USFWS 2005).

California Red-Legged Frog Habitat Assessment Form[1]

General Information

Project Name / County:		Observers:
Date:	Site Number: 2 (north of barn)	Site Elevation:
Additional Info:		

Aquatic Habitat

(Pond) Lake	Natural / (Man-made)	(Ephemeral) / Perennial	
Stream	Ephemeral / Intermittent	Perennial	
	Pools No Pools	Size:	Depth:
	% Riffles:	Stream Gradient: Low Moderate High	
Pools (along stream)	Ephemeral / Intermittent	Size:	Depth:
Other (describe):			

Aquatic Features

Water: Present (Absent)	If Present, % Inundation:	Turbidity: Low (clear) Moderate High	
Size (meters)	Width: 10	Length: 60	
Depth (meters)	Maximum: .5	Minimum: .1	Average: .3-.4
Est. Flow (CuFt/sec):			
Shade on water (mid-day)	0 %	Type: Canopy Floating	
Emergent Vegetation	% Cover: 10	Type: rushes	
Submerged Vegetation	% Cover: —	Type:	
Basking Sites	(Present) Absent	Type: earth	Abundance: L M (H)
Substrate (%)	Fines 90 Sand 10 Gravel ____ Cobble ____ Boulder ____ Bedrock ____		
Comments:			

Shoreline Features

Overhanging Vegetation	% Cover: 0	Type:
Earthen Banks	(Present) Absent	Extent: perimeter
Undercut Banks	Present (Absent)	Extent:
Rootballs	Present (Absent)	Abundance: Low Moderate High
Bank Gradient	Range (degrees):	Low (Moderate) (High)
Evidence of Disturbance	Yes No	Low Moderate High
Type of Disturbance	(Livestock Trampling) Erosion Mining Other:	
Comments:		

Terrestrial Habitat and Features

General Habitat Description:	Grassland – coyote brush		
Barriers to Movement / Dispersal	Present (Absent)	Type:	Location:
Cover (within 50 ft of site)	% Cover:	Type:	
Burrows / Cover Objects:	Present (Absent)	Type:	Abundance:
Project Site Land Use:			
Adjacent Land Use:			
Comments:			

Wildlife Observed

Amphibians: CRF observed in pond	Fish:
Reptiles: in 2015 – numerous frogs	Other:
Comments:	

Photo #	Description	Photo #	Description

[1] Based on habitat requirements in *Revised Guidance on Site Assessments and Field Surveys for the California Red-Legged Frog* (USFWS 2005).

California Red-Legged Frog Habitat Assessment Form[1]

General Information

Project Name / County:		Observers:
Date: 9/26	Site Number: 3 (westerly area north of estero)	Site Elevation:
Additional Info:		

Aquatic Habitat

(Pond) Lake	Natural / (Man-made)	Ephemeral / (Perennial)	
Stream	Ephemeral / Intermittent	Perennial	
	Pools No Pools	Size:	Depth:
	% Riffles:	Stream Gradient: Low Moderate High	
Pools (along stream)	Ephemeral / Intermittent	Size:	Depth:
Other (describe):			

Aquatic Features

Water: (Present) Absent	If Present, % Inundation: ~75 % ~100%	Turbidity: Low (clear) Moderate High	
Size (meters)	Width: 38'	Length: 80'	
Depth (meters)	Maximum: unknown	Minimum: unknown	Average: unk
Est. Flow (CuFt/sec):			
Shade on water (mid-day)	5-10 %	Type: (Canopy) (Floating) azola covered pond surface	
Emergent Vegetation	% Cover:	Type:	
Submerged Vegetation	% Cover:	Type: vegetal algal	
Basking Sites	(Present) Absent	Type: wood plank - mats	Abundance: (L) M H
Substrate (%)	Fines ____ Sand ____ Gravel ____ Cobble ____ Boulder ____ Bedrock ____		
Comments: The surface of the pond was entirely covered with azola.			

Shoreline Features

Overhanging Vegetation	% Cover: 10	Type: willow / shrubs	
Earthen Banks	(Present) Absent	Extent: low	
Undercut Banks	Present (Absent)	Extent:	
Rootballs	Present (Absent) ?	Abundance: Low Moderate High	
Bank Gradient	Range (degrees):	(Low) Moderate High	
Evidence of Disturbance	Yes (No)	Low Moderate High	
Type of Disturbance	Livestock Trampling Erosion Mining Other:		
Comments:			

Terrestrial Habitat and Features

General Habitat Description:			
Barriers to Movement / Dispersal	Present Absent	Type:	Location:
Cover (within 50 ft of site)	% Cover:	Type:	
Burrows / Cover Objects:	(Present) Absent	Type: GS	Abundance: sparse
Project Site Land Use:			
Adjacent Land Use:			
Comments:			

Wildlife Observed

Amphibians:	Fish:
Reptiles:	Other:
Comments:	

Photo #	Description	Photo #	Description

[1] Based on habitat requirements in *Revised Guidance on Site Assessments and Field Surveys for the California Red-Legged Frog* (USFWS 2005).

California Red-Legged Frog Habitat Assessment Form[1]

General Information

Project Name / County: Estero Trail Sonoma		Observers: CSeltenrich / P Keating
Date: 7/27/17	Site Number: 4	Site Elevation: 50
Additional Info:		

Aquatic Habitat

(Pond) Lake	Natural / (Man-made)	(Ephemeral) / Perennial	
Stream	Ephemeral / Intermittent	Perennial	
	Pools No Pools	Size:	Depth:
	% Riffles:	Stream Gradient: Low Moderate High	
Pools (along stream)	Ephemeral / Intermittent	Size:	Depth:
Other (describe):			

Aquatic Features

Water: (Present) Absent	If Present, % Inundation: <5	Turbidity: (Low (clear) Moderate High	
Size (meters)	Width: ~39	Length: ~68'	
Depth (meters) unk.	Maximum:	Minimum:	Average:
Est. Flow (CuFt/sec): —			
Shade on water (mid-day)	95 %	Type: (Canopy) bullrush Floating	
Emergent Vegetation	% Cover: 95	Type: bullrush	
Submerged Vegetation	% Cover: unk.	Type:	
Basking Sites	Present (Absent)	Type:	Abundance: L M H
Substrate (%)	Fines 85 Sand 15 Gravel ____ Cobble ____ Boulder ____ Bedrock ____		

Comments: Pond completely choked with bullrush - could not get to water - Depth ~~unknown~~ less than 6". Coffee berry along southwestern end of pond

Shoreline Features

Overhanging Vegetation	% Cover: 15%	Type: blackberry, grasses, sedges, ferns
Earthen Banks	(Present) Absent	Extent: highly limited
Undercut Banks	Present (Absent)	Extent:
Rootballs	Present (Absent)	Abundance: Low Moderate High
Bank Gradient	Range (degrees):	Low (Moderate) (High)
Evidence of Disturbance	Yes (No)	Low Moderate High
Type of Disturbance	Livestock Trampling Erosion Mining Other:	

Comments:

Terrestrial Habitat and Features

General Habitat Description:			
Barriers to Movement / Dispersal	Present (Absent)	Type:	Location:
Cover (within 50 ft of site)	% Cover: 80	Type: vegetation primarily	
Burrows / Cover Objects:	(Present) Absent	Type: Pocket gopher	Abundance: low
Project Site Land Use:	Grazing, but no access for cattle to this drainage		
Adjacent Land Use:			

Comments:

Wildlife Observed

Amphibians: ~~2 juvenile~~	Fish:
Reptiles:	Other:

Comments:

Photo #	Description	Photo #	Description

[1] Based on habitat requirements in *Revised Guidance on Site Assessments and Field Surveys for the California Red-Legged Frog* (USFWS 2005).

ATTACHMENT D

Photographs of Aquatic and Upland Habitats

ATTACHMENT D
Photographs of Aquatic and Upland Habitats



1. Pool in Drainage 1 where CRF was observed.



2. Pool in Drainage 2 where CRF was observed.



3. Representative photograph of dense riparian areas along both drainages



4. Representative photograph of open areas along both drainages



5. Pond 1



6. Pond 2



7. Pond 3



8. Pond 4

Northwestern Pond Turtle (*Actinemys marmorata marmorata*) Habitat Assessment and Surveys Report for the Estero Trail Project Sonoma County, California

Prepared For:

County of Sonoma

Prepared by:

DUDEK
853 Lincoln Way, Ste 208
Auburn, California 95603

NOVEMBER 2017

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Northwestern Pond Turtle (*Actinemys marmorata marmorata*) Habitat Assessment and Surveys Report for the Estero Trail Project

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Northwestern Pond Turtle (*Actinemys marmorata marmorata*) Habitat Assessment and Surveys Report for the Estero Trail Project

1 INTRODUCTION

At the request of Sonoma County, Dudek conducted a habitat assessment and daytime survey within the Estero Trail project (study area) for the northwestern pond turtle (*Actinemys marmorata marmorata*) (WPT), which is a federal Species of Concern and a California Species of Special Concern. The study area is located within an elevation range from sea level to 119 meters (m) (0 to 390 feet [ft]) above mean sea level, and is located along the Estero American 2 miles west of the town of Valley Ford (Figures 1 and 2, Regional and Vicinity Maps). The site occurs within Section 33, Township 6 North, and Range 10 West of the "Valley Ford" 7.5-minute topographic quadrangles. The approximate center of the study area is located at 38°19'25" North and 122°57' 41" West.

The site is currently owned by the Bordessa family and is known as Bordessa Ranch. In 2010, the Bordessa family submitted an inquiry to the Sonoma County Agricultural Preservation and Open Space District (District) about District purchase of a Conservation Easement over the property, including a public access trail. In 2012, imminent subdivision of the ranch was prevented by the District through purchase of a Conservation Easement. Under the terms of the agreement between the District and the Bordessa family, the District will hold the Conservation Easement over the Property in perpetuity with the intention to preserve its important agricultural, natural, and scenic values, along with a trail easement, to provide the public with outdoor recreational opportunities. Regional Parks and the District have since worked together to develop the trail easement and public access. With a grant from the State Coastal Conservancy, Regional Parks is providing environmental review and easement trail planning.

The proposed project would establish two main pedestrian only trails and parking lots that would allow for low-intensity public recreational access. The proposed trail alignments would not be more than 5 miles in length and the parking lots would not be more than 1.5 acres in combined size (Figure 3, Project Site). The proposed trail system is the principal means for providing public access to the property and the Estero. The trails will be constructed for pedestrian use and hand-carried non-motorized boats, kayaks and canoes. The trail will be 5 ft wide and composed of compacted native material or other permeable surface, including rocked crossings only where the trail would span a stream. Several benches and trail marker posts would be placed along the trail. The existing main access road and gate are expected to remain in similar locations.

The study area contains four man-made ponds, two unnamed intermittent drainages (ID-01 and ID-02), several small ephemeral drainages, and several seeps and springs. The WPT habitat assessment and daytime surveys were conducted on September 26 and 27, 2017, by senior aquatic ecologist Craig Seltenrich and biologist Paul Keating of Dudek.

1.1 Environmental Setting

The site and study area are located in primarily non-native annual grassland habitat, although the southern portion of the site includes tidal habitat along intermittent drainages ID-01 and ID-02 located in the center and eastern portions of the site (Figure 4, Vegetation Communities).

1.2 Vegetation Community Types

California Annual Grassland. The dominant habitat type in the project area, the California annual grassland is dominated by non-native grasses such as slender wild oats (*Avena barbata*), velvet grass (*Holcus lanatus*), rattlesnake grass (*Briza maxima*), little quaking grass (*Briza minor*), hedgehog dogtail grass (*Cynosurus echinatus*). Also present in this habitat are non-native forbs such as bull thistle (*Cirsium vulgare*), Italian thistle (*Carduus pycnocephalus*), birdsfoot trefoil (*Lotus corniculatus*), cat's ears (*Hypochaeris glabra*; *H. radicata*), pale flax (*Linum bienne*), and sheep sorrel (*Rumex acetosella*). Native grasses and forbs were present in less density than the non-natives and include: purple needlegrass (*Stipa pulchra*), yarrow (*Achillea millefolium*), dwarf brodiaea (*Brodiaea terrestris*), California poppy (*Eschscholzia californica*), annual lupine (*Lupinus bicolor*), blue-eyed grass (*Sisyrinchium bellum*), and scattered coyote brush (*Baccharis pilularis*).

Coyote Brush Scrub (*Baccharis pilularis* Shrubland Alliance). Coyote brush (*Baccharis pilularis*) is the dominant shrub in this vegetation community. Coyote brush scrub occurs intermittently in the western portion of the project site, primarily on north- and east-facing hill slopes. Other shrub species observed in this vegetation community include coffeeberry (*Frangula californica*), hawthorn (*Crataegus* spp.), and gorse (*Ulex europaeus*). Scattered Monterey pine trees (*Pinus radiata*) are also present in low numbers within this vegetation community. The herbaceous understory of this vegetation community contains grass and herb species consistent with those found in the California Annual Grassland, described above.

Arroyo Willow Thickets (*Salix lasiolepis* Shrubland Alliance). Arroyo willow (*Salix lasiolepis*) is the dominant tree cover along the two intermittent drainages ID-01 and ID-02. Other tree species observed with the arroyo willow along the central drainage ID-01 include Lombardy poplar (*Populus nigra*) and blue gum (*Eucalyptus globulus*). The understory of this vegetation community primarily consisted of rushes (*Juncus patens* and *J. effusus*), and bracken fern (*Pteridium aquilinum*).

Eucalyptus Groves (*Eucalyptus* (*globulus, camaldulensis*) Woodland Semi-Natural Alliance). Several eucalyptus (*Eucalyptus globulus*) groves occur on site, one along an ephemeral drainage in the western portion of the project site and the other along drainage ID-01.



SOURCE: ArcGIS Online Basemap

FIGURE 1

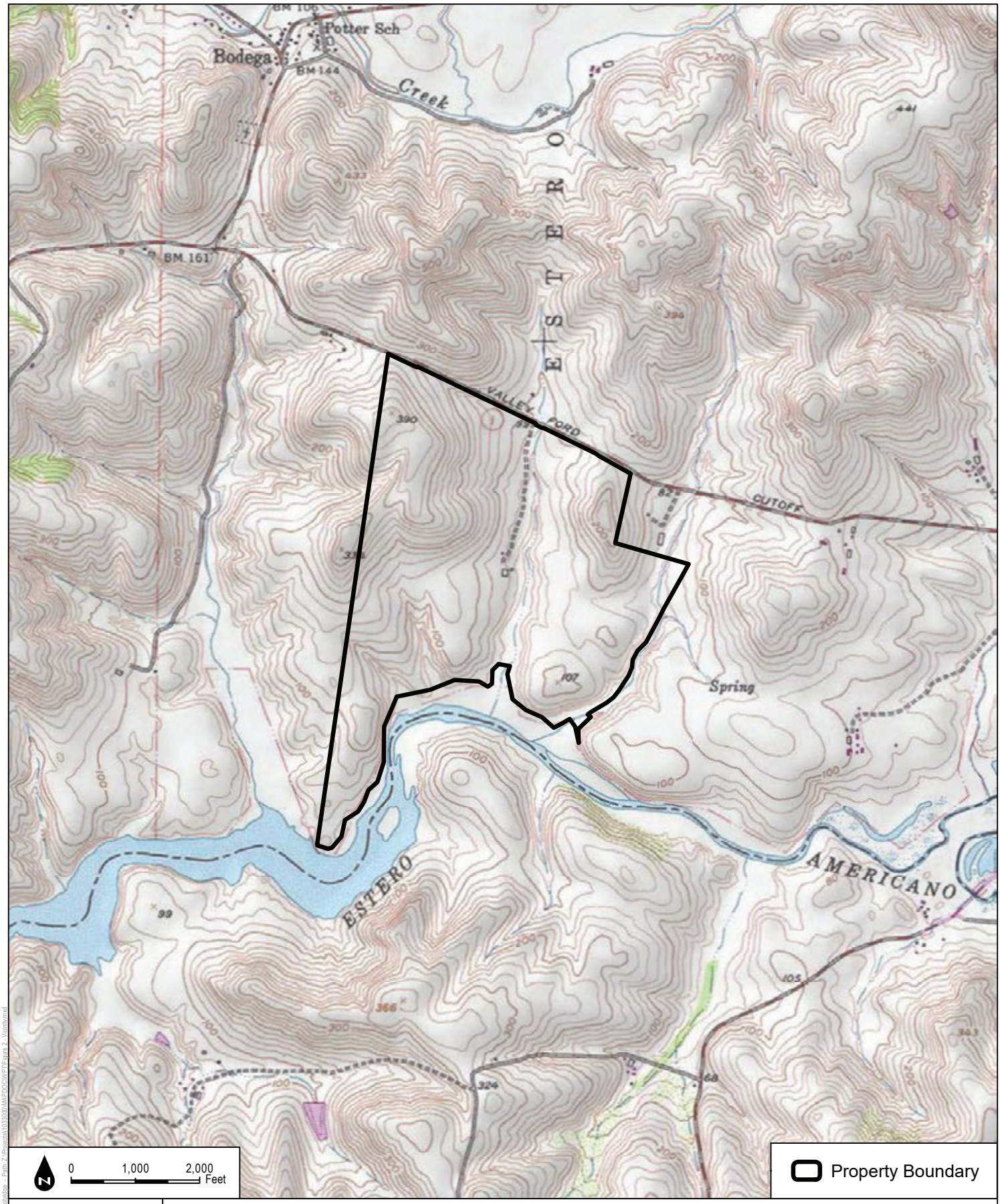
Regional Map

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Bordessa Ranch - Estero Trail

Western Pond Turtle Habitat Assessment and Surveys Report

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SOURCE: USGS 7.5-Minute Series Valley Ford Quadrangle
Township 6N; Range 10W; Sections 27, 28, 33, 34

FIGURE 2
Vicinity Map

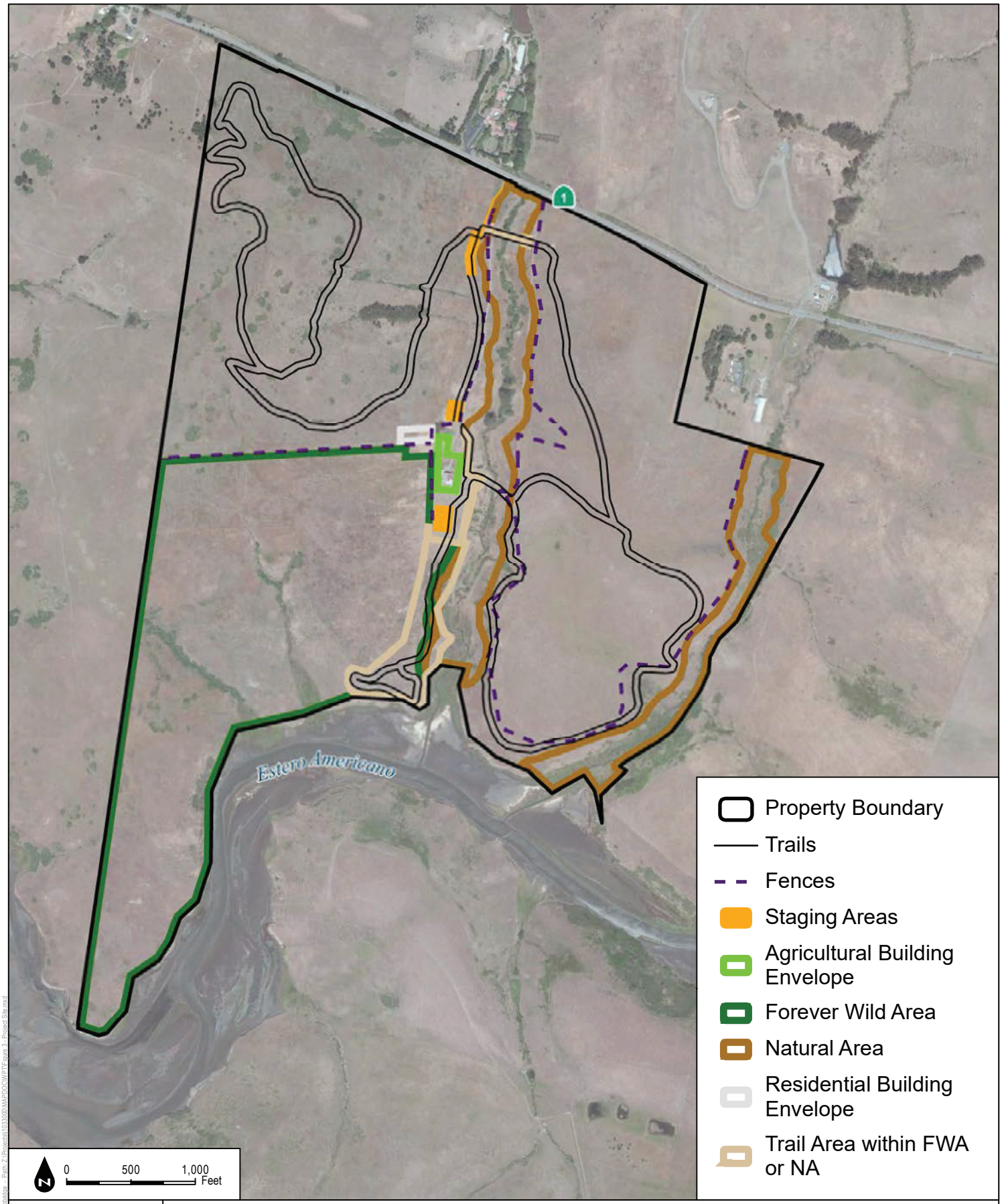
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Bordessa Ranch - Estero Trail

Western Pond Turtle Habitat Assessment and Surveys Report

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SOURCE: Bing Maps (Accessed 2017)

FIGURE 3

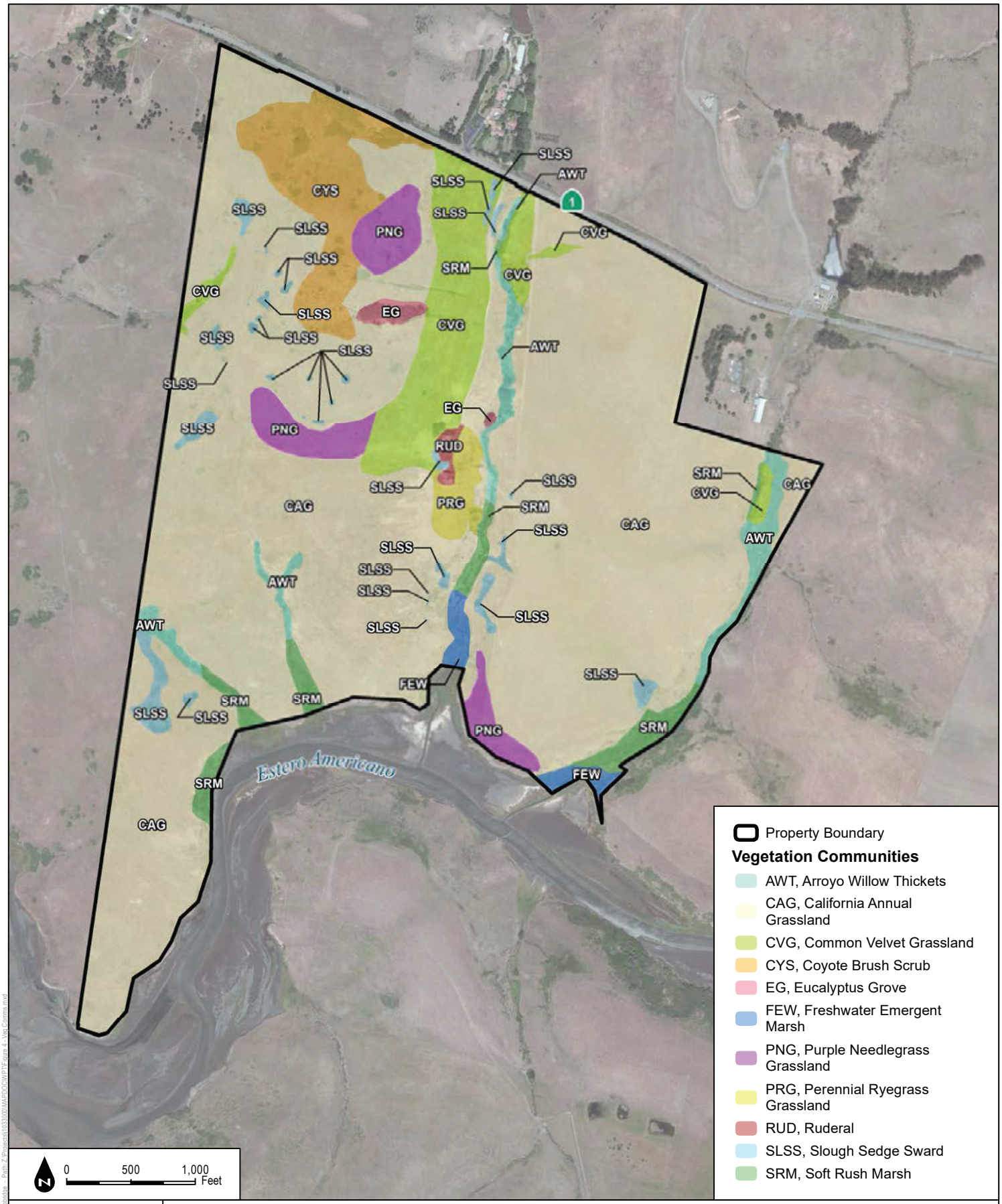
Project Site

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Bordessa Ranch - Estero Trail

Western Pond Turtle Habitat Assessment and Surveys Report

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SOURCE: Bing Maps (Accessed 2017)

FIGURE 4

Vegetation Communities

Bordessa Ranch - Estero Trail

Western Pond Turtle Habitat Assessment and Surveys Report

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Slough Sedge Swards (*Carex obnupta* Herbaceous Alliance). Slough sedge swards occur in the grassland throughout the project site where moisture appears to be maintained in the soil due to the site's micro-topography. This vegetation community is dominated by slough sedge (*Carex obnupta*), with some velvet grass, sweet vernal grass (*Anthoxanthum odoratum*), and California blackberry (*Rubus ursinus*) interspersed.

1.3 Aquatic Features

Aquatic habitats present within the site include four man-made ponds (two of which appear to be perennial in average and above average water years), two intermittent drainages (ID-01 and ID-02), and several ephemeral drainages, springs and seeps, and numerous other small shallow ephemeral features.

1.4 Soils

Soils information for the site was obtained from the Natural Resources Conservation Service Soil Survey of Sonoma County, California, Western Part (USDA 2017). Steinbeck loam and Kneeland sandy loam, on varying slopes, are the most common soil types present and both are found throughout the eastern and western hills. Los Osos clay loam, thin solum, 30%–50% slopes occurs on the south facing slopes of both hills. Bulcher fine sandy loam, overwash 0–2% slopes is also present along drainages ID-01 and ID-02 where they meet with the Estero Americano (Figure 5, Natural Resources Conservation Service Soil Types).

1.5 Western Pond Turtle General Ecology

1.5.1 Status

WPT is a federal Species of Concern and a California Species of Special Concern.

1.5.2 Distribution

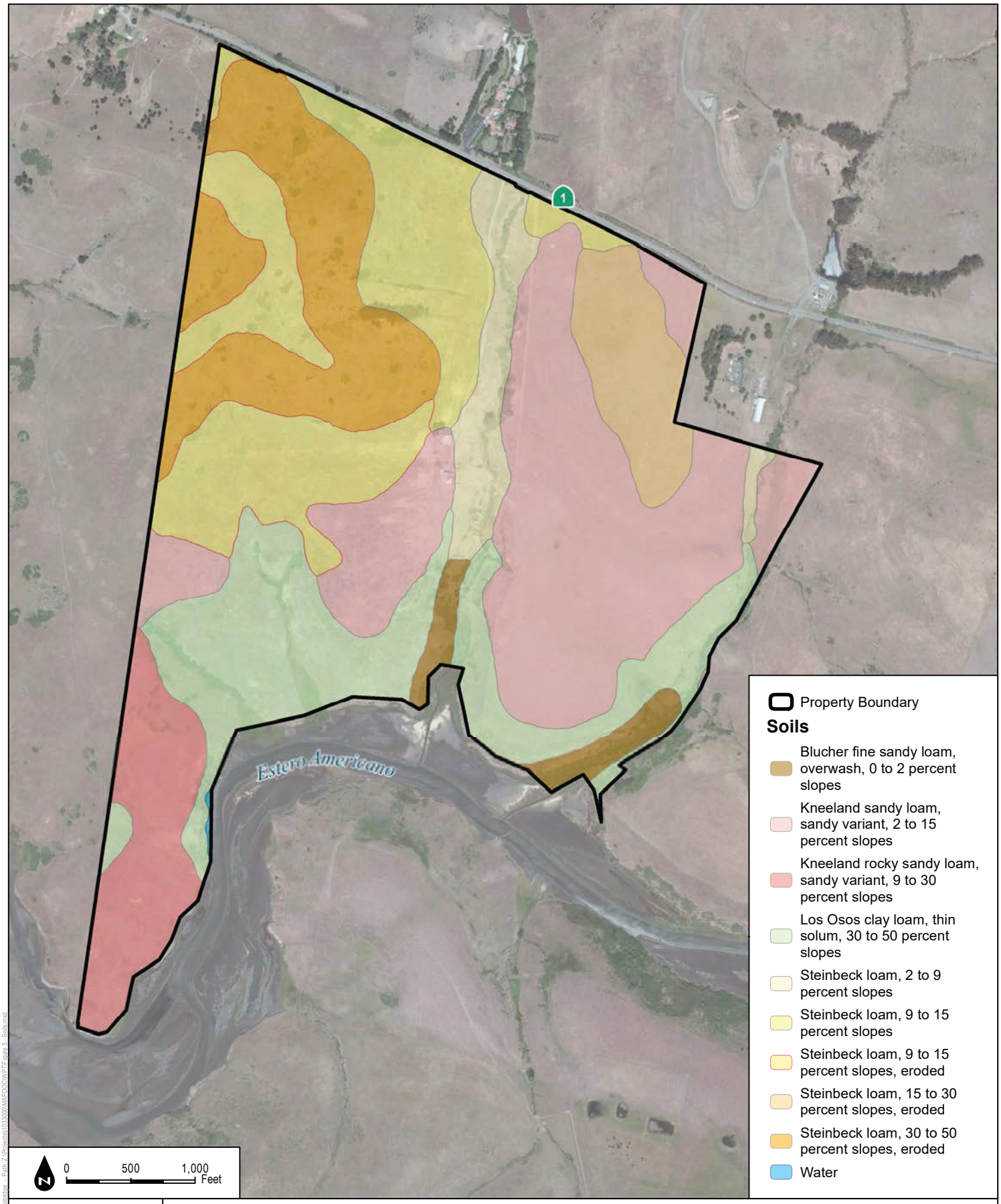
The western pond turtle is the only freshwater turtle native to most of the west coast of temperate North America. They occur from sea level to 6,000 ft (1,858 m) from British Columbia south to northwestern Baja California, principally west of the Sierra-Cascade Crest. The western pond turtle is uncommon to common in suitable aquatic habitat throughout California, west of the Sierra-Cascade crest and absent from desert regions, except in the Mojave Desert along the Mojave River and its tributaries. The northwestern subspecies is restricted to areas from British Columbia south to Marin County in central California, and intergrades with the southern subspecies (*A. marmorata pallidus*) in Marin County.

1.5.3 Habitat Requirements

The western pond turtle is primarily aquatic and inhabits a wide range of fresh and brackish water habitats. Habitat quality seems to be correlated with the abundance of aerial and aquatic basking sites; western pond turtles often reach higher densities where many aerial and aquatic basking sites are available. Preferred habitats for western pond turtles are permanent ponds, lakes, low-flow regions of rivers, and river side-channels and backwater areas.

Deep, still water with abundant emergent woody debris, overhanging vegetation and rock outcrops is optimal for basking and thermoregulation. Western pond turtles are uncommon in high-gradient streams probably because water temperatures, current velocity, lack of food resources, or any combination of these factors may limit their distribution (Holland 1991). Turtles will move significant distances (at least 1.8 miles) if the local aquatic habitat changes (i.e., disappears), but dispersal abilities of juveniles and the recolonization potential of western pond turtles following extirpation of a local population are unknown (Jennings and Hayes 1994). Although adults are habitat generalists, hatchlings and juveniles require very specialized habitat for survival through the first few years. Hatchlings require shallow water habitat with relatively dense submergent or short emergent vegetation in which to forage. Habitats preferred by hatchlings and juveniles are often relatively scarce and subject to disturbance (Jennings and Hayes 1994).

Western pond turtles require upland oviposition sites in the vicinity of aquatic habitats and prefers open areas where the soil is sandy or gravelly and may be found in valley and foothill grasslands, open chaparral, and pine-oak woodland habitats. Nests are typically dug in a substrate with high clay or silt content, but may vary from sandy shorelines to forest soil types. Nesting sites have been recorded as far as 400 m from aquatic areas, but the majority are within 200 m of the aquatic site (Storer 1930; Jennings and Hayes 1994). Slope of nest sites range up to 60 degrees, but most nests are on slopes less than 25 degrees.



SOURCE: Bing Maps (Accessed 2017); USDA NRCS Soils

FIGURE 5

Natural Resources Conservation Service Soil Types

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Bordessa Ranch - Estero Trail

Western Pond Turtle Habitat Assessment and Surveys Report

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1.5.4 Life History

This species often overwinters in forested habitats. Females emerge from hibernation sites and travel overland to riparian or other aquatic sites in the spring for mating. Breeding activity peaks in June–July when females begin to search for suitable nesting sites up to 325 ft (100 m) away from watercourses (Nussbaum et al. 1983). Mating typically occurs during late April and early May and eggs are deposited between late April and early August. Three to eleven eggs are deposited within excavated nests at least 4 inches (10 centimeters) deep in upland areas, with substrates that typically have high clay or silt fractions, usually in the vicinity of aquatic habitats. Nesting sites have been recorded as far as 400 m from aquatic areas, but the majority is located within 200 m of aquatic sites. Actual incubation takes 73–80 days (Feldman 1982). Sexual maturity is reached at about eight years of age. Low fecundity, low hatchling and juvenile survival, high adult survival and potentially long lifespans characterize this species (Jennings and Hayes 1994). Hatchlings emerge the following spring after overwintering in the nest.

1.5.5 Threats

The greatest threats to western pond turtle populations are habitat loss and fragmentation. Elimination of habitat due to agricultural and urban development, flood control and water diversion threaten the survival of WPT. Competition with invasive turtle species, such as red-eared slider's (*Trachemys scripta elegans*) and hatching predation by bullfrogs threaten recruitment in western pond turtle populations as well (Jennings and Hayes 1994).

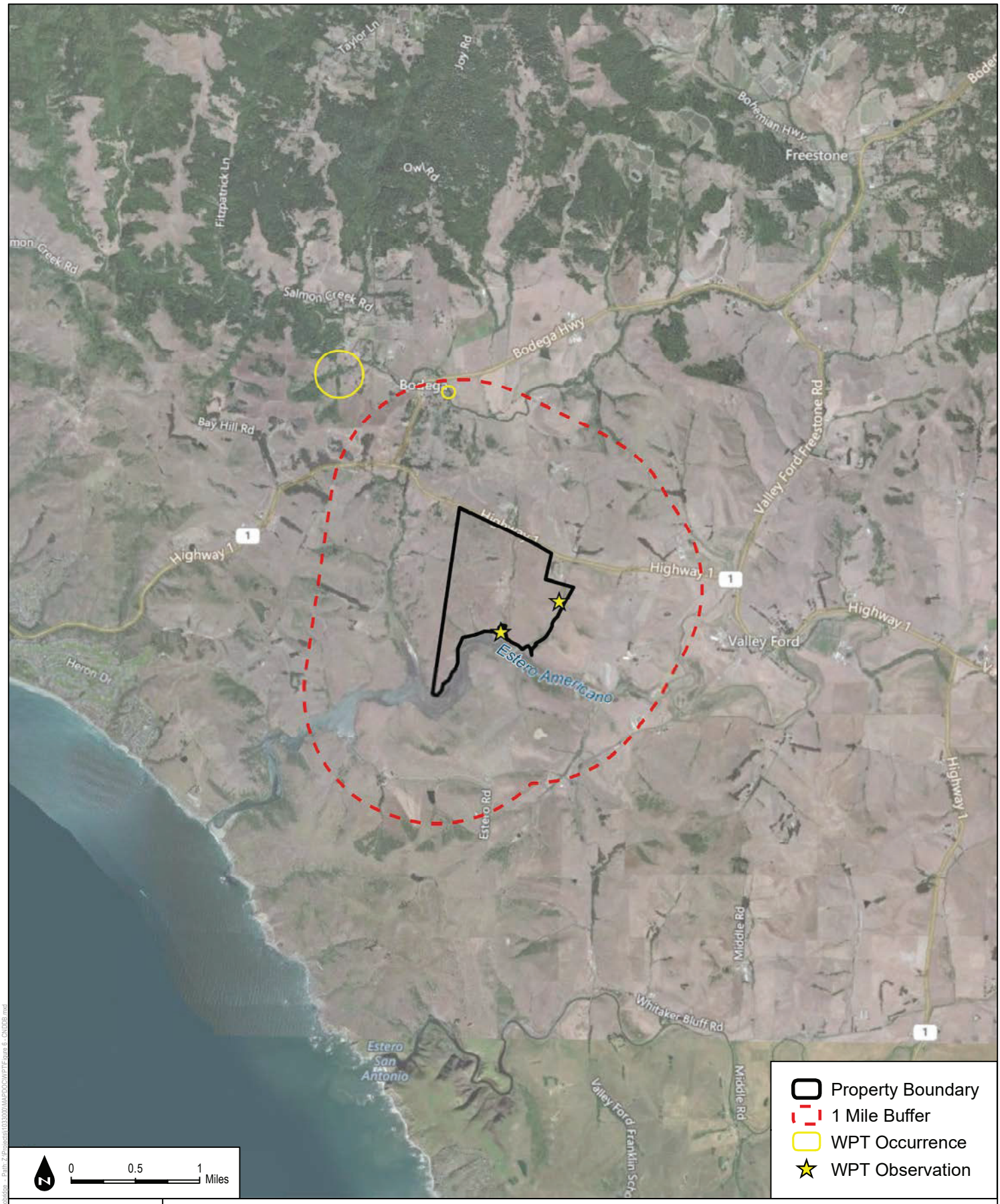
1.6 WPT Occurrence Records within 1.6 kilometers (1.0 miles) of the Site

The California Department of Fish and Wildlife's (CDFW's) California Natural Diversity Data Base (CNDDB) (CDFW 2017) was queried for WPT within 1.6 kilometers (km) (1 mile [mi]) of the project boundaries (Figure 6, CNDDB Occurrences (and Document of Field Observations) of Western Pond Turtle). The closest occurrence record (#641; in 2005), is located approximately 1.6 km north of the project site and represents an adult male observed along Salmon Creek near the town of Bodega. The next nearest occurrence record (#425; in 1995 and 1996) is located 2.3 km (1.5 mi) northwest of the project site and 0.8 km (0.5 mi) west of the town of Bodega. The landowner reported multiple juvenile and adult WPT along Salmon Creek and in a small farm pond adjacent to the creek. Copies of the CNDDB occurrence records are provided in Attachment A.

Additionally, a WPT was identified near the mouth of drainage ID-01 within the tidally influenced portion of the creek during previous site visits (personal communication with Richard Stabler, September 2017, Sonoma County).

1.7 Adjacent Land Use

Similar to the project site, land use in the surrounding area are rural, agricultural and livestock grazing. The surrounding area is characterized by annual grasslands with similar topography (rolling hills). The only other land use in the immediate vicinity is the Sonoma Coast Villa and Spa located immediately east of the project site and Highway 1.



SOURCE: Bing Maps (Accessed 2017); CNDDB (2017)

FIGURE 6

CNDDB Occurrences (and Documentation of Field Observations) of Western Pond Turtle

DUDEK

Bordessa Ranch - Estero Trail

Western Pond Turtle Habitat Assessment and Surveys Report

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2 METHODS

Habitat assessments were conducted at all aquatic features that could potentially support WPT (regardless of the presence or absence of water at the time of the assessment) within the study area, which included four man-made ponds (i.e., stock ponds) and two intermittent drainages. Visual encounter surveys were conducted at all of the features that contained sufficient water to potentially support presence of the species.

Surveys were conducted at each aquatic location on two consecutive days, September 26 and 27, 2017.

2.1 Aquatic and Upland Habitat Assessments

Aquatic and upland habitat information was collected and recorded on habitat assessment data sheets provided with the survey protocol (Holland 1991). Habitat assessment field data sheets were completed for all aquatic habitats that could potentially support utilization by WPT, regardless of the presence of water during the assessment. These data included: water turbidity; substrate type; air and water temperatures; aquatic and terrestrial vegetation types; sources of disturbance; presence of grazing; presence of non-native species (e.g., bullfrogs, fishes, and other species); description of basking sites; and carapace length of turtles observed. Photographs were taken to document the location and type of pond turtle habitat present.

2.2 Visual Encounter Surveys

WPT surveys were conducted according to protocols developed by Holland (1991). Initially potential aquatic habitats will be viewed from a distance (if possible) using binoculars to scan the shoreline, water surface, and any logs, wood, branches, rocks, etc. that could potentially provide basking habitat. If turtles were not observed after an extended period of time, surveyors continued to slowly approach (in a crouched position) and view the features with and without binoculars. Eventually reaching the margin of the feature. Stream surveys will be conducted by two surveyors slowly walking both banks of the stream, initially viewing the channel from the top of the bank, or margin of the pond at a great enough distance to avoid disturbing turtles, stopping frequently to scan the shoreline and water ahead (using binoculars) for basking turtles or surfacing turtles that might be in the water. Areas containing abundant floating vegetation will be viewed for approximately one additional hour to detect any turtles that may emerge to bask.

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3 RESULTS

Site and habitat characteristics (both aquatic and terrestrial) and a summary of the formal survey results at each pond location are described below. Copies of habitat assessment data sheets completed for each of the sites are provided in Attachment B. Photographs of the aquatic habitats and representative upland areas within the site are provided in Attachment C.

3.1 Aquatic Habitat Descriptions

A total of six aquatic features (ponds 1–4 and intermittent drainages ID-01 and ID-02) were evaluated as potential habitat for WPT (Figure 7, Aquatic Habitats Evaluated within the Estero Trail Study Area).

Ponds 1 and 2 were dry at the time of the assessment, Pond 3 was at least 75% inundated, and Pond 4, which contained dense bulrush appeared to be less than 0.3 m (1 ft) deep. There was no surface flow in either of the two intermittent drainages present on site; however, both drainages contained isolated pools with stretches of dry channel in between.

Site-specific descriptions are provided for the six primary aquatic habitats (ponds 1–4 and intermittent drainages ID-01 and ID-02) documented during the site assessment. The other remaining drainages are all highly ephemeral and do not appear to pond water for a sufficient period to provide habitat for WPT. Multiple seeps occur in the surrounding upland areas, and several spring boxes or watering troughs for cattle are present as well. These features may provide for dispersal, foraging habitat, and cover during various seasons. In addition to the aquatic habitat characteristics at each site, a description of the surrounding uplands and presence of terrestrial cover in the vicinity of the feature is also provided.

3.2 Man-Made Ponds

3.2.1 Pond 1

Pond 1 is located in the northern portion of the study area approximately 925 ft (282 m) west of the access road. This man-made stock pond is situated on a hillside and is fed by a small ephemeral drainage that originates approximately 425 ft (130 m) uphill of the pond. This drainage continues immediately south of the pond and conveys pond overflow to drainage ID-01, located just east of the access road. At the time of the September 2017 site visit, this seasonal pond was almost dry. The only water remaining had low turbidity and occurred in depressions left by cattle hooves in the deepest portion of the pond. When full, this pond measures approximately 12 m (40 ft) long and 12 m (40 ft) wide with a maximum water depth of about 2.25 m (7.4 ft) when full. The small ephemeral drainage below the pond was also dry during the September 2017 site visit.

Emergent vegetation consisted of bulrush and creeping spikerush, and provided about 10% cover throughout the pond. Submerged vegetation was absent since the pond was almost dry. Most of the pond perimeter was earthen banks (70%) although coyote brush, spikerush, grasses, various forbs, and a small redwood tree were also present around the pond. Much of the vegetation in the upper portion of the pond has been recently disturbed and consisted of primarily of gorse, which had been mechanically removed. Very little overhanging vegetation occurred around the margin of the pond; and at mid-day, bulrush, coyote brush, and a small redwood tree provide about 15% shade on the water. The pond substrate was composed primarily of fine silt/mud (90%) with a small amount of sand (10%). The earthen banks were of moderate–high gradient along the pond berm and the remainder of the pond was of moderate gradient.

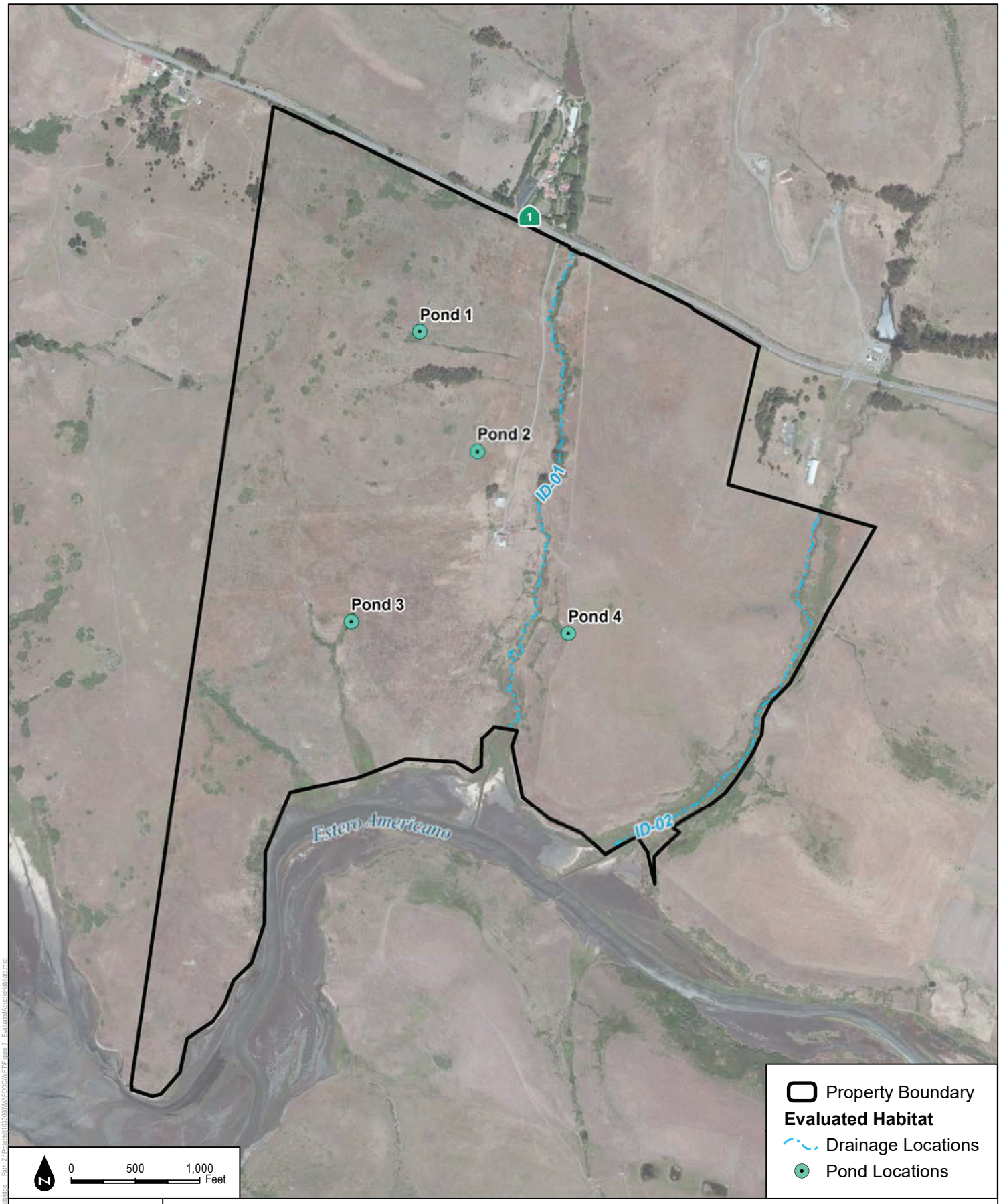
Uplands in the immediate vicinity of the pond consist of disturbed areas (grazing and mechanical weed control) with varying amounts of vegetation. Low to moderate small mammal (pocket gopher) activity was observed in the vicinity of the pond. Terrestrial vegetation including forbs, grasses, and coyote brush provide approximately 15% cover within 15 m (50 ft) of the pond. There are no visible barriers to WPT movement or dispersal.

Pond 1 was almost dry at the time of the survey conducted on September 26, 2017. It is difficult to ascertain when the pond typically dries from aerial imagery; however, given the presence of bulrush and the timing of this survey it is assumed that the pond remains inundated through July or August during most years and likely provides suitable habitat for WPT when inundated. No wildlife species, either terrestrial or aquatic, were observed during the site visit.

3.2.2 Pond 2

Pond 2 is located approximately 305 m (1,000 ft) south-southeast of Pond 1 and about 100 m (330 ft) west of the access road. This man-made stock pond is located on the side of a hill and is not associated with a drainage. The pond berm appears to have been breached at some point in the past, reducing the overall depth and volume of the pond. At the time of the site assessment, this seasonal pond was completely dry and when full is estimated to measure approximately 10 m (33 ft) long and 6 m (20 ft) wide with an estimated maximum water depth of 0.5 m (1.5 ft).

Emergent vegetation consisting of rushes was present around a portion (10%) of the pond margin, providing limited cover and no shade on the water at mid-day. Submerged vegetation was not present due to the absence of water. The pond substrate was composed primarily of silt (90%) with a small amount of sand (10%). The relatively smooth earthen banks extended around the perimeter of the pond and are of moderate to high gradient.



SOURCE: Bing Maps (Accessed 2017)

FIGURE 7

Aquatic Habitats Evaluated within the Estero Trail Study Area

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Uplands in the immediate vicinity of the pond consist of disturbed areas with little or no vegetation. Very little small mammal activity was observed in the vicinity of the pond, and other types of cover (other than limited vegetation) were not present. Terrestrial vegetation around the pond has been disturbed by grazing. There are no visible barriers to WPT movement or dispersal.

3.2.3 Pond 3

Pond 3 is located in the south-western portion of study area near the upper end of an ephemeral drainage that flows into the Estero Americano. The man-made stock pond is fenced off with barbed wire precluding access by cattle, and as a result, very little disturbance was observed around the pond. At the time of the site assessment, this apparently perennial pond was at least 75% inundated, and measured approximately 24 m (80 ft) in length and 11.5 m (38 ft) in width. Due to the heavy growth of duckweed fern (*Azolla* sp.), the maximum and average water depths could not be determined. The drainage leading from the pond to the Estero Americano was dry at the time of the September 2017 site visit.

Emergent vegetation consisted primarily of duckweed fern (which covered the entire surface of the pond) along with scattered sedges, grasses, and forbs. Arroyo willow and coffeeberry provided cover along the eastern margin of the pond. Submerged vegetation could not be evaluated due to the heavy mat of duckweed fern. Overhanging willows and other bank vegetation provided about 20% shade on the water at mid-day. Earthen banks, wood planks, and algal mats provided potential basking sites, and willow branches and potentially root balls underneath the overhanging willows provide additional cover. The pond substrate was composed primarily of silt/mud (90%) with about 10% sand. The mostly earthen banks range from low to moderate in gradient.

Uplands in the immediate vicinity of the pond consist primarily of grassland habitat (highly disturbed in some areas due to grazing) outside the barbed wire fence surrounding the pond, and undisturbed wetland/riparian and upland habitat within the fence area adjacent to the pond. Small mammal activity was generally sparse observed in the vicinity of the pond. Terrestrial vegetation including forbs, grasses, and coyote brush provide approximately 15% cover within 15 m (50 ft) of the pond. There are no visible barriers to WPT movement or dispersal.

During the September 26th site visit audible plops were heard from under the overhanging willows and coffeeberry along the eastern bank of the pond. Due to the heavy cover, a visual confirmation of the species could not be confirmed. However, since the edge of the pond did not appear to be very steep under the willows, the “plop” was likely not due to a WPT, which would have slid into the water rather than “plop.” No other wildlife species, either terrestrial or aquatic, were observed during the site visit.

3.2.4 Pond 4

Pond 4 is a man-made stock pond located in the southern portion of study area approximately 240 ft (73 m) east of drainage ID-01. A narrow drainage occurs below the pond which conveys pond overflow to drainage ID-01. A perimeter fence occurs around this pond precluding cattle access, and as a result, very little disturbance was observed around the pond. The entire pond is currently filled with bulrush, providing about 95% shade on the water at midday. Due to the dense vegetation, the level of inundation could not be determined, although it appeared that the water depth was less than 6 inches. The pond measured approximately 12 m (39 ft) in length and 20 m (68 ft) in width.

Emergent vegetation consisted almost entirely of bulrush which covered the majority (95%) of the pond. Submerged vegetation was not observed since the pond was covered with bulrush. The majority of the pond margin and bank was vegetated with grasses and sedges. Overhanging margin and bank vegetation, which was comprised mostly of grasses, sedges, ferns and blackberry, provides about 15% cover. The pond substrate was composed primarily of fine silt/mud (85%) with a small amount of sand (15%). Moderate to high gradient earthen banks covered with vegetation occurred around the entire perimeter of the pond. Due to the dense bulrush and lack of open water, the pond does not provide suitable aquatic habitat for WPT. No wildlife species, either terrestrial or aquatic, were observed during the site visit.

Uplands in the immediate vicinity of the pond consisted of disturbed and undisturbed areas with varying amounts of vegetation. Low to moderate small mammal (pocket gopher) activity was observed in the vicinity of the pond. Terrestrial vegetation including sedges, grasses, ferns, blackberry, coffeeberry, and coyote brush provided approximately 80% cover within 15 m (50 ft) of the pond. There are no visible barriers to WPT movement or dispersal.

3.3 Unnamed Intermittent Drainages

3.3.1 Drainage ID-01

Drainage ID-01 is located approximately 60 m (200 ft) east of the access road and originates approximately 0.5 mile north of Highway 1. This drainage enters the study area through a culvert under Highway 1 and terminates at the Estero Americano. Stream characteristics and riparian cover varies within drainage ID-01 from the northern to southern ends of the study area. The upper third of the drainage had dense riparian cover with a few small, isolated shallow pools, the middle portion of the drainage contained less dense riparian cover interspersed with open areas lacking riparian cover, and the lower portion of the drainage is tidally influenced upstream of the Estero Americano. The stream channel is relatively narrow and contained periodic isolated pools

including a few plunge pools (that were narrow with varying length) that still contained water. The largest pools (in length) occurred in the tidally influenced portion of the drainage.

The upper third of the drainage contained fairly dense riparian vegetation, consisting of arroyo willow, eucalyptus, and Lombardy poplar, which provided approximately 90% canopy cover. Pools in this section were small and relatively shallow and most were dry, although a few pools still contained a small amount of water. Channel substrates consisted primarily of gravel and cobble with some areas containing finer sediments. The heavy canopy cover was dominated by arroyo willow with scattered eucalyptus and Lombardy poplar.

Riparian cover in the middle portion of the drainage (which extends to the tidally influenced portion of the creek) was less dense and of limited extent (relative to the upper portion of the drainage) interspersed with open areas lacking riparian cover. The primary riparian cover in this portion of the drainage consisted primarily of arroyo willow. This portion of the drainage contained more pools than in the upper part of the drainage, with varying levels of inundation. The average maximum pool depth in this section was estimated at about 1 m (3 ft), with the deepest pool recorded at approximately 2 m (6 ft). Average pool length was approximately 8 m (25 ft) with the longest pool measured at 45 m (150 ft) and widths varied from 1.5 to 3.5 m (5 to 11.5 ft). Emergent vegetation was present in some of the pools, consisting of common rush (*Juncus effuses*), bulrush (*Scirpus* sp.), cattail (*Typha latifolia*), lanceleaf water plantain (*Alisma lanceolatum*), and several forbs. Other plants observed in drainage ID-01 include slough sedge (*Carex obnupta*), velvet grass (*Holcus lanatus*), sweet vernal grass (*Anthoxanthum oderatum*), horsetail (*Equisetum telmateia*), western brackenfern (*Pteridium aquilinum*), and western swordfern (*Polystichum munitum*). A filamentous green alga (*Cladophora* sp.) along with water milfoil (*Myriophyllum* sp.) comprised the majority of submerged vegetation. Channel substrates consisted primarily of silt/mud (85%) and sand (15%). Overhanging, emergent, and submerged vegetation and undercut banks provided the majority of the aquatic cover which averaged 40% along pool margins. Pools generally had moderate to high gradient earthen banks. Terrestrial cover (primarily vegetation) along the stream channel provides up to 90% cover. Western mosquitofish (*Gambusia affinis*) and an unidentified minnow were observed in many of the pools that still contained water.

Upland habitat along the middle portion of the drainage consists primarily of non-native annual grassland, with scattered small mammal (Botta's pocket gopher) burrows, sedges, and shrubs (coyote brush) which provide cover outside of the channel.

The lower portion of the drainage is located within the tidally influenced portion of the creek. Riparian cover was absent in this portion of the drainage. Vegetation along the channel consisted primarily of pickle weed (*Salicornia* sp.) and salt grass (*Distichlis* sp.). The channel varied in

width from about 2 m (6 ft) to 4 m (12 ft). In general, the tidal portion of the drainage consisted of one long pool with varying depth. Channel substrates consisted primarily of silt/mud (85%), sand (5%), and cobble (10%). The channel banks were earthen and generally high gradient. A filamentous green alga was present throughout most of this portion of the drainage. Overhanging and submerged vegetation and undercut banks provided the majority of the aquatic cover which averaged greater than 90% along the channel. Abundant terrestrial cover (vegetation) along the stream channel provides up to 100% cover.

Uplands in the lower portion of the drainage consist primarily of pickle weed and salt grass, which provides 100% cover within 15 m (50 ft) of the drainage.

3.3.2 Drainage ID-02

Drainage ID-02 is located along the eastern boundary of the study area. This drainage originates approximately 0.75 mile north of Highway 1, entering the study area through a culvert under Highway 1 and terminating at the Estero Americano. In general, stream characteristics were similar to drainage ID-01 with habitat characteristics and riparian cover varying from the northern to southern ends of the study area. The upper third of the drainage was fairly incised and relatively open with some scattered willow, the middle portion of the drainage was less incised and contained dense riparian cover that precluded access to the stream channel, and the lower portion of the drainage is tidally influenced upstream of the Estero Americano and lacks riparian cover. The overall channel width varies from approximately 6 to 15 m (20 to 50 ft) in areas that could be accessed. The stream gradient was low (0–1%) in the upper third of the drainage, with increased gradient (1%–3%) in the middle portion, and low gradient (0–1%) again in the lower third of the drainage upstream of the Estero Americano. The upper portion of the drainage is fairly open with sedges, grasses, and scattered willow providing limited canopy cover, with grasses and dense willow canopy dominating the middle portion of the drainage. The lower tidally influenced portion of the drainage lacked a riparian canopy, with the primary vegetation consisting of pickle weed and salt grass.

During the site assessment and surveys, an adult WPT and two juvenile California red-legged frogs (*Rana draytonii*) were observed in duckweed in an isolated pool in the upper portion of the drainage within the site. The pool is located approximately 61 m (200 ft) south of the northern property boundary. When full, this pool measures approximately 20 m (65 ft) long and 1–4 m (3–13 ft) wide. The water temperature was 14.5° C (59° F), with a maximum water depth of approximately 1 m (3 ft), a minimum depth of 0.2 m (0.6 ft), and an average depth of 0.5 m (1.5 ft).

Overhanging vegetation, consisting of grasses, rushes, and ferns was present around 90% of the pool perimeter, providing 35%–45% shade on the water at midday. Emergent vegetation was comprised of duckweed and water plantain which provided about 25% cover. Water clarity was relatively good and submerged vegetation, consisting of water milfoil, and filamentous green algae, provided at least 30% cover. The pond substrate was composed primarily of fine silt/mud (90%) with a small amount of sand (10%). The earthen banks around 70% of the pool were of moderate to high gradient except at the southern end of the pool.

Uplands habitat in the immediate vicinity of the pool consists primarily of grassland habitat (undisturbed by grazing). Terrestrial vegetation, including grasses, sedges, coyote brush, and blackberry, provided approximately 90% cover within 15 m (50 ft) of the pool. Little to no small mammal (pocket gopher) activity was observed in the vicinity of the pool; high grasses made visual observation difficult. There were no visible barriers to WPT movement or dispersal.

The middle portion of the drainage is located on the eastern property line, which is fenced. Due to the fencing and dense riparian canopy along the property line, access to the creek was not possible without cutting vegetation. Arroyo willow was dominant vegetation, providing 95% to 100% cover along the stream channel. The tidal portion of the drainage occurs immediately downstream of this dense riparian area.

3.4 Upland Habitat Description

Upland habitat within the site consists primarily of annual grasslands with riparian habitat present along the drainages, except in the tidally influenced portion of the drainage. Numerous seeps along with scattered spring boxes were also present within the grasslands.

Terrestrial cover near the drainages and ponds consisted of small mammal burrows (primarily Botta's pocket gopher) with burrow densities ranging from sparse to numerous depending on location; other cover consisted of riparian vegetation and shrubs (e.g., coyote brush) located along and adjacent to the drainages.

3.5 Visual Encounter Surveys

Initially, potential aquatic habitats were viewed from a distance (if possible) using binoculars to scan the shoreline, water surface, and any logs, wood, branches, rocks, etc. that could potentially provide basking habitat. If turtles were not observed, surveyors continued to slowly approach (in a crouched position) and view the features with and without binoculars. Eventually reaching the margin of the feature. Due to the extensive vegetation around Pond 3, surveyors had to come

within 4.5 to 9 m (15 to 30 ft) of the pond to be able to view some of the bank area, as well as the water surface, and potential basking habitat.

Due to channel incision and associated vegetation along the channel, initial observations at most sites required surveyors to approach within 4.5 to 9 m (15 to 30 ft) of the habitat to see the feature. Surveys along drainages ID-01 and ID-02 were conducted by two surveys walking slowly along the upper banks of the channel. However, the portion of the channel that still contained water was incised within the middle of the incised main channel with vegetation covering both sides obscuring the view from the channel banks. As a result, surveyors typically had to approach within 6 m (20 ft) or closer of the pools within the drainages to be able to view the feature. Additionally, due to the required close viewing proximity to the pond, sitting by the ponds/pools for long periods of time did not result in additional observations.

A northwestern pond turtle was observed in drainage ID-02 during the two-day surveys conducted on September 26 and 27, 2017, at drainages ID-01, ID-02, and Pond 3.

4 DISCUSSION

During the site assessment conducted on September 26 and 27, 2017, four of the six aquatic habitats evaluated as potential habitat for WPT contained water; although only Pond 3 was substantially inundated. Based on the habitat characteristics for each of the features, only ponds 1, 2, and 3, and pools within intermittent drainages ID-01 and ID-02 provide suitable aquatic habitat for WPT. The habitat assessment conducted at Pond 4 indicates that the maximum depth of the pond is likely less than 0.3 m (1 ft) with dense bulrush and no open water. As a result, Pond 4 does not provide suitable aquatic habitat for WPT.

During the surveys conducted on September 26 and 27, 2017, a WPT adult was observed in a residual pool in drainage ID-02. Additionally, a single WPT was identified near the mouth of drainage ID-01, just upstream of Estero Americano, during previous field visits to the site (personal communication with Richard Stabler, Sonoma County, September 27, 2017).

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5 CONCLUSIONS

Based on the results of the habitat assessment, suitable aquatic habitat is present in Pond 1 (at least during part of the year when the pond is inundated), Pond 3, and both intermittent drainages (ID-01 and ID-02). Due to the shallow water depth and lack of cover in Pond 2 and the shallow water depth and presence of dense bulrush in Pond 4, it is unlikely that either of these features provide suitable aquatic habitat for WPT; although WPT may utilize Pond 2 during the winter/spring while moving through the site.

Pond 1 is a seasonal feature and may provide suitable aquatic habitat during the winter/spring and early summer. Suitable nesting and aestivation habitat is present in the grasslands around this pond. Pond 3 appears to be perennial in most years and provides suitable aquatic habitat year-round. Vegetative cover occurs around much of the pond and upland nesting and aestivation habitat is common to abundant in the grasslands surrounding the pond. Both drainages ID-01 and ID-02 provide suitable aquatic habitat for WPT and the adjacent grasslands provide nesting and aestivation habitat for this species.

During the daytime surveys conducted on September 26 and 27, 2017, a WPT adult was observed in an isolated pool in drainage ID-02.

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6 RECOMMENDATIONS

Ponds 1, 2, and 3 and drainages ID-01 and ID-02 provide potentially suitable aquatic habitat (at least for a portion of the year) for WPT. With the exception of the pedestrian crossing proposed on ID-01 near the northern property boundary, the existing bridge located on ID-01 east of the barn, and Pond 2 which occur within 15 m (50 ft) of the proposed trail alignment, the proposed trail will be located greater than 30 m (100 ft) from suitable aquatic features (ponds 1, 2, and 3, and drainages ID-01 and ID-02).

To protect ponds 1 through 3 and drainages ID-01 and ID-02, 30 m (100 ft) buffer areas should be established around the ponds and along both drainages. Additionally, WPT utilize upland grassland habitat near watercourses for nesting and aestivation, typically within 100 m (325 ft) of aquatic sites (but can extend to 200 m [650 ft] or greater). As a result, ground disturbance activities should not occur within 100 m of these aquatic sites during the late spring through fall unless pre-construction surveys are conducted to locate any nesting or aestivation sites. If nesting and/or aestivation sites are identified, these areas should be avoided during construction activities. If avoidance is not possible, the nest and/or turtle should be removed by a qualified biologist and relocated to an appropriate location (following approval from CDFW) to avoid impacting the species.

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7 REFERENCES

CDFW (California Department of Fish and Wildlife). 2017. "*Actinemys marmorata marmorata*." Element Occurrence Query. California Natural Diversity Database (CNDDB). RareFind, Version 4.0 (Commercial Subscription). Sacramento, California: CDFW, Biogeographic Data Branch. Accessed October 2017 https://www.wildlife.ca.gov/Data/CNDDB/Maps-and-Data.

Feldman, M. 1982. Notes on reproduction in *Clemmys marmorata.* Herpetol. Rev. 13: 10-l 1.

Holland, D.C. 1991. A synopsis of the ecology and status of the western pond turtle *(Clemmys marmorata*) in 1991. Report to the U.S. Fish and Wildlife Service, National Ecology Research Center.

Jennings, M.R., and Hayes, M.P. 1994. Western Pond Turtle. Amphibian and Reptile Species of Special Concern in California. California Department of Fish and Game. http://www.dfg.ca.gov/wildlife/nongame/publications/docs/herp_ssc.pdf#page=9>. 2010 June 15.

Nussbaum, R. A., E. D. Brodie, and R. M. Storm. 1983. Amphibians and reptiles of the Pacific Northwest. University of Idaho Press, Moscow, ID.

Storer, T. I. 1930. Notes on the range and life history of the Pacific freshwater turtle *(Clemmys marmorata).* Univ. Calif. Publ. Zool. 32:429-441.

USDA (U.S. Department of Agriculture). 2017. Web Soil Survey. USDA Natural Resources Conservation Service, Soil Survey Staff. Accessed October 2017. http://websoilsurvey.nrcs.usda.gov/.

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ATTACHMENT A

CNDDB Summary Data Sheets for WPT Occurrences

SciName	ComName	TaxonGroup	ElmCode	FedList	CalList	GRank	SRank	RPlantRank
Emys marmorata	western pond turtle	Reptiles	ARAAD02030	None	None	G3G4	S3	

Emys marmorata	western pond turtle	Reptiles	ARAAD02030	None	None	G3G4	S3	

OthrStatus	OccNumber	EOndx	Mapndx	ElmDate	SiteDate	Sensitive	OccRank	Presence
BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_VU-Vulnerable | USFS_S-Sensitive	425	21696	33159	19960812	19960812	N	B-Good	Presumed Extant
BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_VU-Vulnerable | USFS_S-Sensitive	641	63917	63822	20051112	20051112	N	B-Good	Presumed Extant

Accuracy	AccuracyOrder	Trend	OccType	County	Quad	Elevation	Latitude	Longitude	UTM
Circular feature with a 300 meter radius (1/5 mile)	50	Unknown	Natural/Native occurrence	Sonoma	Valley Ford (3812238)	90	38.34749	-122.98526	Zone-10 N4244371 E501288
Specific bounded area with an 80 meter radius	10	Unknown	Natural/Native occurrence	Sonoma	Valley Ford (3812238)	100	38.3456	-122.96957	Zone-10 N4244161 E502659

PLSS	Location	LocDetails	Ecological	ThreatList
T06N, R10W, Sec. 20 (M)	ALONG SALMON CREEK, 0.6 MILE WNW OF THE TOWN OF BODEGA.	LOCATED ALONG SALMON CREEK AND IN A SMALL FARM POND ADJACENT TO THE CREEK.	HABITAT CONSISTS OF BAY/ALDER RIPARIAN ALONG SALMON CREEK; CREEK IS DEEPLY INCISED, WITH STEEP, WELL-VEGETATED BANKS. CREEK GOES NEARLY DRY DURING SUMMER. LIGHTLY GRAZED PASTURE ADJACENT TO CREEK AND POND. CREEK SUPPORTS SYNCARIS PACIFICA.	Erosion/runoff
T06N, R10W, Sec. 21 (M)	SALMON CREEK, JUST EAST OF BODEGA.		HABITAT CONSISTS OF A COASTAL STREAM CONTAINING POOLS UP TO 5' DEEP, RIFFLES WITH A GRAVEL/COBBLE SUBSTRATE, AND AN INSTREAM SHELTER OF ROOTWADS, LEDGES, AND LARGE WOODY DEBRIS; MATURE CANOPY OF RED ALDER, ABOUT 75% SHADE.	Surface water diversion | Erosion/runoff

Threat	General	OwnerMgt	LastUpdate	KeyQuad	UTMZone	UTME	UTMN
SOME CREEK AREAS ARE THREATENED BY SEVERE BANK EROSION.	LANDOWNER REPORTED SEEING 4-INCH JUVENILE TURTLES IN 1995. IN 1996, LANDOWNER REPORTED SEEING 3-INCH JUVENILES; 16 ADULTS WERE OBSERVED ON 12 AUGUST 1996.	PVT	9/12/1996 0:00	Valley Ford (3812238)	10	501288	4244371
THREATENED BY EXCESSIVE SEDIMENT, DECREASING CHANNEL DEPTH; LOW SUMMER FLOWS DUE TO DIVERSIONS; EROSION FROM FARMLANDS.	1 ADULT MALE (~8" CARAPACE LENGTH) OBSERVED BASKING ON 12 NOV 2005.	PVT	1/30/2006 0:00	Valley Ford (3812238)	10	502659	4244161

ATTACHMENT B

Copies of Field Data Sheets

also Referenced in Reese, D.A. 2006

Western Pond Turtle Field Survey Form (Holland 1991) and Holland 1992

Site Ref #/name Drainage 1 - Estero Trail Date 9/27/17

Roll and Photo @#s County Sonoma

Surveyors cselterich, P keating Begin Time 1100 End Time 1240

Quad/Map Ref Valley Ford T 5N R 10W S QS

Exact Site Location (road/other) Drainage 1 - approx. 150 east of creek crossing south of barn

Elevation ~26'

Ownership/Contact (if known) Estero Trail - Sonoma County

Watersource Type (pond, lake, oxbow, river, reservoir, etc) stream

Estimated Site Dimensions 10-18' wide by 50' long

Water Turbidity low Current (est) —

Substrate Type earthen - mostly fines Air T Begin 77° F Water T Begin 56° F

Air T End 78° F Water T End 56° F

Vegetation

Woody Dominants willow

Non-woody Elements Himalayan blackberry, rushes, grasses, sedges

Aquatics (emergents and floating) duckweed, filamentous green algae

Habitat Disturbance Elements (structures, pasture, farmland, other)

None observed, although some cattle trampling is present outside the channel

Distance from Nearest Disturbance (est) 160' west northwest - cattle

Grazed (cattle, horse) cattle

Bullfrogs (# adults, subadults, larvae) none observed

Introduced Fishes (bass, sunfish, carp) mosquito fish, minnow

Other Species Noted

Total # Turtles Observed: Clemmys None Chrysemys Other (specify)

Clemmys: Males Total # Size(s)

Females Total # Size(s)

Juveniles Total # Size(s)

Animals Marked at Site

Basking Site Description and Habitat Assessment Banks, partially vegetated ~~primarily~~ and relatively steep (~~most~~ steep) - small earthen bank for basking at western and eastern ends of pool

also Referenced in Reese, D.A. 2006

Western Pond Turtle Field Survey Form (Holland 1991) and Holland 1992

Site Ref #/name Drainage 2 – Estero Trail | Date 9/27

Roll and Photo @#s | County Sonoma

Surveyors CPS, PK | Begin Time 1200 – | End Time 1300

Quad/Map Ref Valley Ford | T 5N R 10W S QS

Exact Site Location (road/other) Drainage 2 - ~200 ft west of eastern property boundary along drainage 2

Elevation 45'

Ownership/Contact (if known) Sonoma County

Watersource Type (pond, lake, oxbow, river, reservoir, etc) stream

Estimated Site Dimensions 70' long by 3-12' wide

Water Turbidity clear | Current (est) None

Substrate Type sediment (Mostly fines) | Air T Begin 80° F | Water T Begin 59° F

Air T End 81° F | Water T End 59° F

Vegetation

Woody Dominants NA

Non-woody Elements blackberry (Himalayan), grasses, rushes, sedges, forbs, ferns, coyote brush

Aquatics (emergents and floating) some sedges and duckweed on surface

Habitat Disturbance Elements (structures, pasture, farmland, other) Disturbance not observed

Distance from Nearest Disturbance (est) ~ 400' (barn and associated disturbance)

Grazed (cattle, horse) No

Bullfrogs (# adults, subadults, larvae) None observed

Introduced Fishes (bass, sunfish, carp) " "

Other Species Noted A few aquatic insects (CRF juveniles - 2)

Total # Turtles Observed: Clemmys 1 | Chrysemys | Other (specify)

Clemmys: Males Total # Unk. | Size(s) Adult (~6" carapace)

Females Total # " | Size(s)

Juveniles Total # " | Size(s)

Animals Marked at Site

Basking Site Description and Habitat Assessment Not much in the way of basking sites some limited earthen bank - walls of pool fairly steep and mostly vegetated - no logs, etc. Stream habitat assessment on CRF field data sheet for Drainage 2.

ATTACHMENT C

Photographs of Aquatic and Upland Habitats

ATTACHMENT C
Photographs of Aquatic and Upland Habitats



1. View of Drainage 2 looking North from pool where Western Pond Turtle was located.



2. View of Drainage 2 looking South from pool where Western Pond Turtle was located.



3. Pond 1



4. Pond 3

APPENDIX C

Jurisdictional Delineation

PRELIMINARY JURISDICTIONAL DELINEATION
ESTERO TRAIL PROJECT
SONOMA COUNTY, CALIFORNIA

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ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
ACOE	U.S. Army Corps of Engineers
CCC	California Coastal Commission
CDFW	California Department of Fish and Wildlife
CWA	Clean Water Act
County	Sonoma County
ED-	Ephemeral Drainage
N/A	not applicable
OHWM	ordinary high water mark
ID-	Intermittent Drainage
Porter-Cologne Act	Porter-Cologne Water Quality Control Act
RWQCB	Regional Water Quality Control Board
SW-	Seasonal Wetland
TNW	traditional navigable waters
WM-	Wet Meadow

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1 INTRODUCTION

This report documents the results of a preliminary jurisdictional delineation of wetland and other waters of the United States (U.S.) conducted for the Estero Americano Trail Project (project) located at 17000 Valley Ford Cutoff (Highway 1) in unincorporated Sonoma County, California (Figure 1). The results of this delineation are preliminary until verified by the San Francisco District of the U.S. Army Corps of Engineers (ACOE).

1.1 Project Location

The project site is located on the south side of US Highway 1, approximately 2 miles west of the town of Valley Ford, California (Figures 1 and 2). The site consists of approximately 495 acres of land primarily used for grazing. The project site is located in the "Valley Ford, CA" U.S. Geological Survey 7.5 minute quadrangle, in sections 27, 28, 33, and 34 of Township 6 north, Range 10 west of the Mt. Diablo Meridian. The central point of the project site corresponds to the following decimal degree coordinates: 38.3205 degrees north latitude and 122.9577 degrees west longitude (Figure 1).

For the purposes of this report, the Study Area is defined as all areas of potential effect from the project and a 100-foot buffer to either side of the proposed trails (Figure 3). Project components analyzed include the trail route, parking facilities, drainage overcrossings, and other improvements as described in Section 2 – Project Description.

1.2 Directions to the Study Area

The study area can be accessed via California Highway 1. From San Francisco, travel north on U.S. Highway 101 for approximately 41 miles. Take exit 479 onto Railroad Avenue and turn left. Turn right onto Stony Point Road in 1.7 miles. In 6.5 miles, turn left onto Roblar Road. Travel approximately five miles and turn right onto Valley Ford Road/ California State Highway 1. The project site is on the left, approximately 2.3 miles west of the town of Valley Ford.

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2 PROJECT DESCRIPTION

In 2012, the Sonoma County Agricultural Preservation and Open Space District (District) purchased a conservation easement (Conservation Easement) and trail easement (Trail Easement) over property owned by Alfred and Joseph Bordessa (Bordessa Ranch) located on the project site. The purpose of the Conservation Easement is to preserve and protect the conservation values of the property, including natural resources, habitat connectivity, open space and scenic views, agricultural resources, and recreation and education. The purpose of the Trail Easement is to ensure that trail corridors and associated staging areas are established and made available to the public in perpetuity for low-intensity public outdoor recreational and educational purposes consistent with the Conservation Easement. The goals of the Conservation Easement take precedence over the Trail Easement.

The District is proposing to designate trail corridors and associated staging areas pursuant to the Trail Easement and consistent with the Conservation Easement. Under the terms of the Trail Easement, the District must designate and survey the precise locations of two 50-foot-wide pedestrian-only trail corridors, cumulatively not to exceed 5 miles in length, and two staging areas, not to exceed 1.5 acres in total combined area. The District will subsequently transfer the Trail Easement to the County, who is developing the Estero Trail Plan.

The proposed project would include the selection of a general location for two public access trails over a portion of the approximately 495-acre Bordessa Ranch. The trail easement would be 50 feet wide and approximately 5 miles in length. The proposed trail system would be the principal means for providing comprehensive public access to the property. The trails would be constructed for pedestrian use and hand-carried non-motorized boats, kayaks, and canoes. The trail would be 5 feet wide, with a surface of compacted native material or other permeable surface, including wet crossings made of rock, within the easement. Trail marker posts and benches would be placed along the trail. The existing main access road and gate, or improved replacements, are expected to remain in similar locations. Two staging areas not to exceed 1.5 acres in size would be added to accommodate parking for trail users. Each staging area would be suitable for use by pedestrians, bicyclists, and drivers of motor vehicles. Staging areas may include one or more of the following: restroom facilities, accessible parking, bicycle parking, picnic tables, benches, trash and recycling containers, and operations signage. Likely improvements would consist of entry road improvements and road extension to provide operations, maintenance, emergency vehicle access, and public access to the larger southern staging area (Figure 3).

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3 REGULATORY BACKGROUND

3.1 Federal Statutes and Regulations – U.S. Army Corps of Engineers

Any person or public agency proposing to discharge dredged or fill material into waters of the United States, including jurisdictional wetlands, must obtain a permit from the ACOE.

As defined in Title 33 of the Code of Federal Regulations, Section 328.3, waters of the United States include all waters subject to interstate or foreign commerce, including tidal waters, interstate waters and wetlands, many intrastate waters, impoundments, tributaries, the territorial seas, and adjacent wetlands. Specifically, Section 328.3 of Title 33 of the Code of Federal Regulations defines waters of the United States as follows:

a. For purposes of the Clean Water Act, 33 U.S.C. 1251 et seq. and its implementing regulations, subject to the exclusions in paragraph (b) of this section, the term "waters of the United States" means:

   1) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

   2) All interstate waters, including interstate wetlands;

   3) The territorial seas;

   4) All impoundments of waters otherwise identified as waters of the United States under this section;

   5) All tributaries, as defined in paragraph (c)(3) of this section, of waters identified in paragraphs (a)(1) through (3) of this section;

   6) All waters adjacent to a water identified in paragraphs (a)(1) through (5) of this section, including wetlands, ponds, lakes, oxbows, impoundments, and similar waters.

b. The following are not "waters of the United States" even where they otherwise meet the terms of paragraphs (a)(4) through (8) of this section.

   1) Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the Clean Water Act.

   2) Prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other Federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

For non-tidal waters of the United States, the lateral limits of ACOE jurisdiction extend to the ordinary high water mark (OHWM) when no adjacent wetlands are present. Defined in the Code of Federal Regulations, Title 33, Section 328.3(e), the OHWM is "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas." If adjacent wetlands are present, the jurisdiction extends to the limit of wetlands.

Wetlands are "those areas that are inundated or saturated by surface or groundwater 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 CFR 328.3). Wetlands are jurisdictional if they meet this definition and the definition of waters of the United States. ACOE predominantly uses the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (ACOE 2010) methodology to determine the presence of wetlands. According to the manual (ACOE 2008), the following three criteria must be satisfied to classify an area as a wetland: (1) a predominance of plant life that is adapted to life in wet conditions (hydrophytic vegetation); (2) soils that saturate, flood, or pond long enough during the growing season to develop anaerobic conditions in the upper part (hydric soils); and (3) permanent or periodic inundation or soils saturation, at least seasonally (wetland hydrology). Further guidance for determining jurisdictional limits in ephemeral riverine systems in the Western Mountains, Valleys, and Coast region is detailed in *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the A Guide to Ordinary High Water Mark (OHWM) Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Region of the United States* (ACOE 2014).

In the last two decades, two major court cases have affected the jurisdictional reach of Section 404 of the Clean Water Act (CWA): (1) *Solid Waste Agency of Northern Cook County v. United States Corps of Engineers*, and (2) *Rapanos v. United States* and *Carabell v. United States Army Corps of Engineers.*

Solid Waste Agency of Northern Cook County v. United States Corps of Engineers

In 1986, in an attempt to clarify the reach of its jurisdiction, ACOE stated that Section 404(a) of the CWA extends to intrastate waters (51 FR 41217):

a. Which are or would be used as habitat by birds protected by Migratory Bird Treaties; or

b. Which are or would be used as habitat by other migratory birds which cross state lines; or

c. Which are or would be used as habitat for endangered species; or

d. Used to irrigate crops sold in interstate commerce.

In 2001, the U.S. Supreme Court, in its judgment on the *Solid Waste Agency of Northern Cook County* case, held that Code of Federal Regulations, Title 33, Section 328.3(a)(3), as clarified and applied to the *Solid Waste Agency of Northern Cook County* site pursuant to the Migratory Bird Rule (51 FR 41217), exceeded the authority granted to ACOE under Section 404(a) of the CWA. Therefore, ACOE may not rely on the Migratory Bird Rule to establish a "significant nexus" to interstate or foreign commerce. In additional language, the U.S. Supreme Court majority opinion reasoned that these types of waters required some nexus to navigable waters. Although no formal guidance was issued by ACOE interpreting the extent to which the *Solid Waste Agency of Northern Cook County* decision would limit jurisdictional determinations, in practice, ACOE considers intrastate waters as waters of the United States where there is an appropriate connection to navigable water or other clear interstate commerce connection (*Solid Waste Agency of Northern Cook County v. United States Corps of Engineers* 2001).

Rapanos v. United States and Carabell v. United States Army Corps of Engineers

In 2006, the U.S. Supreme Court again issued an opinion on the extent ACOE had jurisdiction over certain waters under Section 404 of the CWA. The *Rapanos-Carabell* consolidated decisions addressed the question of jurisdiction over attenuated tributaries to waters of the United States, as well as wetlands adjacent to those tributaries (*Rapanos v. United States* 2006).

ACOE and the U.S. Environmental Protection Agency issued guidance related to the *Rapanos* decision on June 5, 2007. The guidance identifies the waters the agencies (i.e., ACOE and the U.S. Environmental Protection Agency) will assert jurisdiction over categorically and on a case-by-case basis based on the reasoning of the *Rapanos* opinions. In summary, ACOE will continue to assert jurisdiction over the following:

- Traditional navigable waters (TNWs) and their adjacent wetlands.
- Non-navigable tributaries of TNWs that are relatively permanent (e.g., tributaries that typically flow year-round or have a continuous flow at least seasonally) and wetlands that directly abut such tributaries (e.g., not separated by uplands, berm, dike, or similar feature).

  Note: Relatively permanent waters do not include ephemeral tributaries, which flow only in response to precipitation, and intermittent streams, which do not typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months).

- Non-relatively permanent waters, if determined (on a fact-specific analysis) to have a significant nexus with a TNW, including non-navigable tributaries that do not typically flow year-round or have continuous flow at least seasonally, wetlands adjacent to such tributaries, and wetlands adjacent to but that do not directly abut a relatively permanent, are non-navigable tributary. Absent a significant nexus, jurisdiction is lacking.

A significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or an insubstantial effect on the chemical, physical, and/or biological integrity of a TNW. Principal considerations when evaluating significant nexus include volume, duration, and frequency of the flow of water in the tributary and the proximity of the tributary to a TNW, including hydrologic, ecologic, and other functions performed by the tributary and all of its adjacent wetlands. Certain ephemeral waters in the Arid West are distinguishable from the geographic features described previously, where such ephemeral waters are tributaries and have a significant nexus to downstream TNWs. For example, these ephemeral tributaries may serve as a transitional area between the upland environment and the TNW. These ephemeral tributaries may provide habitat for wildlife and aquatic organisms in downstream TNWs and support nutrient cycling, sediment retention and transport, pollutant trapping and filtration, and improvement of water quality.

Swales or erosional features (e.g., gullies and small washes characterized by low-volume, infrequent, or short-duration flow) are generally not considered waters of the United States because they are not tributaries or they do not have a significant nexus to downstream TNWs. In addition, ditches (including roadside ditches) excavated wholly in and draining only uplands, and that do not carry a relatively permanent flow of water, are generally not considered waters of the United States because they are not tributaries or they do not have a significant nexus to downstream TNWs. Even when not jurisdictional under Section 404 of the CWA, these features may still be jurisdictional at state or local levels, such as under Section 401 of the CWA, the Porter-Cologne Water Quality Control Act (Porter-Cologne Act), and Section 1602 of the California Fish and Game Code.

Prior to the *Rapanos* guidance, ACOE required its regional districts to request concurrence for only those jurisdictional determinations where the district was planning to assert jurisdiction over a non-navigable, intrastate, isolated water and/or wetland. The agencies now require that all determinations for non-navigable, intrastate, isolated waters be submitted for ACOE and U.S. Environmental Protection Agency review prior to the district making a final decision on the jurisdictional determination.

U.S. Army Corps of Engineers–Regulated Activities

Under Section 404 of the CWA, ACOE regulates activities that involve a discharge of dredged or fill material, including but not limited to grading, placing riprap for erosion control, pouring concrete, laying sod, and stockpiling excavated material into waters of the United States. Activities that generally do not involve a regulated discharge (if performed specifically in a manner to avoid discharges) include driving pilings, providing some drainage channel maintenance activities, and excavating without stockpiling.

3.2 State of California

California Department of Fish and Wildlife

Pursuant to Section 1602 of the California Fish and Game Code, the California Department of Fish and Wildlife (CDFW) regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or wildlife.

In Title 14 of the California Code of Regulations, Section 1.72, the CDFW defines a "stream" (including creeks and rivers) as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation."

In Title 14 of the California Code of Regulations, Section 1.56, the CDFW's definition of "lake" includes "natural lakes or man-made reservoirs." Diversion, obstruction, or change to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or wildlife requires authorization from the CDFW by entering into an agreement pursuant to Section 1602 of the Fish and Game Code.

California Regional Water Quality Control Board

Pursuant to Section 401 of the federal CWA, the Regional Water Quality Control Board regulates discharging waste, or proposing to discharge waste, within any region that could affect a water of the state (California Water Code, Section 13260(a)), pursuant to provisions of the Porter-Cologne Act. Waters of the state are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (California Water Code, Section 13050(e)). Before ACOE will issue a CWA Section 404 permit, applicants must receive a CWA Section 401 Water Quality Certification from the Regional Water Quality Control Board. If a CWA Section 404 permit is not required for the project, the Regional Water Quality Control

Board may still require a permit (i.e., Waste Discharge Requirement) for impacts to waters of the state under the Porter-Cologne Act.

California Coastal Commission

Pursuant to Sections 30231 and 30233 of the California Coastal Act, the California Coastal Commission (CCC) requires that most development avoid and buffer wetland resources. Policies require the maintenance and restoration of the biological productivity and quality of wetlands, as well as limit the filling of wetlands. The filling of wetlands is generally limited to high priority uses, and must be avoided unless there "is no feasible less environmentally damaging alternative, and authorized fill must be fully mitigated."

The 1976 Coastal Act Section 30121 defines the term "wetland" as: "[L]ands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens." Further, The Coastal Commission's Wetlands Briefing Background Information Handout 3 regulations (California Code of Regulations Title 14 (14 CCR)) establish a "one parameter definition" that only requires evidence of a single parameter to establish wetland conditions:

> Wetland shall be defined as land where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include those types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent and drastic fluctuations of surface water levels, wave action, water flow, turbidity or high concentrations of salts or other substances in the substrate. Such wetlands can be recognized by the presence of surface water or saturated substrate at some time during each year and their location within, or adjacent to, vegetated wetlands or deep-water habitats (14 CCR Section 13577).

The Commission's one parameter definition states that wetlands must have one or more of the following three attributes: "(1) at least periodically the land supports predominantly hydrophytes; (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is nonsoil and is saturated with water or covered by shallow water at some time during the growing season of each year."

4 METHODOLOGY

4.1 Literature Review

Prior to conducting fieldwork, the following available resources were reviewed to assess the potential for jurisdictional features:

- 1:200-scale aerial photograph (Bing Maps 2016; Google Earth 2017)
- U.S. Geological Survey "Valley Ford, California" 7.5-minute topographic quadrangle (USGS 2017)
- U.S. Department of Agriculture, Natural Resources Conservation Service, Web Soil Survey (USDA 2017)
- National Wetland Inventory (USFWS 2017)

4.2 Jurisdictional Delineation

Potential wetland waters of the United States were delineated based on methodology described in the 1987 *Corps of Engineers Wetlands Delineation Manual* (ACOE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (ACOE 2010). Non-wetland waters of the United States are delineated based on the presence of an OHWM determined using the methodology in *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the A Guide to Ordinary High Water Mark (OHWM) Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Region of the United States* (ACOE 2014).

In addition to the three-parameter wetlands, as defined by the ACOE, 1-parameter wetlands were also identified based on the CCC definition of wetlands.

Dudek biologists collected photographic records that represent the on-site habitats and wetlands (Appendix A).

4.3 Flora

All plant species encountered during the field surveys were identified and recorded. Those species that could not be identified immediately were brought into the laboratory for further investigation. Latin names follow the *Jepson Interchange List of Currently Accepted Names of Native and Naturalized Plants of California* (Jepson Flora Project 2016), and common names follow the U.S. Department of Agriculture, Natural Resources Conservation Service, Plants Database (USDA 2017). Appendix B contains a complete list of plant species observed during the surveys. It should be

noted that the field visits were conducted during the winter, and some plants were unidentifiable due to the lack of identifiable characteristics, such as inflorescence, fruit, or leaves.

4.4 Field Visit

Dudek biologists Laura Burris, John Spranza, Callie Amoaku, and Paul Keating, surveyed the study area on April 13 and 14, 2017, May 25 and 26, 2017, and August 2 and 3, 2017 to document current site conditions and assess potential wetlands and other waters of the United States. Sample points were taken when necessary to assess the potential for hydric soils, hydrophytic vegetation, and hydrology. The results are presented in Section 6, Results of Survey, and data sheets are in Appendix C. In addition to the sample points to assess wetlands, data at seven stream transects were collected to assess stream hydrology. Evidence of an OHWM was present in the form of shelving, undercut banks, wracking, and changes in sediment and vegetation. Data sheets for stream transects are included in Appendix C.

5 PHYSICAL CHARACTERISITICS

5.1 Land Uses

The study area is located within the greater 495-acre Bordessa property, which is privately owned. The County in proposing a trail easement and a conservation easement on the property that would allow for people to utilize the trail for recreational use, as well as access the Estero Americano for kayaking. The study area is bound by State Highway 1 to the north, on the south by the Estero Americano, and on the east and west by private property used primarily for grazing range land and hay production (Figure 2).

5.2 Topography and Soils

The study area consists of rolling hills with a central valley created by a drainage that drains into the Estero Americano at the southern end of the study area. The elevations on site range from approximately 0 to 350 feet above mean sea level.

According to the Natural Resources Conservation Service (USDA 2017), 10 soil types are mapped within the project site (Figure 4). Blucher fine sandy loam (overwash), 0 to 2% slopes, is a somewhat poorly drained, non-saline to very slightly saline soil derived from sedimentary rock. Kneeland sandy loam (sandy variant), 2 to 15% and 15 to 30% slopes, are well-drained residuum weathered from sedimentary rock. Kneeland rocky sandy loam (sandy variant), 9-30% slopes, is a well-drained residuum weathered from sedimentary rock found on back and side slopes on marine terraces. Los Osos clay loam (thin solum), 30 to 50% slopes, is a well-drained residuum weathered from sedimentary rock found on hillsides. The remaining soil types are Steinbeck loam occurring on 2 to 9% slopes, 9 to 15% slopes, 9 to 15% slopes (eroded), 15 to 30% slopes (eroded), and 30 to 50% slopes (eroded). These are moderately well-drained residuum weathered from sandstone found on back and side slopes of terraces.

The U.S. Department of Agriculture, Natural Resources Conservation Service considers Blucher fine sandy loam and the various Steinbeck loams to be hydric soils (USDA 2016).

5.3 Watershed and Hydrology

The study area is part of the Estero Americano subwatershed (Hydrologic Unit Code 180500050302), within the Bodega Bay hydrologic unit (Hydrologic Unit Code 18010111). The unnamed intermittent drainage in the central portion of the study area drains rainwater runoff south into the Estero Americano, which then feeds directly to the Pacific Ocean west of the study area. Several ephemeral drainages channel water from the hills in the western portion of the study area into the central intermittent drainage. A constructed roadside ditch parallels the access road through the

center of the study area before also draining into the central intermittent drainage. Section 6 – Results of Survey includes further discussion of these features.

6 RESULTS OF SURVEY

6.1 Jurisdictional Delineation

The land cover within the project area consists of a combination of terrestrial non-vegetative land covers and natural vegetation communities, as well as aquatic land cover types. The vegetation communities and land covers have been adapted from A Manual of California Vegetation, Second Edition (Sawyer, et.al 2009), and the California Wildlife Habitat Relationship System (originally published by Mayer and Laudenslayer in 1988). The following vegetation communities and land cover types have been documented on site and are described in further detail, below: California annual grassland, common velvet grass – sweet vernal grass meadows, perennial ryegrass fields, slough sedge swards, purple needlegrass grassland, coyote brush scrub, arroyo willow thickets, eucalyptus groves, baltic and mexican rush marshes, ruderal roadways, developed, seasonal wetland and seep, wet meadow, pond, intermittent drainage, ephemeral drainage, and vegetated roadside swale.

6.1.1 Terrestrial Habitat Types

Annual Grasslands

California Annual Grassland. The dominant habitat type in the project area, the California annual grassland is dominated by non-native grasses such as slender wild oats (*Avena barbata*), velvet grass (*Holcus lanatus*), rattlesnake grass (*Briza maxima*), little quaking grass (*Briza minor*), hedgehog dogtail grass (*Cynosurus echinatus*). Also present in this habitat are non-native forbs such as bull thistle (*Cirsium vulgare*), Italian thistle (*Carduus pycnocephalus*), birdsfoot trefoil (*Lotus corniculatus*), cat's ears (*Hypochaeris glabra*; *H. radicata*), pale flax (*Linum bienne*), and sheep sorrel (*Rumex acetosella*). Native grasses and forbs were present in less density than the non-natives and include: purple needlegrass (*Stipa pulchra*), meadow barley (*Hordeum brachyantherum*), yarrow (*Achillea millefolium*), dwarf brodiaea (*Brodiaea terrestris*), California poppy (*Eschscholzia californica*), annual lupine (*Lupinus bicolor*), blue-eyed grass (*Sisyrinchium bellum*), and western bracken fern (*Pteridium aquilinum*). Congested-headed hayfield tarplant (*Hemizonia congesta* ssp. *congesta*), a California Rare Plant Rank (CRPR) 1B.2 species, was present in large numbers in the grassland onsite.

Common Velvet Grass – Sweet Vernal Grass Grassland (*Holcus lanatus – Anthoxanthum oderatum* Herbaceous Semi-Natural Alliance). Common velvet grass – sweet vernal grass grasslands onsite is co-dominated by these two non-native grass species. This vegetation community generally occurs in more mesic areas of the California annual grassland in the

western hills of the project site. Non-native sweet briar rose (*Rosa rubiginosa*) also occurs sporadically in this vegetation community.

Perennial Grasslands

Perennial Ryegrass Fields (*Lolium perennis* (*Festuca perenne*) Herbaceous Semi-Natural Alliance). Perennial ryegrass fields onsite contain nearly 100 percent cover of perennial ryegrass (*Festuca perennis*). This vegetation community occurs directly adjacent to the barn onsite and is typically associated with moist soils.

Purple Needlegrass Grasslands (*Nassella* (*Stipa*) *pulchra* Herbaceous Alliance). Purple needlegrass grassland occurs sporadically throughout the grassland in the southern and western portions of the project site. This vegetation community is characterized by at least 10 percent total cover of purple needlegrass. Other species commonly found in this vegetation community include native forbs such as Douglas iris (*Iris douglasiana*), mule's ears (*Wyethia angustifolia*), coyote mint (*Monardella villosa*), and purple sanicle (*Sanicula binnifida*).

Wet Meadows

Slough Sedge Swards (*Carex obnupta* Herbaceous Alliance). Slough sedge swards occur in the grassland throughout the project site where moisture appears to be maintained in the soil due to the site's microtopography. This vegetation community is dominated by slough sedge (*Carex obnupta*), with some velvet grass, sweet vernal grass, poison hemlock (*Conium maculatum*), and California blackberry (*Rubus ursinus*) interspersed.

Baltic and Mexican rush marshes (*Juncus (balticus, mexicanus*) Herbaceous Alliance). This vegetation community consisted of a mix of *Juncus* species including *Juncus balticus, J. mexicanus, J. patens, and J. effuses*. The rush marshes occurred along the drainages and adjacent to the Estero Americano where they mixed with pickleweed (*Salicornia* spp.).

Scrubs/Shrub

Coyote Brush Scrub (*Baccharis pilularis* Shrubland Alliance). Coyote brush (*Baccharis pilularis*) is the dominant shrub in this vegetation community. Coyote brush scrub occurs intermittently in the western portion of the project site, primarily on north- and east-facing hill slopes. Other shrub species observed in this vegetation community include sweet briar rose, coffeeberry (*Frangula californica*), hawthorn (*Craetagus* spp.), and gorse (*Ulex europaeus*). Scattered Monterey pine trees (*Pinus radiata*) are also present in low numbers within this vegetation community on the northwestern slopes within the project site. The herbaceous understory of this vegetation community contains grass and herb species consistent with those

found in the California Annual Grassland, described above, with the addition of a high concentration of bracken fern.

Woodlands and Forests

Arroyo Willow Thickets (*Salix lasiolepis* Shrubland Alliance). Arroyo willow (*Salix lasiolepis*) is the dominant tree cover along the two intermittent drainages onsite. Other tree species observed with the arroyo willow along the central drainage include Lombardy poplar (*Populus nigra*) and blue gum (*Eucalyptus globulus*). The understory of this vegetation community primarily consisted of rushes (*Juncus patens* and *J. effusus*), and western bracken fern.

Eucalyptus Groves (*Eucalyptus* (*globulus, camaldulensis*) Woodland Semi-Natural Alliance). Several eucalyptus (also known as blue gum; *Eucalyptus globulus*) groves occur onsite, one along an ephemeral drainage in the western portion of the project site and the other along the main, central intermittent drainage. This vegetation community is dominated by blue gum in the overstory, with sporadic shrub and small tree species in the understory including arroyo willow, hawthorn, poison oak (*Toxicodendron diversilobum*), and California blackberry. Western bracken fern and grasses typical of the California annual grassland described above were common in the herbaceous layer.

Other Land Cover Types

Ruderal Roadways/Developed. This land cover type includes the developed dirt and gravel access roads leading from Highway 1 to the barn onsite, as well as the barn and associated anthropogenic influences associated with cattle ranching. Vegetation is generally absent from the access road, and Himalayan blackberry (*Rubus armeniacus*) was common adjacent to the barn.

6.1.2 Aquatic Habitat Types

Other Waters of the United States

There are three types of drainages within the study area: intermittent drainage, ephemeral drainage, and vegetated swale.

Intermittent Drainages. There are two intermittent drainages (ID) within or directly adjacent to the project site. The central drainage (ID-01) has an average width of 3.5 feet, has an ordinary high water mark, flows from north to south through the center portion of the project site, and the proposed trail alignment crosses it twice. A second drainage (ID-02) borders the proposed trail alignment at the eastern edge of the project site. Both channels are characterized by defined bed

and bank created by the flow of water through the systems. Common plant species associated with both drainages include rushes (*Juncus effuses*, *J. patens*, *J. mexicanus*), arroyo willow (*Salix lasiolepis*), velvet grass, and sweet vernal grass. Water was present in these drainages during the August surveys and is assumed to be present in deeper pools year-round; however, these features appear to flow only during the rainy season. Where water was ponded, species such as duckweed (*Lemna* spp.) and lanceleaf water plantain (*Alissma lanceolatum*).

Ephemeral Drainages. Two ephemeral drainages (ED) occur within the western portion of the project site, draining water runoff from the western hills east to ID-01. Both ED-01 and ED-02 contain defined bed and banks but appear to maintain water flow only during the rainy season (refer to Appendix C for data sheets). ID-01 is approximately 1.5 feet wide on average and ED-02 is approximately 2 feet wide on average. Neither of these drainages held water during any of the surveys conducted. The southernmost drainage contains a mature overstory of blue gum while the other does not have a tree canopy. Common species observed in these drainages include Himalayan blackberry, bracken fern, sword fern, and hawthorn.

Vegetated Roadside Swale. One roadside swale occurs parallel to the access roadway. It appears to drain water from the two ephemeral drainages south along the road to where it crosses under the roadway via culvert and into the central intermittent drainage. This swale is vegetated with grasses such as velvet grass and sweet vernal grass. Congested-headed hayfield tarplant was also present sporadically along this feature.

Wetlands

Three types of wetlands occur within the study area: freshwater emergent marsh, and seasonal wetland and seeps, and wet meadows. Freshwater emergent wetlands are typically associated with ID-01 and the seeps and seasonal wetlands are associated with groundwater seepage primarily in the western portion of the study area. These features are discussed in the following text.

Freshwater Emergent Wetland. Freshwater emergent wetland is primarily associated with the central drainage in the study area. This wetland type is characterized by a high cover of rushes (*Juncus mexicanus, J. patens, J. effusus*), which prefer higher amounts of water throughout the year than surrounding vegetation.

Seasonal Wetlands and Seeps. Seasonal wetlands are similar to the seeps onsite in that they appear to have some groundwater influence; however, they do not appear to maintain saturation to the extent of the seeps. These wetlands are located primarily in the western portion of the project site on hills and many were associated with microtopography and small depressions in

the hillslopes. A number of seeps occur within the project site. Seeps are area where groundwater seeps through the top layers of soil, creating hydric conditions in an otherwise xeric area of grassland. Several seeps occur along the intermittent drainages and appear to contribute to the water flow of these systems. Vegetation observed within the seeps includes slough sedge, rushes, and poison hemlock.

Seasonal wetlands (SW) 01 through SW-21 are primarily located in the western hills of the study area, on west- and south-facing slopes. These features were delineated based on the three parameters for wetlands (refer to Appendix C for data sheets). The dominance of slough sedge and poison hemlock shows the presence of hydrophytic vegetation. Hydric soils are present as indicated by redox features in a dark surface layer (Redox Dark Surface – Hydric Soil Indicator F6). The presence of oxidized rhizospheres along living roots (Wetland Hydrology Indicator C3) provides evidence of hydrology.

Wet Meadow. Wet meadows are areas on site similar to seasonal wetlands and seeps; however, they are generally dominated by wetland grasses and span larger areas than seasonal wetlands and seeps. Similar to seasonal wetlands and as described above in terrestrial habitat types, wet meadows tend to remain wet during the rainy season and dry out during the dry months of the year. There are two wet meadows (WM) onsite: WM-01 and WM-02. WM-01 is a large area dominated by Italian ryegrass just south and east of the barn. WM-02 is an area where water appears to settle between two hill slopes and is dominated by velvet grass and rushes.

Pond. Several small ponds are located adjacent to the study area. These ponds generally hold water on a seasonal basis and are not directly within the alignment of the trail.

6.1.3 Results of Data Stations

Results from the 20 representative data stations document potentially jurisdictional wetlands within the study area based on observable field indicators (refer to Table 1, below, and Appendix C). The data collected at each data station are included in Appendix C, on the ACOE's Wetland Determination Data Forms for the Western Mountains, Valleys and Coast Region.

Table 1
Data Station Point Summary

Data Station	Wetland Determination Field Indicators			Stream Association	Determination	Jurisdiction
	Vegetation	*Hydric Soils*	*Hydrology*			
1a	✓	✓	✓	No	Seasonal Wetland	ACOE, RWQCB, CCC
1b	None	✓	None	No	Upland	CCC
2a	✓	None	None	No	Upland	CCC
2b	✓	None	None	No	Upland	CCC

Table 1
Data Station Point Summary

Data Station	Wetland Determination Field Indicators			Stream Association	Determination	Jurisdiction
	Vegetation	*Hydric Soils*	*Hydrology*			
2c	None	None	None	No	Upland	None
3a	✓	✓	✓	No	Wet Meadow	ACOE, RWQCB, CCC
3b	None	None	None	No	Upland	None
4a	✓	✓	None	No	Upland	CCC
4b	✓	✓	✓	No	Seasonal Wetland	ACOE, RWQCB, CCC
4c	None	None	None	No	Upland	None
5a	✓	✓	✓	No	Seasonal Wetland	ACOE, RWQCB, CCC
5b	None	✓	✓	No	Upland	CCC
5c	None	None	None	No	Upland	None
6a	✓	None	None	No	Upland	CCC
6b	None	None	None	No	Upland	None
7a	✓	✓	✓	No	Seasonal Wetland	ACOE, RWQCB, CCC
7b	None	None	None	No	Upland	None
8	None	None	None	No	Upland	None
9a	✓	✓	✓	No	Wet Meadow	ACOE, RWQCB, CCC
9b	None	None	None	No	Upland	None

Notes: ACOE = U.S. Army Corps of Engineers; CCC = California Coastal Commission; CDFW = California Department of Fish and Wildlife; RWQCB = Regional Water Quality Control Board.

7 CONCLUSIONS

The study area supports 3.705 acres of wetlands and 2,971.814 linear feet of other waters that are anticipated to meet the criteria for jurisdictional waters of the United States, including wetlands based on an analysis of the three parameters for wetlands (soils, hydrology, and vegetation) and connectivity/proximity to known waters of the United States. An additional 1.078 acres of seasonally mesic areas do not meet the three-parameter test for wetlands under the ACOE definition, but do meet one-parameter requirements to be considered sensitive wetland habitat under the California Coastal Commission definitions.

The study area does not support TNWs, interstate waters, or waters that support interstate commerce (33 CFR 328.3(a)(1–4)); therefore, potential ACOE jurisdiction was determined based on connectivity or adjacency to off-site waters of the United States (CFR 328.3(a)(5)).

Figure 5 depicts the geographic extent of wetland features within the study area, and Table 2 includes the total acreage of wetland features and other waters of the United States. An aquatic resources table in accordance with the ACOE format is in Appendix D.

Table 2
Wetlands and Waters in the Study Area

Feature	Cowardin Code	Potential Jurisdiction	Acres	Linear Feet
Wetlands				
SW-01	U	CCC	0.081	N/A
SW-02	PEM2	ACOE, RWQCB, CCC	0.010	N/A
SW-03	PEM2	ACOE, RWQCB, CCC	0.008	N/A
SW-04	PEM2	ACOE, RWQCB, CCC	0.116	N/A
SW-05	PEM2	ACOE, RWQCB, CCC	0.007	N/A
SW-06	PEM2	ACOE, RWQCB, CCC	0.006	N/A
SW-07	PEM2	ACOE, RWQCB, CCC	0.006	N/A
SW-08	PEM2	ACOE, RWQCB, CCC	0.029	N/A
SW-09	U	CCC	0.588	N/A
SW-10	PEM2	ACOE, RWQCB, CCC	0.319	N/A
SW-11	U	CCC	0.009	N/A
SW-12	PEM2	ACOE, RWQCB, CCC	0.187	N/A
SW-13	U	CCC	0.011	N/A
SW-14	PEM2	ACOE, RWQCB, CCC	0.049	N/A
SW-15	PEM2	ACOE, RWQCB, CCC	0.324	N/A
SW-16	U	CCC	0.021	N/A
SW-17	PEM2	ACOE, RWQCB, CCC	0.615	N/A
SW-18	PEM 2	ACOE, RWQCB, CCC	0.143	N/A
SW-20	PEM2	ACOE, RWQCB, CCC	0.073	N/A

Table 2
Wetlands and Waters in the Study Area

Feature	Cowardin Code	Potential Jurisdiction	Acres	Linear Feet
Wetlands				
SW-21	PEM2	ACOE, RWQCB, CCC	0.114	N/A
WM-01	PEM2	ACOE, RWQCB, CCC	1.714	N/A
WM-02	PEM2	ACOE, RWQCB, CCC	0.521	N/A
		Total ACOE/RWQCB/CCC	**3.705**	**N/A**
		Total CCC	**1.078**	**N/A**
Other Waters				
ID-01	R4	ACOE/RWQCB/CDFW/CCC	0.050	653.298
S-01	R6	ACOE/RWQCB/CCC	0.060	1,320.759
ED-01	R6	ACOE/RWQCB/CDFW/CCC	0.020	670.312
ED-02	U	ACOE/RWQCB/CDFW/CCC	0.020	327.444
		Total	**0.15**	**2,971.814**

Note: ACOE = Army Corps of Engineers; CCC = California Coastal Commission; CDFW = California Department of Fish and Wildlife; ED = Ephemeral Drainage; ID = Intermittent Drainage; N/A = not applicable; PEM2 = Palustrine, emergent, nonpersistent; R4 = Riverine, intermittent; R6 = Riverine, ephemeral; RWQCB; Regional Water Quality Control Board; SW = Seasonal Wetland; U = Upland

All features identified as potential ACOE jurisdiction are potentially jurisdictional wetlands or waters of the U.S. These findings are considered preliminary until verified by the San Francisco District of the ACOE.

8 REFERENCES CITED

33 CFR 328.1–328.5. Definition of Waters of the United States.

51 FR 41217. Final rule: "Migratory Bird Rule." November 13, 1986.

ACOE (U.S. Army Corps of Engineers). 1987. *Corps of Engineers Wetlands Delineation Manual.* Online ed. Environmental Laboratory, Wetlands Research Program Technical Report Y-87-1. Vicksburg, Mississippi: U.S. Army Engineer Waterways Experiment Station. January 1987. Accessed December 2016. http://www.fedcenter.gov/Bookmarks/index.cfm?id=6403&pge_id=1606.

ACOE. 2010a. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast (Version 2.0).* Environmental Laboratory, ERDC/EL TR-10-3. Vicksburg, Mississippi: U.S. Army Engineer Research and Development Center. May 2010. Accessed March 2017. https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1046494.pdf

ACOE. 2014. *A Guide to Ordinary High Water Mark (OHWM) Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Region of the United States.* Cold Regions Research and Engineering Laboratory, ERDC/CRREL TR-14-13. Hanover, New Hampshire: U.S. Army Engineer Research and Development Center. August 2014. Accessed March 2017. http://www.usace.army.mil/Portals/2/docs/civilworks/regulatory/reg_supp/west_mt_finalsupp_aug2014.pdf

Bing Maps. 2016. [aerial photograph]. 1:200 scale.

California Water Code, Section 13000–16104. Porter-Cologne Water Quality Control Act, as amended. Prepared by the State Water Resources Control Board, with additions and amendments (shown as tracked changes) effective January 1, 2011. Accessed January 17, 2011. http://www.swrcb.ca.gov/laws_regulations/.

Google Earth. 2017. [aerial photograph]. 1:200 scale.

Jepson Flora Project. 2017. *Jepson eFlora*. Berkeley, California: University of California. Accessed April 2017. http://ucjeps.berkeley.edu/cgi-bin/get_JM_name_data.pl.

Rapanos et ux., et al. v. United States. 547 U.S. 715 (2006); no. 04-1034. Supreme Court decision on *Rapanos v. United States* and *Carabell v. U.S. Army Corps of Engineers*.

Accessed January 9, 2012. http://www.epa.gov/owow/wetlands/pdf/Rapanos_SupremeCourt.pdf.

Sawyer, J.O., T. Keeler-Wolf, and J. Evens. 2009. *A Manual of California Vegetation.* 2nd ed. Sacramento, California: California Native Plant Society.

Solid Waste Agency of Northern Cook County v. United States Corps of Engineers et al., 531 U.S. 159 (2001), no. 99–1178.

USDA (U.S. Department of Agriculture). 2017. Web Soil Survey. USDA Natural Resources Conservation Service, Soil Survey Staff. Accessed March 2017. http://websoilsurvey.nrcs.usda.gov/.

USDA. 2017. PLANTS database. USDA Natural Resources Conservation Service. Last updated February 13, 2017. Accessed February 2017. http://plants.usda.gov/java/.

USFWS (U.S. Fish and Wildlife Service). 2016. "The National Wetlands Inventory." Accessed August 2017. fws.gov/wetlands/NWI/index.html.

USGS (U.S. Geological Survey). 2017. "Valley Ford, CA" [map]. 7.5-Minute Series (Topographic). Accessed March 2017. http://store.usgs.gov/b2c_usgs/b2c/usgs/netfile?file=//igskahcigssap05/MOD/StoreFiles/DenverPDFs/24K/CA/CA_Valley Ford_1981.pdf.



SOURCE: ArcGIS Online Basemap

FIGURE 1

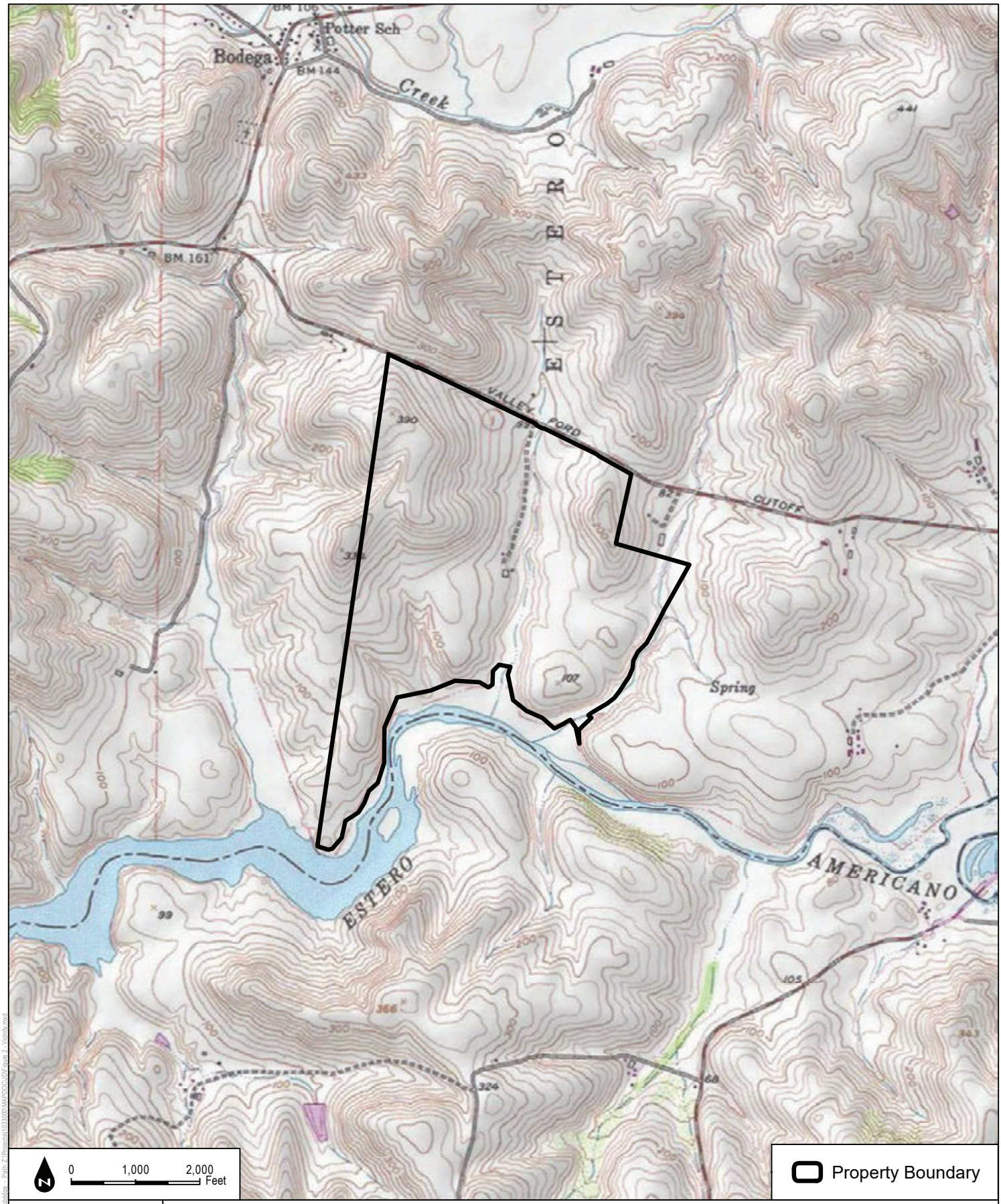
Regional Map

DUDEK

Bordessa Ranch - Estero Trail

Delineation of Wetlands and Waters of the U.S.

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SOURCE: USGS 7.5-Minute Series Valley Ford Quadrangle
Township 6N; Range 10W; Sections 27, 28, 33, 34

DUDEK

FIGURE 2

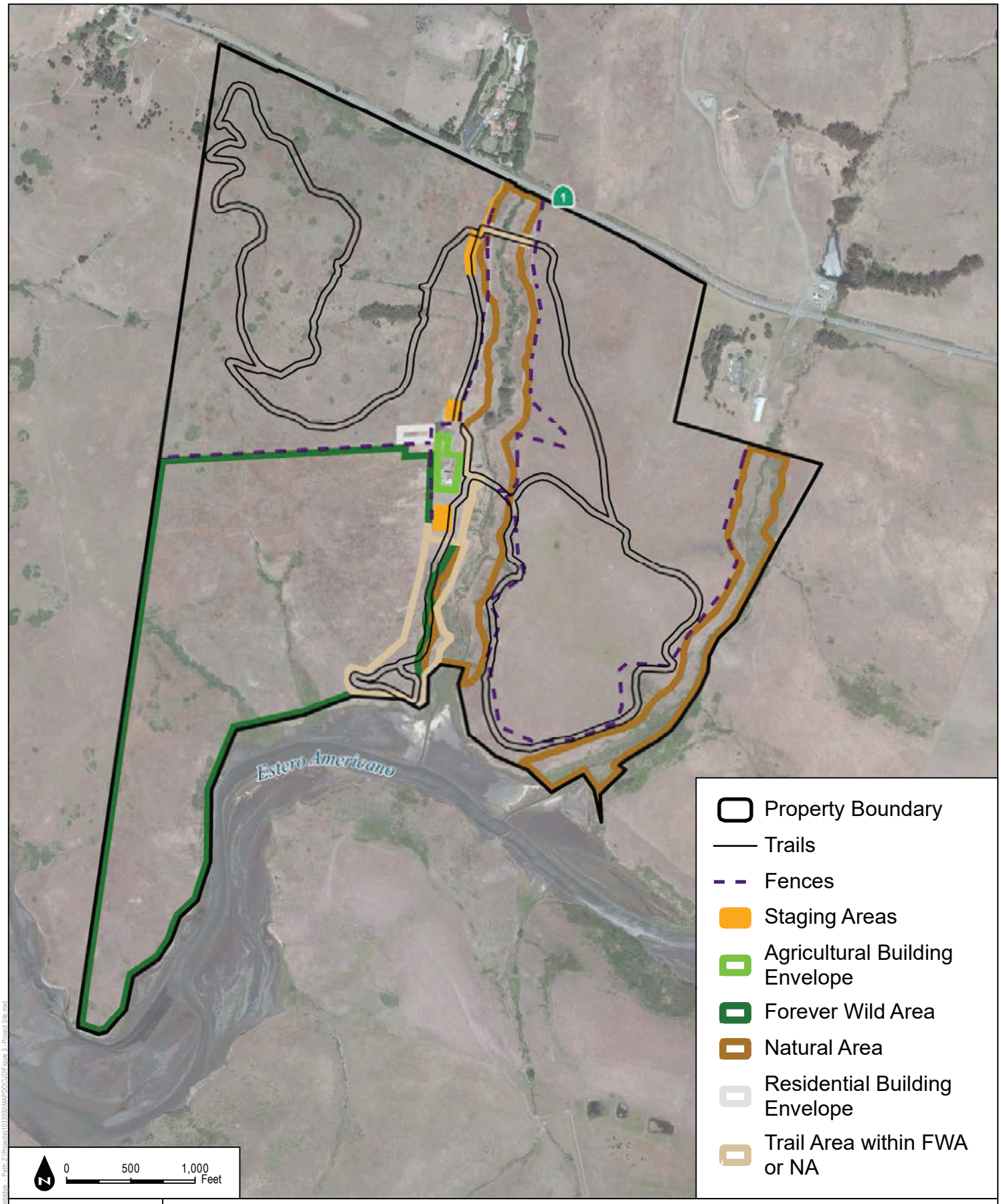
Vicinity Map

Bordessa Ranch - Estero Trail

Delineation of Wetlands and Waters of the U.S.

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DUDEK

SOURCE: Bing Maps (Accessed 2017)

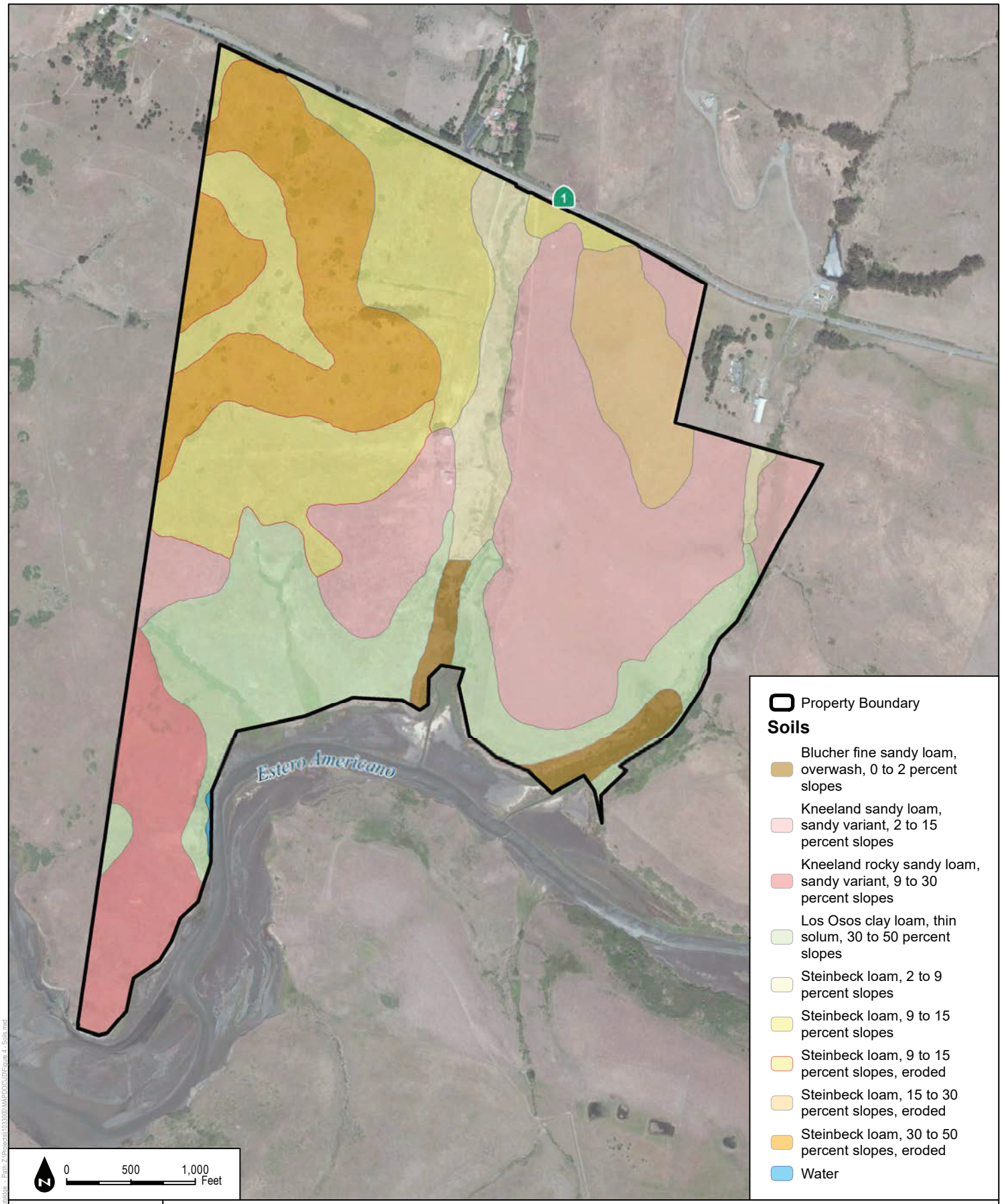
FIGURE 3

Project Site

Bordessa Ranch - Estero Trail

Delineation of Wetlands and Waters of the U.S.

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SOURCE: Bing Maps (Accessed 2017); USDA NRCS Soils

FIGURE 4

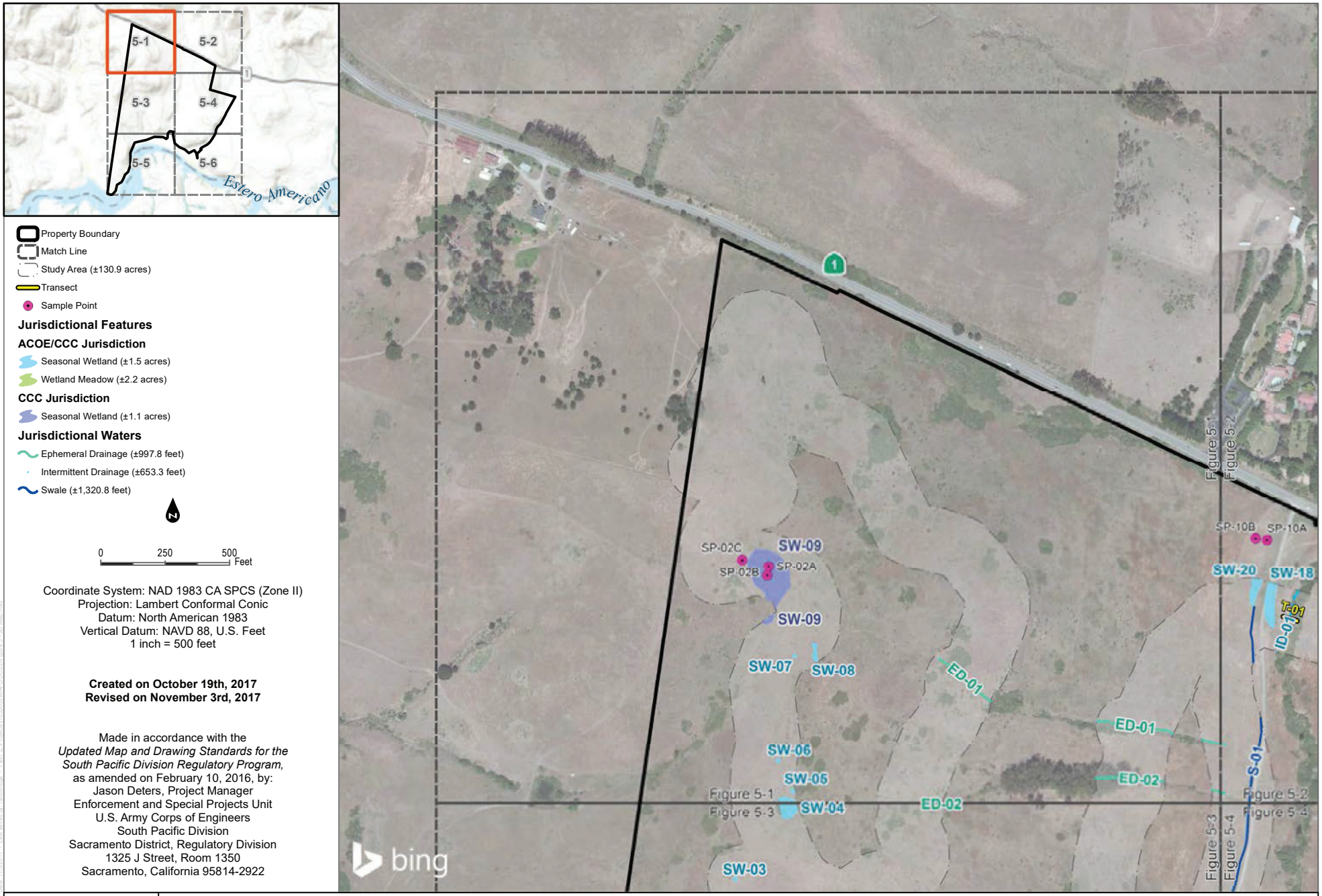
Soils Map

DUDEK

Bordessa Ranch - Estero Trail

Delineation of Wetlands and Waters of the U.S.

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SOURCE: Bing Maps (Accessed 2017)

FIGURE 5

Delineation of Wetlands and Other Waters of the U.S.

DUDEK

Bordessa Ranch - Estero Trail

Delineation of Wetlands and Waters of the U.S.

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APPENDIX A

Representative Photos

APPENDIX A
Representative Photos



Photo 1: View of typical seasonal wetland (SW-02) dominated by slough sedge (*Carex obnupta*), facing west. May 25, 2017.



Photo 2: View of CCC wetland (SW-10) dominated by velvet grass (*Holcus lanatus*), facing west. May 25, 2017.



Photo 3: View of roadside swale (S-01), facing south. August 7, 2017.



Photo 4: View of seasonal wetland (SW-20), facing north. August 2, 2017.



Photo 5: View of the ephemeral drainage (ED-02), facing south. August 3, 2017.



Photo 6: View of wet meadow (WM-01) dominated by Italian ryegrass (*Festuca perennis*), facing southeast. May 25, 2017.



Photo 7: View of the ephemeral drainage (ED-01), facing west. April 14, 2017.



Photo 8: View of intermittent drainage (ID-01), facing south. April 14, 2017.

APPENDIX B

Plant Species Observed

Appendix B
Plant Species Observed within the Project Area

VASCULAR SPECIES

FERNS AND FERN ALLIES

DENNSTAEDTIACEAE – BRACKEN FAMILY

Pteridium aquilinum – western brackenfern (FACU)

DRYOPTERIDACEAE – WOOD FERN FAMILY

Polystichum munitum – western swordfern (FACU)

EQUISETACEAE – HORSETAIL FAMILY

Equisetum hyemale – scouringrush horsetail (FACW)

GYMNOSPERMS AND GNETOPHYTES

PINACEAE – PINE FAMILY

Pinus radiata – Monterey pine (NL)

MONOCOTS

AGAVACEAE – AGAVE FAMILY

Chlorogalum pomeridianum var. *pomeridianum* – wavyleaf soap plant (NL)

ALISMATACEAE – WATER-PLANTAIN FAMILY

Alisma triviale – northern water plantain (OBL)

ARACEAE – ARUM FAMILY

Lemna minor – duckweed (OBL)

CYPERACEAE – SEDGE FAMILY

Carex bolanderi – Bolander's sedge (FAC)
Carex densa – dense sedge(OBL)
Isolepis carinata – keeled bulrush (OBL)
Isolepis cernua – low bulrush (OBL)
Carex obnupta – slough sedge swards (OBL)
Carex barbarae – white-root beds (FAC)

IRIDACEAE – IRIS FAMILY

Iris douglasiana – Douglas iris (NL)
Sisyrinchium bellum – western blue-eyed grass (FACW)
* *Romulea rosea* var. *australis* – rosy sandcrocus (NL)

JUNCACEAE – RUSH FAMILY

Juncus bolanderi – Bolander's rush (OBL)
Juncus bufonius var. *bufonius* – toad rush (NL)
Juncus effusus ssp. *pacificus* – Pacific rush (NL)
Juncus phaeocephalus var. *phaeocephalus* – brownhead rush (NL)
Luzula comosa – Pacific woodrush (FAC)
Juncus balticus – no common name (FACW)

JUNCAGINACEAE – ARROW-GRASS FAMILY

Triglochin scilloides – awl-leaf lilaea (OBL)

LILIACEAE – LILY FAMILY

Calochortus luteus – yellow mariposa lily (NL)

ORCHIDACEAE – ORCHID FAMILY

Spiranthes romanzoffiana – hooded lady's tresses (FACW)

POACEAE – GRASS FAMILY

* *Avena barbata* – slender oat (NL)
Bromus carinatus var. *carinatus* – California brome (NL)
Bromus carinatus – California brome(NL)
Festuca rubra – red fescue (FAC)
Glyceria leptostachya – davy mannagrass (OBL)
Pleuropogon californicus var. *californicus* – annual semaphoregrass (NL)
Poa secunda ssp. *secunda* – Sandberg bluegrass (NL)
* *Aira caryophyllea* – silver hairgrass (FACU)
* *Briza maxima* – big quakinggrass (NL)
* *Briza minor* – little quakinggrass (FAC)
* *Bromus diandrus* – ripgut brome (NL)
* *Bromus hordeaceus* – soft brome (FACU)
* *Bromus madritensis* ssp. *rubens* – red brome (NL)
* *Hordeum marinum* – seaside barley (FAC)
* *Hordeum murinum* – mouse barley (FAC)
* *Cynosurus echinatus* – annual dogtails (NL)
Danthonia californica – California oat grass (FAC)
* *Holcus lanatus* – common velvet grass (FAC)
* *Poa pratensis* – Kentucky blue grass (FAC)
* *Festuca perennis* – perennial rye grass (FAC)
Stipa pulchra – purple needle grass (NL)

Festuca microstachys – six-weeks fescue (NL)
* *Anthoxanthum odoratum* – sweet vernal grass (FACU)

THEMIDACEAE – BRODIAEA FAMILY
Brodiaea terrestris ssp. *terrestris* – dwarf brodiaea (NL)
Dichelostemma capitatum – bluedicks (FACU)
Triteleia ixioides – prettyface (FAC)
Triteleia laxa – Ithuriel's spear (NL)

EUDICOTS

ANACARDIACEAE – SUMAC OR CASHEW FAMILY
Toxicodendron diversilobum – poison oak (FAC)

APIACEAE – CARROT FAMILY
Eryngium armatum – coastal eryngo (FACW)
Lomatium utriculatum – common lomatium (NL)
Sanicula bipinnatifida – purple sanicle (NL)
Sanicula laciniata – coastal blacksnakeroot (NL)

ASTERACEAE – SUNFLOWER FAMILY
* *Sonchus oleraceus* – common sowthistle (UPL)
Achillea millefolium – common yarrow (FACU)
Corethrogyne filaginifolia – common sandaster (NL)
Grindelia hirsutula – hairy gumweed (FACW)
Heterotheca sessiliflora ssp. *bolanderi* – sessileflower false goldenaster (NL)
Lasthenia californica ssp. *californica* – California goldfields (NL)
Madia exigua – small tarweed (NL)
Madia gracilis – grassy tarweed (NL)
Pseudognaphalium stramineum – cottonbatting plant (FAC)
Psilocarphus tenellus – slender woollyheads (OBL)
Symphyotrichum chilense – Pacific aster (FAC)
Wyethia angustifolia – California compassplant (FACU)
* *Carduus pycnocephalus* – Italian plumeless thistle (NL)
* *Helminthotheca echioides* – bristly oxtongue (FAC)
* *Hypochaeris glabra* – smooth cat's ear (NL)
* *Lactuca serriola* – prickly lettuce (FACU)
* *Logfia gallica* – narrowleaf cottonrose (NL)
* *Matricaria discoidea* – disc mayweed (FACU)
* *Senecio vulgaris* – old-man-in-the-spring (FACU)

Hemizonia congesta ssp. *congesta* – congested-headed hayfield tarplant (NL)
Baccharis pilularis – coyote brush (NL)

BORAGINACEAE – BORAGE FAMILY

* *Myosotis discolor* – changing forget-me-not (FAC)

BRASSICACEAE – MUSTARD FAMILY

Cardamine oligosperma – little western bittercress (FAC)
Nasturtium officinale – watercress (OBL)
* *Brassica nigra* – black mustard (NL)
* *Raphanus raphanistrum* – wild radish (NL)
* *Raphanus sativus* – cultivated radish (NL)

CARYOPHYLLACEAE – PINK FAMILY

* *Cerastium glomeratum* – sticky chickweed (FACU)
* *Spergularia media* – no common name (FAC)

CONVOLVULACEAE – MORNING-GLORY FAMILY

Calystegia collina ssp. *collina* – coast range false bindweed (NL)
Dichondra donelliana – California ponysfoot (NL)

CRASSULACEAE – STONECROP FAMILY

Crassula connata – sand pygmyweed (FAC)

CUCURBITACEAE – GOURD FAMILY

Marah fabacea – California man-root (NL)

FABACEAE – LEGUME FAMILY

Acmispon brachycarpus – foothill deervetch (NL)
Acmispon wrangelianus – Chilean bird's-foot trefoil (NL)
Lupinus bicolor – miniature lupine (NL)
Lupinus formosus – summer lupine (NL)
Lupinus microcarpus var. *microcarpus* – valley lupine (NL)
Lupinus nanus – sky lupine (NL)
Trifolium barbigerum – bearded clover (FACW)
Trifolium ciliolatum – foothill clover (NL)
Trifolium depauperatum var. *depauperatum* – cowbag clover (NL)
Trifolium dichotomum – branched Indian clover (NL)
Trifolium gracilentum – pinpoint clover (NL)
Trifolium willdenovii – tomcat clover (NL)
Hosackia gracilis – harlequin lotus (FACW)

* *Lotus corniculatus* – bird's-foot trefoil (FAC)
* *Medicago polymorpha* – burclover (FACU)
* *Trifolium campestre* – field clover (NL)
* *Trifolium dubium* – suckling clover (FACU)
* *Trifolium glomeratum* – clustered clover (NL)
* *Trifolium subterraneum* – subterranean clover (NL)
* *Ulex europaeus* – common gorse (FACU)
Astragalus breweri – Brewer's milk-vetch (NL)
Acmispon americanus – Spanish clover (FACU)

GENTIANACEAE – GENTIAN FAMILY
Cicendia quadrangularis – Oregon timwort (FACW)
Zeltnera muehlenbergii – Muhlenberg's centaury (FACW)

GERANIACEAE – GERANIUM FAMILY
* *Erodium cicutarium* – redstem stork's bill (NL)
* *Erodium botrys* – longbeak stork's bill (FACU)
* *Geranium dissectum* – cutleaf geranium (NL)
* *Geranium molle* – dovefoot geranium (NL)

LAMIACEAE – MINT FAMILY
* *Mentha pulegium* – pennyroyal (OBL)
Monardella villosa ssp. *villosa* – coyote mint (NL)
Stachys ajugoides – bugle hedgenettle (OBL)
* *Lamium amplexicaule* – henbit deadnettle (NL)
* *Lamium purpureum* – purple deadnettle (NL)

LYTHRACEAE – LOOSESTRIFE FAMILY
* *Lythrum hyssopifolia* – hyssop loosestrife (OBL)

MALVACEAE – MALLOW FAMILY
Sidalcea malviflora ssp. *rostrata* – dwarf checkerbloom (NL)

MONTIACEAE – MONTIA FAMILY
Calandrinia menziesii – red maids (FACU)

MYRSINACEAE – MYRSINE FAMILY
* *Lysimachia arvensis* – scarlet pimpernel (FAC)

ONAGRACEAE – EVENING PRIMROSE FAMILY
Taraxia ovata – goldeneggs (NL)

OROBANCHACEAE – BROOM-RAPE FAMILY

Triphysaria eriantha ssp. *eriantha* – Johnny-tuck (NL)
Triphysaria eriantha ssp. *rosea* – Johnny-tuck (NL)
Triphysaria versicolor ssp. *faucibarbata* – yellowbeak owl's-clover (NL)
Triphysaria versicolor ssp. *versicolor* – yellowbeak owl's-clover (NL)
Castilleja affinis ssp. *litoralis* – coast Indian paintbrush (NL)
Castilleja ambigua var. *ambigua* – Johnny-nip (NL)
* *Parentucellia viscosa* – yellow glandweed (FAC)

PAPAVERACEAE – POPPY FAMILY

Eschscholzia californica – California poppy (NL)

PLANTAGINACEAE – PLANTAIN FAMILY

Callitriche marginata – winged water-starwort (OBL)
* *Plantago lanceolata* – narrowleaf plantain (FACU)
Plantago erecta – dwarf plantain (NL)

POLYGONACEAE – BUCKWHEAT FAMILY

Eriogonum nudum – naked buckwheat (NL)
Rumex salicifolius – willow dock (FACW)
* *Rumex acetosella* – common sheep sorrel (FACU)
* *Rumex pulcher* – fiddle dock (FAC)

RANUNCULACEAE – BUTTERCUP FAMILY

Ranunculus californicus – California buttercup (FAC)
* *Ranunculus muricatus* – spinyfruit buttercup (FACW)

RHAMNACEAE – BUCKTHORN FAMILY

Frangula californica ssp. *californica* – California buckthorn (NL)

ROSACEAE – ROSE FAMILY

Crataegus douglasii – black hawthorn (FAC)
Potentilla anserina – silverweed cinquefoil (OBL)
Acaena pinnatifida var. *californica* – California biddy-biddy (NL)
* *Cotoneaster franchetii* – orange cotoneaster (NL)
* *Rosa rubiginosa* – sweetbriar rose (UPL)
* *Rubus armeniacus* – Himalayan black berry (FAC)

SALICACEAE – WILLOW FAMILY

Salix lasiolepis – arroyo willow (FACW)

SAXIFRAGACEAE – SAXIFRAGE FAMILY

Lithophragma affine – San Francisco woodland-star (NL)

SCROPHULARIACEAE – FIGWORT FAMILY

Scrophularia californica – California figwort (FAC)

VIOLACEAE – VIOLET FAMILY

Viola pedunculata – Johnny-jump-up (NL)

Viola adunca – hookedspur violet (FAC)

* signifies introduced (non-native) species

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APPENDIX C

Data Sheets

OHWM Delineation Cover Sheet Page 1 of 4

Project: Estero Trail Project **Date:** 8/2/17

Location: Valley Ford, Sonoma Co., CA **Investigator(s):** L. Burris, P. Keating

Project Description:

Trail project w/ approximately 5-miles of trail.

Describe the river or stream's condition (disturbances, in-stream structures, etc.):

Cattle grazing in and adjacent to stream channels.
Some vegetation clearing adjacent to channel- area appears to have undergone invasive weed (Gorse) eradication.

Off-site Information

Remotely sensed image(s) acquired? ☒ **Yes** ☐ **No** [If yes, attach image(s) to datasheet(s) and indicate approx. locations of transects, OHWM, and any other features of interest on the image(s); describe below] Description:

Aerial and topographic map signatures apparent.

Hydrologic/hydraulic information acquired? ☐ **Yes** ☒ **No** [If yes, attach information to datasheet(s) and describe below.] Description:

List and describe any other supporting information received/acquired:

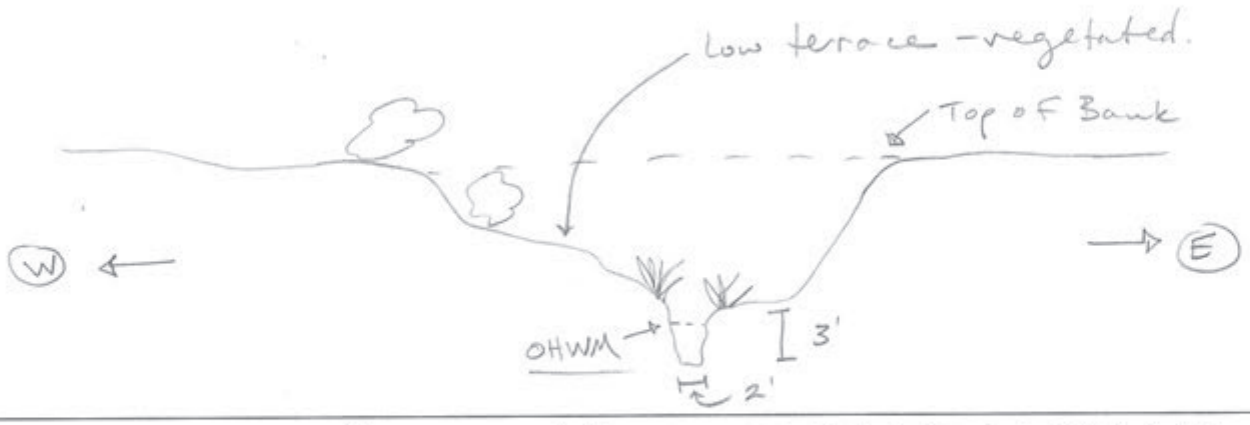
Soils map

Instructions: Complete one cover sheet and one or more datasheets for each project site. Each datasheet should capture the dominant characteristics of the OHWM along some length of a given stream. Complete enough datasheets to adequately document up- and/or downstream variability in OHWM indicators, stream conditions, etc. Transect locations can be marked on a recent aerial image or their GPS coordinates noted on the datasheet.

ID-01, Transect 1

Datasheet # 1 **OHWM Delineation Datasheet** Page 2 of 4

Transect (cross-section) drawing: (choose a location that is representative of the dominant stream characteristics over some distance; label the OHWM and other features of interest along the transect; include an estimate of transect length)



Break in Slope at OHWM: ☒ Sharp (> 60°) | ☐ Moderate (30–60°) | ☐ Gentle (< 30°) | ☐ None

Notes/Description:
Channel was very incised at transect location, but widens just downstream of transect (~100' downstream).

Sediment Texture: Estimate percentages to describe the general sediment texture above and below the OHWM

	Clay/Silt <0.05mm	Sand 0.05 – 2mm	Gravel 2mm – 1cm	Cobbles 1 – 10cm	Boulders >10cm	Developed Soil Horizons (Y/N)
Above OHWM	100%					
Below OHWM	95%	3%	2%			

Notes/Description:

Vegetation: Estimate absolute percent cover to describe general vegetation characteristics above and below the OHWM

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM		1%	99%	
Below OHWM			2%	98%

← Low terrace

Notes/Description:
Channel predominantly unvegetated.

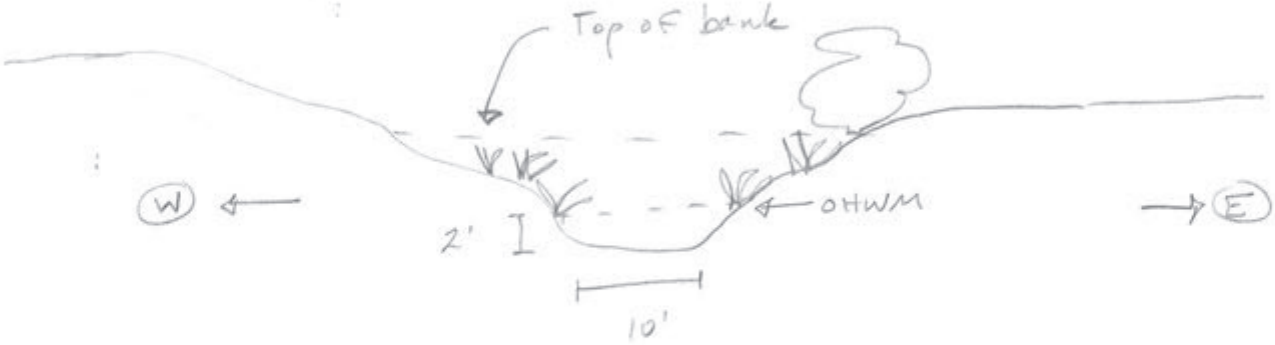
Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation

Change in veg, exposed roots below OHWM, some undercut along the bank @ OHWM.

ID-01, Transect 2

Datasheet # 2 **OHWM Delineation Datasheet** Page 3 of 4

Transect (cross-section) drawing: (choose a location that is representative of the dominant stream characteristics over some distance; label the OHWM and other features of interest along the transect; include an estimate of transect length)



Break in Slope at OHWM: ☐ Sharp (> 60°) | ☒ Moderate (30–60°) | ☐ Gentle (< 30°) | ☐ None

Notes/Description:

Sediment Texture: Estimate percentages to describe the general sediment texture above and below the OHWM

	Clay/Silt <0.05mm	Sand 0.05 – 2mm	Gravel 2mm – 1cm	Cobbles 1 – 10cm	Boulders >10cm	Developed Soil Horizons (Y/N)
Above OHWM	100%					
Below OHWM	5%	90%				

Notes/Description:
Channel inundated at time of survey.

Vegetation: Estimate absolute percent cover to describe general vegetation characteristics above and below the OHWM

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM		25%	75%	
Below OHWM			15%	85%

Notes/Description:
Water present @ time of survey - some emergent vegetation such as Juncus spp. present below OHWM.

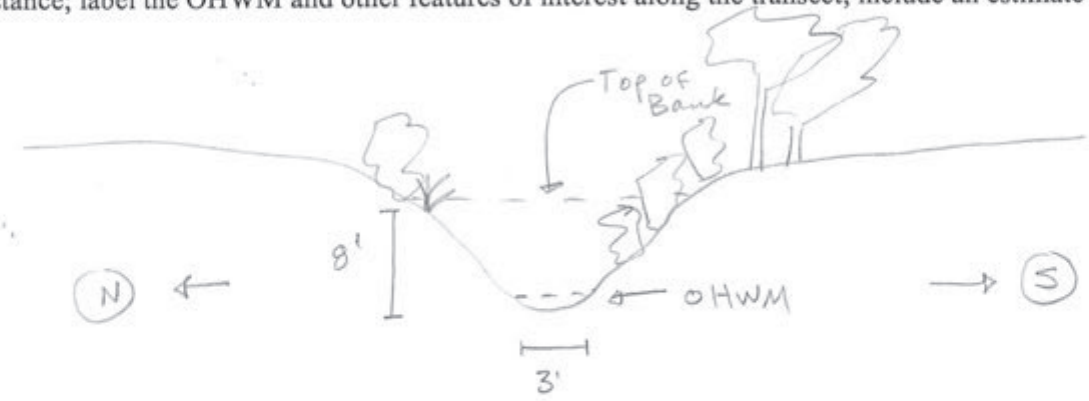
Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation

Change in vegetation cover @ OHWM.

ED-02, Transect 1

Datasheet # 3 **OHWM Delineation Datasheet** Page 4 of 4

Transect (cross-section) drawing: (choose a location that is representative of the dominant stream characteristics over some distance; label the OHWM and other features of interest along the transect; include an estimate of transect length)



Break in Slope at OHWM: ☐ Sharp (> 60°) | ☒ Moderate (30–60°) | ☐ Gentle (< 30°) | ☐ None
Notes/Description:

Sediment Texture: Estimate percentages to describe the general sediment texture above and below the OHWM

	Clay/Silt <0.05mm	Sand 0.05 – 2mm	Gravel 2mm – 1cm	Cobbles 1 – 10cm	Boulders >10cm	Developed Soil Horizons (Y/N)
Above OHWM	100%					
Below OHWM	90%	10%				

Notes/Description:

Vegetation: Estimate absolute percent cover to describe general vegetation characteristics above and below the OHWM

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	30%	40%	30%	
Below OHWM			40%	60%

Notes/Description:
Shrubs overhanging channel @ transect location.

Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation

Change in veg @ OHWM, some evidence of wracking indicates seasonal flow.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Estero Americano City/County: Sonoma County/ Sampling Date: 2017-5-25
Applicant/Owner: Sonoma County State: CA Sampling Point: SP01a
Investigator(s): L. Burris, C. Amoaku Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): concave Slope (%): 3
Subregion (LRR): Med Lat: _____ Long: _____ Datum: UTM Zone 10
Soil Map Unit Name: Steinbeck Loam NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks: Area dominated by Juncus sp in grassland.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. *Rosa rubiginosa*	10	yes	UPL
2.			
3.			
4.			
5.			
50% = _____, 20% = _____	10	= Total Cover	
Herb Stratum (Plot size: _____)			
1. *Juncus effusus*	20	yes	FACW
2. *J. mexicanus*	10	no	FACW
3. *Carex barbarae*	5	no	FAC
4. *Briza maxima*	2	no	NL (UPL)
5. *B. minor*	2	no	FAC
6. *Juncus xiphoides*	10	no	OBL
7. *Mentha pulegium*	5	no	OBL
8. *Holcus lanatus*	20	yes	FAC
9. *Rumex crispus*	5	no	FAC
10. *Bromus hordeaceus*	2	no	FACW
11. *Carex obnupta*	15	yes	OBL
50% = _____, 20% = _____		= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. *N/A*			
2.			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum _____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	75	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☒ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: Estero Americano

SOIL

Sampling Point: SP01a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/1	85	10YR 4/4	15	C	M	Silty	clay loam

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: none

Depth (inches): N/A

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: Very dark soils

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	14

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Estero Americano City/County: Sonoma County/ Sampling Date: 2017-5-25
Applicant/Owner: Sonoma County State: CA Sampling Point: SP01b
Investigator(s): L. Burris, C. Amoaku Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 3
Subregion (LRR): Med Lat: _____ Long: _____ Datum: UTM Zone 10
Soil Map Unit Name: Steinbeck Loam NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes** ☐	**No** ☒
Hydric Soil Present?	Yes ☒	No ☐			
Wetland Hydrology Present?	Yes ☐	No ☒			

Remarks: South of SP01a. Vegetation change.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. *N/A*			
2.			
3.			
4.			
5.			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: _____)			
1. *Briza maxima*	5	no	NL (UPL)
2. *Bromus hordeaceus*	40	yes	FACU
3. *Festuca myuros*	15	yes	FACU
4. *B. minor*	10	no	FAC
5. *Juncus mexicanus*	5	no	FAC
6. *Geranium dissectum*	10	no	NL (UPL)
7. *Holcus lanatus*	5	no	FAC
8. *Carex praticola*	5	no	FACW
9.			
10.			
11.			
50% = _____, 20% = _____		= Total Cover	
Woody Vine Stratum (Plot size: 1 m)			
1. *N/A*			
2.			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum _____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0	(A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x1 =	0
FACW species	5	x2 =	10
FAC species	20	x3 =	60
FACU species	55	x4 =	220
UPL species	15	x5 =	75
Column Totals:	95 (A)		465 (B)

Prevalence Index = B/A = 4.89

Hydrophytic Vegetation Indicators:

☐ 1 – Rapid Test for Hydrophytic Vegetation
☐ 2 - Dominance Test is >50%
☐ 3 - Prevalence Index is ≤3.0[1]
☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☐ 5 - Wetland Non-Vascular Plants[1]
☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

Project Site: Estero Americano

SOIL Sampling Point: SP01b

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 3/1	90	7.5YR 5/8	10	C	M	Silty	clay loam

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): N/A

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: ~ 2% oxidized rhizospheres- borderline

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Estero Americano City/County: Sonoma County/ Sampling Date: 2017-5-25
Applicant/Owner: Sonoma County State: CA Sampling Point: SP02a
Investigator(s): L. Burris, C. Amoaku Section, Township, Range: ____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): Med Lat: ____ Long: ____ Datum: UTM Zone 10
Soil Map Unit Name: Steinbeck Loam NWI classification: ____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☐	No	☒	**Is the Sampled Area within a Wetland?** **Yes** ☐ **No** ☒
Wetland Hydrology Present?	Yes	☐	No	☒	

Remarks: Area below water tank (seep?).

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
50% = ____, 20% = ____		= Total Cover	
Sapling/Shrub Stratum (Plot size: 1 m)			
1. *Rosa rubigosa*	35	yes	UPL
2.			
3.			
4.			
5.			
50% = 17.5, 20% = 7	35	= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. *Carex obnupta*	20	yes	OBL
2. *Bromus hordeaceus*	15	yes	FACU
3. *Conium maculatum*	10	no	FAC
4. *Rumex acetosella*	15	yes	FACU
5. *Festuca myuros*	10	no	FACU
6. *Mentha pulegium*	5	no	OBL
7. *Holcus lanatus*	25	yes	FAC
8.			
9.			
10.			
11.			
50% = 50, 20% = 20	100	= Total Cover	
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
50% = ____, 20% = ____		= Total Cover	
% Bare Ground in Herb Stratum ____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50	(A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	25	x1 =	25
FACW species	0	x2 =	0
FAC species	35	x3 =	105
FACU species	40	x4 =	160
UPL species	0	x5 =	0
Column Totals:	100 (A)		290 (B)

Prevalence Index = B/A = 2.9

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☒ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: Estero Americano

SOIL

Sampling Point: SP02a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 2/1	100					Clay loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): N/A

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): ____

Water Table Present? Yes ☐ No ☒ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): ____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Estero Americano City/County: Sonoma County/ Sampling Date: 2017-5-25
Applicant/Owner: Sonoma County State: CA Sampling Point: SP02b
Investigator(s): L. Burris, C. Amoaku Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 2
Subregion (LRR): Med Lat: _____ Long: _____ Datum: UTM Zone 10
Soil Map Unit Name: Steinbeck Loam NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Hydric Soil Present?	Yes ☐	No ☒		
Wetland Hydrology Present?	Yes ☐	No ☒		

Remarks: Downslope from SP02a

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. *N/A*			
2.			
3.			
4.			
5.			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. *Juncus xiphioides*	55	yes	OBL
2. *Briza minor*	10	no	FAC
3. *Lotus corniculatus*	10	no	FAC
4. *Persicaria persicaria*	5	no	FAC
5. *Anthoxanthum odoratum*	10	no	FACU
6. *Festuca myuros*	5	no	FACU
7. *Carex densa*	5	no	OBL
8.			
9.			
10.			
11.			
50% = 50, 20% = 20	100	= Total Cover	
Woody Vine Stratum (Plot size: 1 m)			
1. *Rubus ursinus*	5	yes	FACU
2.			
50% = 2.5, 20% = 1	5	= Total Cover	

% Bare Ground in Herb Stratum _____

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	60	x1 =	60
FACW species	0	x2 =	0
FAC species	25	x3 =	75
FACU species	20	x4 =	80
UPL species	0	x5 =	0
Column Totals:	105 (A)		215 (B)

Prevalence Index = B/A = 2.04

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☒ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks:

Project Site: Estero Americano

SOIL

Sampling Point: SP02b

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 2/1	100					Clayloam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): N/A

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: < 2% oxidized rhizospheres

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Estero Americano City/County: Sonoma County/ Sampling Date: 2017-5-25
Applicant/Owner: Sonoma County State: CA Sampling Point: SP02c
Investigator(s): L. Burris, C. Amoaku Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): Med Lat: _____ Long: _____ Datum: UTM Zone 10
Soil Map Unit Name: Steinbeck Loam NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes** ☐	**No** ☒
Hydric Soil Present?	Yes ☐	No ☒			
Wetland Hydrology Present?	Yes ☐	No ☒			

Remarks: West of SP02a and b - upland point.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. *N/A*			
2.			
3.			
4.			
5.			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 1 m2)			
1. *Avena fatua*	10	yes	NL (UPL)
2. *Festuca myuros*	55	yes	FACU
3. *Bromus diandrus*	10	yes	NL (UPL)
4. *Briza maxima*	5	no	NL (UPL)
5. *B. minor*	5	no	FAC
6. *Rumex acetosella*	2	no	FACU
7. *Linum bienne*	3	no	NL (UPL)
8. *Holcus lanatus*	5	no	FAC
9. *Plantago lanceolata*	5	no	FACU
10.			
11.			
50% = 50, 20% = 20	100	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum _____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0	(A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x1 =	0
FACW species	0	x2 =	0
FAC species	10	x3 =	30
FACU species	62	x4 =	248
UPL species	28	x5 =	140
Column Totals:	100 (A)		418 (B)

Prevalence Index = B/A = 4.18

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

Project Site: Estero Americano

SOIL

Sampling Point: SP02c

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/1	100					Clayloam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): N/A

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): ____

Water Table Present? Yes ☐ No ☒ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): ____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Estero Americano City/County: Sonoma County/ Sampling Date: 2017-5-25
Applicant/Owner: Sonoma County State: CA Sampling Point: SP03a
Investigator(s): L. Burris, C. Amoaku Section, Township, Range: ____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): Med Lat: ____ Long: ____ Datum: UTM Zone 10
Soil Map Unit Name: Steinbeck Loam NWI classification: ____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks: Grassland south of barn

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
50% = ____, 20% = ____		= Total Cover	
Sapling/Shrub Stratum (Plot size: ____)			
1. *N/A*			
2.			
3.			
4.			
5.			
50% = ____, 20% = ____		= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. *Festuca perennis*	98	yes	FAC
2. *Rumex pulcher*	10	no	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 54, 20% = 21.6	108	= Total Cover	
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
50% = ____, 20% = ____		= Total Cover	

% Bare Ground in Herb Stratum ____

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	x1 =	____
FACW species	____	x2 =	____
FAC species	____	x3 =	____
FACU species	____	x4 =	____
UPL species	____	x5 =	____
Column Totals:	____ (A)		____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: Estero Americano

SOIL

Sampling Point: SP03a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5YR 2.5/1	90	2.5YR 4/8	5	c	PL	Loam	
				5	c	M		

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Clay

Depth (inches): 6

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Estero Americano City/County: Sonoma County/ Sampling Date: 2017-5-25
Applicant/Owner: Sonoma County State: CA Sampling Point: SP03b
Investigator(s): L. Burris, C. Amoaku Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): Med Lat: _____ Long: _____ Datum: UTM Zone 10
Soil Map Unit Name: Steinbeck Loam NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes** ☐	**No** ☒
Hydric Soil Present?	Yes ☐	No ☒			
Wetland Hydrology Present?	Yes ☐	No ☒			

Remarks: South of SP03a. Change in vegetation.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. *Avena fatua*	5	no	NL (UPL)
2. *Hordeum murinum*	15	yes	FACU
3. *Bromus hordeaceus*	15	yes	FACU
4. *Plantago lanceolata*	20	yes	FACU
5. *Rumex pulcher*	10	no	FACW
6. *Trifolium campestre*	10	no	NL (UPL)
7. *Leontodon taraxicoides*	15	yes	NL (UPL)
8. *Festuca myuros*	10	no	FACU
9. *Medicago polymorpha*	5	no	FACU
10. _____			
11. _____			
50% = 52.5, 20% = 21	105	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum _____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0	(A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x1 =	0
FACW species	10	x2 =	20
FAC species	0	x3 =	0
FACU species	65	x4 =	260
UPL species	30	x5 =	150
Column Totals:	105 (A)		430 (B)

Prevalence Index = B/A = 4.1

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

Project Site: Estero Americano

SOIL

Sampling Point: SP03b

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/1	100					Loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): N/A

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): ____

Water Table Present? Yes ☐ No ☒ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): ____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Estero Americano City/County: Sonoma County/ Sampling Date: 2017-5-25
Applicant/Owner: Sonoma County State: CA Sampling Point: SP04a
Investigator(s): L. Burris, C. Amoaku Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): Med Lat: _____ Long: _____ Datum: UTM Zone 10
Soil Map Unit Name: Steinbeck Loam NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?** **Yes** ☐ **No** ☒
Wetland Hydrology Present?	Yes	☐	No	☒	

Remarks: Wet area draining down to creek.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. *Juncus effusus*	25	yes	FACW
2. *Holcus lanatus*	35	yes	FAC
3. *Rumex acetosella*	5	no	FACU
4. *Cynosurus echinatus*	10	no	NL (UPL)
5. *Lotus corniculatus*	2	no	FAC
6. *Vicia villosa*	10	no	NL (UPL)
7. *Rumex pulcher*	10	no	FAC
8. *Stachys rigida*	5	no	FACW
9. *Geranium dissectum*	5	no	NL (UPL)
10. _____			
11. _____			
50% = 53.5, 20% = 21.2	107	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum _____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: Estero Americano

SOIL

Sampling Point: SP04a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/1	9.5	5YR 4/6	< 2	C	PL	Loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☒ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): N/A

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: < 2% oxidized rhysospheres.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Estero Americano City/County: Sonoma County/ Sampling Date: 2017-5-25
Applicant/Owner: Sonoma County State: CA Sampling Point: SP04b
Investigator(s): L. Burris, C. Amoaku Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): Med Lat: _____ Long: _____ Datum: UTM Zone 10
Soil Map Unit Name: Steinbeck Loam NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks: South of SP04a. In juncus patch.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: N/A)			
1. *Juncus effusus*	65	yes	FACW
2. *Holcus lanatus*	15	no	FAC
3. *Geranium dissectum*	10	no	NL (UPL)
4. *Bromus diandrus*	5	no	NL (UPL)
5. *Myosotis discolor*	2	no	FAC
6. *Anthoxanthum odoratum*	2	no	FACU
7. *Festuca perennis*	5	no	NL (UPL)
8. _____			
9. _____			
10. _____			
11. _____			
50% = 52, 20% = 20.8	104	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum _____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: Estero Americano

SOIL

Sampling Point: SP04b

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5YR 2.5/1	96	5YR 5/8	2	C	PL	Loam	
			5YR 5/8	2	C	M		

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): N/A

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Estero Americano City/County: Sonoma County/ Sampling Date: 2017-5-25
Applicant/Owner: Sonoma County State: CA Sampling Point: SP04c
Investigator(s): L. Burris, C. Amoaku Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): Med Lat: _____ Long: _____ Datum: UTM Zone 10
Soil Map Unit Name: Steinbeck Loam NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes** ☐	**No** ☒
Hydric Soil Present?	Yes ☐	No ☒			
Wetland Hydrology Present?	Yes ☐	No ☒			

Remarks: NW of SP04b. Upland vegetation.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. *Acmispon americanus*	25	yes	FACU
2. *Convulvulus arvensis*	10	no	NL (UPL)
3. *Hypochaeris radicata*	10	no	FACU
4. *Avena fatua*	5	no	NL (UPL)
5. *Linum bienne*	5	no	NL (UPL)
6. *Bromus hordeaceus*	20	yes	FACU
7. *Danthonia californica*	10	no	FAC
8. *Trifolium hirtum*	10	no	NL (UPL)
9. *Holcus lanatus*	5	no	FAC
10. _____			
11. _____			
50% = _____, 20% = _____	100	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum _____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0	(A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x1 =	0
FACW species	0	x2 =	0
FAC species	15	x3 =	45
FACU species	55	x4 =	220
UPL species	30	x5 =	150
Column Totals:	100 (A)		415 (B)

Prevalence Index = B/A = 4.15

Hydrophytic Vegetation Indicators:

☐ 1 – Rapid Test for Hydrophytic Vegetation
☐ 2 - Dominance Test is >50%
☐ 3 - Prevalence Index is ≤3.0[1]
☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☐ 5 - Wetland Non-Vascular Plants[1]
☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

Project Site: Estero Americano

SOIL

Sampling Point: SP04c

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	100					Loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Hard layer

Depth (inches): 4

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Estero Americano City/County: Sonoma County/ Sampling Date: 2017-5-25
Applicant/Owner: Sonoma County State: CA Sampling Point: SP05a
Investigator(s): L. Burris, C. Amoaku Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): concave Slope (%): 2
Subregion (LRR): Med Lat: _____ Long: _____ Datum: UTM Zone 10
Soil Map Unit Name: Steinbeck Loam NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks: Just NE of gate - some errosion present.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. *Festuca perennis*	35	yes	FAC
2. *Rumex acetosella*	20	yes	FACU
3. *Hypochaeris glabra*	15	no	FACU
4. *Acmispon americanus*	15	no	FACU
5. *Juncus mexicanus*	10	no	FACW
6. *Hemizonia congesta spp. congesta*	5	no	NL (UPL)
7. _____			
8. _____			
9. _____			
10. _____			
11. _____			
50% = _____, 20% = _____	100	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum _____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50	(A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x1 =	0
FACW species	10	x2 =	20
FAC species	35	x3 =	105
FACU species	50	x4 =	200
UPL species	5	x5 =	25
Column Totals:	100 (A)		350 (B)

Prevalence Index = B/A = 3.5

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

Project Site: Estero Americano

SOIL

Sampling Point: SP05a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/1	98	7.5YR 5/8	2	C	PL	Loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Hard packed

Depth (inches): 6

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Estero Americano City/County: Sonoma County/ Sampling Date: 2017-5-25
Applicant/Owner: Sonoma County State: CA Sampling Point: SP05b
Investigator(s): L. Burris, C. Amoaku Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 2
Subregion (LRR): Med Lat: _____ Long: _____ Datum: UTM Zone 10
Soil Map Unit Name: Steinbeck Loam NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes** ☐	**No** ☒
Hydric Soil Present?	Yes ☒	No ☐			
Wetland Hydrology Present?	Yes ☒	No ☐			

Remarks: Upslope of SP05b- change in vegetation.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. *Danthonia californica*	5	no	FAC
2. *Festuca perennis*	5	no	FACU
3. *Hypochaeris radicata*	25	yes	FACU
4. *Trifolium hirtum*	10	yes	NL (UPL)
5. *Acmispon americanus*	15	yes	FACU
6. *Hemizonia congesta ssp. congesta*	10	yes	NL (UPL)
7. *Anthoxanthum odoratum*	10	yes	FACU
8. *Ranunculus occidentalis*	10	yes	FACU
9. *Lotus corniculatus*	5	no	FAC
10. *Juncus balticus*	5	no	FACW
11. _____			
50% = _____, 20% = _____	100	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum _____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0	(A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x1 =	0
FACW species	5	x2 =	10
FAC species	10	x3 =	30
FACU species	65	x4 =	260
UPL species	20	x5 =	100
Column Totals:	100 (A)		400 (B)

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

Project Site: Estero Americano

SOIL

Sampling Point: SP05b

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
1-6	7.5YR 2/1	98	7.5YR 5/8	2	C	PL	Loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): N/A

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Estero Americano City/County: Sonoma County/ Sampling Date: 2017-5-25
Applicant/Owner: Sonoma County State: CA Sampling Point: SP05c
Investigator(s): L. Burris, C. Amoaku Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 2
Subregion (LRR): Med Lat: _____ Long: _____ Datum: UTM Zone 10
Soil Map Unit Name: Steinbeck Loam NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Hydric Soil Present?	Yes ☐	No ☒		
Wetland Hydrology Present?	Yes ☐	No ☒		

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. *Avena fatua*	25	yes	NL (UPL)
2. *Hemitomes congestum*	25	yes	NL (UPL)
3. *Bromus diandrus*	10	no	NL (UPL)
4. *Festuca perennis*	5	no	FAC
5. *Bromus hordeaceus*	5	no	FACU
6. *Trifolium campestre*	5	no	NL (UPL)
7. *Hypochaeris radicata*	15	yes	FACU
8. *Cynosurus echinatus*	15	yes	NL (UPL)
9. *Danthonia californica*	5	no	FAC
10. _____			
11. _____			
50% = _____, 20% = _____	110	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum _____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0	(A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x1 =	0
FACW species	0	x2 =	0
FAC species	10	x3 =	30
FACU species	20	x4 =	80
UPL species	80	x5 =	400
Column Totals:	110 (A)		510 (B)

Prevalence Index = B/A = 4.63

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:

Project Site: Estero Americano

SOIL

Sampling Point: SP05c

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5YR 2.5/1	100					Loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): N/A

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): ____

Water Table Present? Yes ☐ No ☒ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): ____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No oxidized rhizospeheres

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Estero Americano City/County: Sonoma County/ Sampling Date: 2017-5-25
Applicant/Owner: Sonoma County State: CA Sampling Point: SP06a
Investigator(s): L. Burris, C. Amoaku Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 2
Subregion (LRR): Med Lat: _____ Long: _____ Datum: UTM Zone 10
Soil Map Unit Name: Steinbeck Loam NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☐	No	☒	**Is the Sampled Area within a Wetland?** **Yes** ☐ **No** ☒
Wetland Hydrology Present?	Yes	☐	No	☒	

Remarks: East of creek where hill slopes down to drainage system.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. *N/A*			
2.			
3.			
4.			
5.			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. *Juncus effusus*	95	yes	FACW
2. *Holcus lanatus*	5	no	FAC
3. *Briza maxima*	1	no	NL (UPL)
4. *Avena fatua*	1	no	NL (UPL)
5. *Bromus diandrus*	2	no	NL (UPL)
6. *Conium maculatum*	1	no	FAC
7. *Bromus hordeaceus*	2	no	FACU
8.			
9.			
10.			
11.			
50% = _____, 20% = _____	107	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum N/A			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: Estero Americano

SOIL

Sampling Point: SP06a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5YR 2.5/1	100					Loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Root masses

Depth (inches): 6

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Estero Americano City/County: Sonoma County/ Sampling Date: 2017-5-25
Applicant/Owner: Sonoma County State: CA Sampling Point: SP06b
Investigator(s): L. Burris, C. Amoaku Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 2
Subregion (LRR): Med Lat: _____ Long: _____ Datum: UTM Zone 10
Soil Map Unit Name: Steinbeck Loam NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes** ☐	**No** ☒
Hydric Soil Present?	Yes ☐	No ☒			
Wetland Hydrology Present?	Yes ☐	No ☒			

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. *N/A*			
2.			
3.			
4.			
5.			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. *Bromus diandrus*	25	yes	NL (UPL)
2. *Stipa pulchra*	20	yes	NL (UPL)
3. *Avena fatua*	5	no	NL (UPL)
4. *Cynosurus echinatus*	20	yes	NL (UPL)
5. *Holcus lanatus*	5	no	FAC
6. *Hypochaeris glabra*	10	no	NL (UPL)
7. *Plantago lanceolata*	5	no	FACU
8. *Rumex acetosella*	5	no	FACU
9. *Juncus bufonius*	5	no	FACW
10.			
11.			
50% = _____, 20% = _____	100	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum _____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0	(A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x1 =	0
FACW species	5	x2 =	10
FAC species	5	x3 =	15
FACU species	10	x4 =	40
UPL species	80	x5 =	400
Column Totals:	100 (A)		465 (B)

Prevalence Index = B/A = 4.65

Hydrophytic Vegetation Indicators:

☐ 1 – Rapid Test for Hydrophytic Vegetation
☐ 2 - Dominance Test is >50%
☐ 3 - Prevalence Index is ≤3.0[1]
☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☐ 5 - Wetland Non-Vascular Plants[1]
☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

Project Site: Estero Americano

SOIL

Sampling Point: SP06b

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5YR 2.5/1	100					Loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): N/A

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): ____

Water Table Present? Yes ☐ No ☒ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): ____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Estero Americano City/County: Sonoma County/ Sampling Date: 2017-8-3
Applicant/Owner: Sonoma County State: CA Sampling Point: SP07a
Investigator(s): L. Burris, P. Keating Section, Township, Range: ____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): Med Lat: ____ Long: ____ Datum: UTM Zone 10
Soil Map Unit Name: Steinbeck Loam NWI classification: ____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks: Wet area draining down to intermittent drainage to the west of Study Area

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1. ____			
2. ____			
3. ____			
4. ____			
50% = ____, 20% = ____		= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A)			
1. ____			
2. ____			
3. ____			
4. ____			
5. ____			
50% = ____, 20% = ____		= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. *Juncus effusus*	25	yes	FACW
2. *Holcus lanatus*	35	yes	FAC
3. *Rumex acetosella*	5	no	FACU
4. *Cynosurus echinatus*	10	no	NL (UPL)
5. *Lotus corniculatus*	2	no	FAC
6. *Vicia villosa*	10	no	NL (UPL)
7. *Rumex pulcher*	10	no	FAC
8. *Stachys rigida*	5	no	FACW
9. ____			
10. ____			
11. ____			
50% = 53.5, 20% = 21.2	107	= Total Cover	
Woody Vine Stratum (Plot size: ____)			
1. ____			
2. ____			
50% = ____, 20% = ____		= Total Cover	
% Bare Ground in Herb Stratum ____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	x1 =	____
FACW species	____	x2 =	____
FAC species	____	x3 =	____
FACU species	____	x4 =	____
UPL species	____	x5 =	____
Column Totals:	____ (A)		____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: Estero Americano

SOIL

Sampling Point: SP07a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/1	9.5	5YR 4/6	< 2	C	PL	Loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☒ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): N/A

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: < 2% oxidized rhysospheres.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Estero Americano City/County: Sonoma County/ Sampling Date: 2017-5-25
Applicant/Owner: Sonoma County State: CA Sampling Point: SP07b
Investigator(s): L. Burris, C. Amoaku Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): Med Lat: _____ Long: _____ Datum: UTM Zone 10
Soil Map Unit Name: Steinbeck Loam NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes** ☐	**No** ☒
Hydric Soil Present?	Yes ☐	No ☒			
Wetland Hydrology Present?	Yes ☐	No ☒			

Remarks: West of SP07a. Upland vegetation.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. *Acmispon americanus*	25	yes	FACU
2. *Convulvulus arvensis*	10	no	NL (UPL)
3. *Hypochaeris radicata*	10	no	FACU
4. *Avena fatua*	10	no	NL (UPL)
5. *Linum bienne*	5	no	NL (UPL)
6. *Bromus hordeaceus*	20	yes	FACU
7. *Danthonia californica*	10	no	FAC
8. *Trifolium hirtum*	10	no	NL (UPL)
9. *s*			
10. _____			
11. _____			
50% = _____, 20% = _____	100	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum _____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0	(A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x1 =	0
FACW species	0	x2 =	0
FAC species	15	x3 =	45
FACU species	55	x4 =	220
UPL species	30	x5 =	150
Column Totals:	100 (A)		415 (B)

Prevalence Index = B/A = 4.15

Hydrophytic Vegetation Indicators:

☐ 1 – Rapid Test for Hydrophytic Vegetation
☐ 2 - Dominance Test is >50%
☐ 3 - Prevalence Index is ≤3.0[1]
☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☐ 5 - Wetland Non-Vascular Plants[1]
☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

Project Site: Estero Americano

SOIL

Sampling Point: SP07b

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	100					Loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Hard layer

Depth (inches): 4

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Estero Americano City/County: Sonoma County/ Sampling Date: 2017-5-25
Applicant/Owner: Sonoma County State: CA Sampling Point: SP08
Investigator(s): L. Burris, C. Amoaku Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 2
Subregion (LRR): Med Lat: _____ Long: _____ Datum: UTM Zone 10
Soil Map Unit Name: Steinbeck Loam NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Hydric Soil Present?	Yes ☐	No ☒		
Wetland Hydrology Present?	Yes ☐	No ☒		

Remarks: Sample point for potential wet meadow area.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. *Avena fatua*	25	yes	NL (UPL)
2. *Hemizonia congesta ssp. congesta*	25	yes	NL (UPL)
3. *Bromus diandrus*	10	no	NL (UPL)
4. *Festuca perennis*	5	no	FAC
5. *Bromus hordeaceus*	5	no	FACU
6. *Trifolium campestre*	5	no	NL (UPL)
7. *Hypochaeris radicata*	15	yes	FACU
8. *Cynosurus echinatus*	15	yes	NL (UPL)
9. *Danthonia californica*	5	no	FAC
10. _____			
11. _____			
50% = _____, 20% = _____	110	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum _____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0	(A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x1 =	0
FACW species	0	x2 =	0
FAC species	10	x3 =	30
FACU species	20	x4 =	80
UPL species	80	x5 =	400
Column Totals:	110 (A)		510 (B)

Prevalence Index = B/A = 4.63

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:

Project Site: Estero Americano

SOIL

Sampling Point: SP08

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	7.5YR 2.5/1	100					Loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): N/A

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): ____

Water Table Present? Yes ☐ No ☒ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): ____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No oxidized rhizospeheres

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Estero Americano | City/County: Sonoma County/ | Sampling Date: 2017-5-25
Applicant/Owner: Sonoma County | State: CA | Sampling Point: SP09a
Investigator(s): L. Burris, C. Amoaku | Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): none | Slope (%): 2
Subregion (LRR): Med | Lat: _____ | Long: _____ | Datum: UTM Zone 10
Soil Map Unit Name: Steinbeck Loam | NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks: East of creek where hill slopes create shallow 'v' .

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. *N/A*			
2.			
3.			
4.			
5.			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. *Juncus effusus*	75	yes	FACW
2. *Holcus lanatus*	25	yes	FAC
3. *Briza maxima*	1	no	NL (UPL)
4. *Avena fatua*	1	no	NL (UPL)
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = _____, 20% = _____	107	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
50% = _____, 20% = _____		= Total Cover	

% Bare Ground in Herb Stratum N/A

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: Estero Americano

SOIL

Sampling Point: SP09a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5YR 2.5/1	95	5YR 5/8	5	C	PL	Loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Root masses

Depth (inches): 6

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Estero Americano City/County: Sonoma County/ Sampling Date: 2017-5-25
Applicant/Owner: Sonoma County State: CA Sampling Point: SP09b
Investigator(s): L. Burris, C. Amoaku Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 2
Subregion (LRR): Med Lat: _____ Long: _____ Datum: UTM Zone 10
Soil Map Unit Name: Steinbeck Loam NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes** ☐	**No** ☒
Hydric Soil Present?	Yes ☐	No ☒			
Wetland Hydrology Present?	Yes ☐	No ☒			

Remarks: **N**orthwest of SP09a.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. *N/A*			
2.			
3.			
4.			
5.			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. *Bromus diandrus*	25	yes	NL (UPL)
2. *Stipa pulchra*	20	yes	NL (UPL)
3. *Avena fatua*	5	no	NL (UPL)
4. *Cynosurus echinatus*	20	yes	NL (UPL)
5. *Holcus lanatus*	5	no	FAC
6. *Hypochaeris glabra*	10	no	NL (UPL)
7. *Plantago lanceolata*	5	no	FACU
8. *Rumex acetosella*	5	no	FACU
9. *Juncus bufonius*	5	no	FACW
10.			
11.			
50% = _____, 20% = _____	100	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum _____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0	(A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x1 =	0
FACW species	5	x2 =	10
FAC species	5	x3 =	15
FACU species	10	x4 =	40
UPL species	80	x5 =	400
Column Totals:	100 (A)		465 (B)

Prevalence Index = B/A = 4.65

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

Project Site: Estero Americano

SOIL

Sampling Point: SP09b

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5YR 2.5/1	100					Loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): N/A

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
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- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): ____

Water Table Present? Yes ☐ No ☒ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): ____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

APPENDIX D

Aquatic Resources Spreadsheet

Waters_Name	State	Cowardin_Code	HGM_Code	Meas_Type	Amount	Units	Waters_Type	Latitude	Longitude	Local_Waterway
SW-01	California	U		Area	0.081	ACRE	UPLAND	38.32452401	-122.9650298	Estero Americano
SW-02	California	PEM2		Area	0.01	ACRE	RPWWN	38.32463329	-122.9654574	Estero Americano
SW-03	California	PEM2		Area	0.008	ACRE	RPWWN	38.3257663	-122.9675574	Estero Americano
SW-04	California	PEM2		Area	0.12	ACRE	RPWWN	38.32652859	-122.9668525	Estero Americano
SW-05	California	PEM2		Area	0.007	ACRE	RPWWN	38.32670595	-122.9667863	Estero Americano
SW-06	California	PEM2		Area	0.01	ACRE	RPWWN	38.32702327	-122.9669917	Estero Americano
SW-07	California	PEM2		Area	0.006	ACRE	RPWWN	38.32815093	-122.9667866	Estero Americano
SW-08	California	PEM2		Area	0.029	ACRE	RPWWN	38.32819002	-122.9665131	Estero Americano
SW-09	California	U		Area	0.588	ACRE	UPLAND	38.32899731	-122.9671355	Estero Americano
SW-10	California	PEM2		Area	0.319	ACRE	RPWWN	38.32127131	-122.9616419	Estero Americano
SW-11	California	U		Area	0.009	ACRE	UPLAND	38.32090274	-122.9620431	Estero Americano
SW-12	California	PEM2		Area	0.187	ACRE	RPWWN	38.32071574	-122.9620344	Estero Americano
SW-13	California	U		Area	0.011	ACRE	UPLAND	38.32032473	-122.9620738	Estero Americano
SW-14	California	PEM2		Area	0.049	ACRE	RPWWN	38.32300365	-122.9598054	Estero Americano
SW-15	California	PEM2		Area	0.324	ACRE	RPWWD	38.32171263	-122.9600262	Estero Americano
SW-16	California	U		Area	0.021	ACRE	UPLAND	38.32017183	-122.9602636	Estero Americano
SW-17	California	PEM2		Area	0.615	ACRE	RPWWN	38.31884288	-122.9561801	Estero Americano
SW-18	California	PEM2		Area	0.143	ACRE	RPWWN	38.32875489	-122.9603649	Estero Americano
SW-20	California	PEM2		Area	0.073	ACRE	RPWWN	38.32889721	-122.9605765	Estero Americano
SW-21	California	PEM2		Area	0.114	ACRE	RPWWN	38.3236463	-122.9610781	Estero Americano
WM-01	California	PEM2		Area	1.714	ACRE	RPWWN	38.32292627	-122.9611512	Estero Americano
WM-02	California	PEM2		Area	0.521	ACRE	RPWWN	38.32820816	-122.9587825	Estero Americano
ID-01	California	R4		Linear	653.298	FOOT	RPW	38.3236601	-122.9604318	Estero Americano
ED-01	California	R6		Linear	670.312	FOOT	RPW	38.32741355	-122.9619274	Estero Americano
ED-02	California	R6		Linear	327.444	FOOT	RPW	38.32688725	-122.962341	Estero Americano
S-01	California	U		Linear	1320.759	FOOT	UPLAND	38.3263316	-122.960644	Estero Americano

APPENDIX D

Plant PTO Table

Appendix D
Plant PTO Table

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Abronia umbellata var. *breviflora*	pink sand-verbena	None/None/1B.1	Coastal dunes/perennial herb/June–Oct/0–33	**Not expected to occur**. No suitable dune habitat present. The nearest documented occurrence of this species is located approximately 3.5 miles west near Bodega Bay (CDFW 2017).
Agrostis blasdalei	Blasdale's bent grass	None/None/1B.2	Coastal bluff scrub, coastal dunes, coastal prairie/perennial rhizomatous herb/May–July/0–492	**Not expected to occur**. No suitable coastal habitat present. The nearest documented occurrence of this species is located approximately 4 miles west near Bodega Head (CDFW 2017).
Allium peninsulare var. *franciscanum*	Franciscan onion	None/None/1B.2	Cismontane woodland, valley and foothill grassland; clay, volcanic, often serpentinite/perennial bulbiferous herb/May–June/171–1,001	**Low potential to occur**. Although there is there is potentially suitable grassland habitat at the project site, the nearest documented occurrence of this spices is approximately 4 miles northwest of the site along the coast (CDFW 2017). This species was not observed during the 2017 botanical survey.
Alopecurus aequalis var. *sonomensis*	Sonoma alopecurus	FE/None/1B.1	Marshes and swamps (freshwater), riparian scrub/perennial herb/May–July/16–1,198	**Low potential to occur**. There is potentially suitable habitat for this species in the riparian habitat onsite. The nearest documented occurrence for this species is located approximately 4.5 miles east of the site along Highway 1 (CDFW 2017). This species was not observed during the 2017 botanical survey.
Amorpha californica var. *napensis*	Napa false indigo	None/None/1B.2	Broadleafed upland forest (openings), chaparral, cismontane woodland/perennial deciduous shrub/Apr–July/394–6,562	**Not expected to occur**. No suitable chaparral or woodland habitat present.
Amsinckia lunaris	bent-flowered fiddleneck	None/None/1B.2	Coastal bluff scrub, cismontane woodland, valley and foothill grassland/annual herb/Mar–June/10–1,640	**Not expected to occur.** Although there is potentially suitable grassland habitat onsite, the nearest documented occurrence for this species is located more than 10 miles northeast of the project site, near Santa Rosa (CDFW 2017).
Arctostaphylos bakeri ssp. *bakeri*	Baker's manzanita	None/CR/1B.1	Broadleafed upland forest, chaparral; often serpentinite/perennial evergreen shrub/Feb–Apr/246–984	**Not expected to occur**. No suitable forest or chaparral habitat present.
Arctostaphylos densiflora	Vine Hill manzanita	None/CE/1B.1	Chaparral (acid marine sand)/perennial evergreen shrub/Feb–Apr/164–394	**Not expected to occur**. No suitable chaparral habitat present.

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Arctostaphylos stanfordiana ssp. *decumbens*	Rincon Ridge manzanita	None/None/1B.1	Chaparral (rhyolitic), cismontane woodland/perennial evergreen shrub/Feb–Apr (May)/246–1,214	**Not expected to occur**. No suitable woodland or chaparral habitat present.
Arctostaphylos virgata	Marin manzanita	None/None/1B.2	Broadleafed upland forest, closed-cone coniferous forest, chaparral, north coast coniferous forest; sandstone or granitic/perennial evergreen shrub/Jan–Mar/197–2,297	**Not expected to occur**. No suitable forest or chaparral habitat present.
Blennosperma bakeri	Sonoma sunshine	FE/CE/1B.1	Valley and foothill grassland (mesic), vernal pools/annual herb/Mar–May/33–361	**Not expected to occur**. Although there is potentially suitable habitat in mesic areas of the grassland onsite, the site is outside of the known geographic region for this species. The nearest documented occurrences for this species are located greater than 10 miles northeast of the site near Santa Rosa (CDFW 2017).
Blennosperma nanum var. *robustum*	Point Reyes blennosperma	None/CR/1B.2	Coastal prairie, coastal scrub/annual herb/Feb–Apr/33–476	**Not expected to occur**. Although there is potentially suitable habitat in the grassland onsite, the site is outside of the known geographic region for this species. The nearest documented occurrences for this species are located greater than 5 miles south of the site near Point Reyes (CDFW 2017).
Calamagrostis crassiglumis	Thurber's reed grass	None/None/2B.1	Coastal scrub (mesic), marshes and swamps (freshwater)/perennial rhizomatous herb/May–Aug/33–197	**Not expected to occur**. Although there is potentially suitable habitat in mesic areas of the grassland onsite, the site is outside of the known geographic region for this species. The nearest documented occurrences for this species are located greater than 5 miles west of the site near Bodega Head (CDFW 2017).
Calystegia purpurata ssp. *saxicola*	coastal bluff morning-glory	None/None/1B.2	Coastal bluff scrub, coastal dunes, coastal scrub, north coast coniferous forest/perennial herb/(Mar) Apr–Sep/33–344	**Not expected to occur**. No suitable dune, scrub, or forest habitat present.

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Campanula californica	swamp harebell	None/None/1B.2	Bogs and fens, closed-cone coniferous forest, coastal prairie, meadows and seeps, marshes and swamps (freshwater), north coast coniferous forest; mesic/perennial rhizomatous herb/June–Oct/3–1,329	**Low potential to occur**. Although the mesic areas in the grassland might provide potentially suitable habitat for this species, the nearest documented occurrences are located approximately 5 miles west and south of the project site, along the coast (CDFW 2017). This species was not observed during the 2017 botanical survey.
Carex comosa	bristly sedge	None/None/2B.1	Coastal prairie, marshes and swamps (lake margins), valley and foothill grassland/perennial rhizomatous herb/May–Sep/0–2,051	**Low potential to occur**. Although the mesic areas in the grassland might provide potentially suitable habitat for this species, the nearest documented occurrences are located approximately 5 miles west of the project site, along the coast (CDFW 2017). This species was not observed during the 2017 botanical survey.
Castilleja ambigua var. *humboldtiensis*	Humboldt Bay owl's-clover	None/None/1B.2	Marshes and swamps (coastal salt)/annual herb (hemiparasitic)/Apr–Aug/0–10	**Low potential to occur**. Although the mesic areas in the grassland and along the drainage may provide potentially suitable habitat for this species, the nearest documented occurrences are located approximately 6.5 miles south of the project site, along the coast (CDFW 2017). This species was not observed during the 2017 botanical survey.
Castilleja leschkeana	Point Reyes paintbrush	None/None/1A	Marshes and swamps (coastal)/perennial herb (hemiparasitic)/June/0–33	**Not expected to occur.** The site is outside the known geographic range for this species, which is limited to the Point Reyes area (CDFW 2017).
Castilleja uliginosa	Pitkin Marsh paintbrush	None/CE/1A	Marshes and swamps (freshwater)/perennial herb (hemiparasitic)/June–July/787–787	**Not expected to occur**. The site is outside the known geographical and elevation range for this species.
Ceanothus confusus	Rincon Ridge ceanothus	None/None/1B.1	Closed-cone coniferous forest, chaparral, cismontane woodland; volcanic or serpentinite/perennial evergreen shrub/Feb–June/246–3,494	**Not expected to occur**. No suitable forest, chaparral, or woodland habitat present.
Ceanothus foliosus var. *vineatus*	Vine Hill ceanothus	None/None/1B.1	Chaparral/perennial evergreen shrub/Mar–May/148–1,001	**Not expected to occur**. No suitable chaparral habitat present and the site is outside the known geographical range for this species.

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Ceanothus gloriosus var. *porrectus*	Mt. Vision ceanothus	None/None/1B.3	Closed-cone coniferous forest, coastal prairie, coastal scrub, valley and foothill grassland/perennial evergreen shrub/Feb–May/82–1,001	**Not expected to occur**. The project site is outside the known geographic range for this species, which is limited to the Point Reyes area (CDFW 2017).
Ceanothus masonii	Mason's ceanothus	None/CR/1B.2	Chaparral (openings, rocky, serpentinite)/perennial evergreen shrub/Mar–Apr/755–1,640	**Not expected to occur**. No suitable chaparral habitat present and the site is outside the species' known elevation range.
Ceanothus purpureus	holly-leaved ceanothus	None/None/1B.2	Chaparral, cismontane woodland; volcanic, rocky/perennial evergreen shrub/Feb–June/394–2,100	**Not expected to occur**. No suitable chaparral or woodland habitat present.
Chloropyron maritimum ssp. *palustre*	Point Reyes bird's-beak	None/None/1B.2	Marshes and swamps (coastal salt)/annual herb (hemiparasitic)/June–Oct/0–33	**Not expected to occur**. There is no suitable coastal salt marsh present.
Chorizanthe cuspidata var. *cuspidata*	San Francisco Bay spineflower	None/None/1B.2	Coastal bluff scrub, coastal dunes, coastal prairie, coastal scrub; sandy/annual herb/Apr–July (Aug)/10–705	**Not expected to occur**. No suitable sandy soil substrates are present.
Chorizanthe cuspidata var. *villosa*	woolly-headed spineflower	None/None/1B.2	Coastal dunes, coastal prairie, coastal scrub; sandy/annual herb/May–July (Aug)/10–197	**Not expected to occur**. No suitable sandy soil substrates are present.
Chorizanthe robusta var. *robusta*	robust spineflower	FE/None/1B.1	Chaparral (maritime), cismontane woodland (openings), coastal dunes, coastal scrub; sandy or gravelly/annual herb/Apr–Sep/10–984	**Not expected to occur**. No suitable sand soils or dune habitat present.
Chorizanthe valida	Sonoma spineflower	FE/CE/1B.1	Coastal prairie (sandy)/annual herb/June–Aug/33–1,001	**Not expected to occur**. No suitable sandy coastal prairie is present at the site.
Cicuta maculata var. *bolanderi*	Bolander's water-hemlock	None/None/2B.1	Marshes and swamps; coastal, fresh or brackish water/perennial herb/July–Sep/0–656	**Not expected to occur**. The project site is outside the known geographic range for this species and there is no suitable vernal pool habitat present. The nearest documented occurrence is located greater than 10 miles south of the project site (CDFW 2017).
Cirsium andrewsii	Franciscan thistle	None/None/1B.2	Broadleafed upland forest, coastal bluff scrub, coastal prairie, coastal scrub; mesic, sometimes serpentinite/perennial herb/Mar–July/0–492	**Not expected to occur**. Suitable coastal habitat is not present. The nearest documented occurrence for this species is located approximately 3 miles west of the project site, near Bodega Bay (CDFW 2017).
Clarkia concinna ssp. *raichei*	Raiche's red ribbons	None/None/1B.1	Coastal bluff scrub/annual herb/Apr–May/0–328	**Not expected to occur**. No suitable coastal bluff scrub habitat present.

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Clarkia imbricata	Vine Hill clarkia	FE/CE/1B.1	Chaparral, valley and foothill grassland; acidic sandy loam/annual herb/June–Aug/164–246	**Not expected to occur**. The site is outside the known geographic range for this species, which is known exclusively from the Vine Hill region (CDFW 2017).
Cordylanthus tenuis ssp. *capillaris*	Pennell's bird's-beak	FE/CR/1B.2	Closed-cone coniferous forest, chaparral; serpentinite/annual herb (hemiparasitic)/June–Sep/148–1,001	**Not expected to occur**. No suitable forest or chaparral habitat present.
Cuscuta obtusiflora var. *glandulosa*	Peruvian dodder	None/None/2B.2	Marshes and swamps (freshwater)/annual vine (parasitic)/July–Oct/49–919	**Not expected to occur**. No suitable freshwater marsh habitat present.
Cuscuta pacifica var. *papillata*	Mendocino dodder	None/None/1B.2	Coastal dunes (interdune depressions)/annual vine (parasitic)/July–Oct/0–164	**Not expected to occur**. No suitable dune habitat present.
Delphinium bakeri	Baker's larkspur	FE/CE/1B.1	Broadleafed upland forest, coastal scrub, valley and foothill grassland; decomposed shale, often mesic/perennial herb/Mar–May/262–1,001	**Not expected to occur**. No suitable decomposed shale soil substrates present. The nearest documented occurrence for this species is located approximately 5 miles south of the project site (CDFW 2017).
Delphinium luteum	golden larkspur	FE/CR/1B.1	Chaparral, coastal prairie, coastal scrub; rocky/perennial herb/Mar–May/0–328	**Moderate potential to occur**. The grassland onsite may provide potentially suitable habitat for this species. The nearest documented occurrence for this species is located approximately 1.3 miles west of the project site (CDFW 2017).
Dirca occidentalis	western leatherwood	None/None/1B.2	Broadleaved upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, north coast coniferous forest, riparian forest, riparian woodland; mesic/perennial deciduous shrub/Jan–Mar (Apr)/82–1,394	**Moderate potential to occur**. The drainages onsite provide potentially suitable habitat for this species. It was not observed during the 2017 botanical surveys.
Downingia pusilla	dwarf downingia	None/None/2B.2	Valley and foothill grassland (mesic), vernal pools/annual herb/Mar–May/3–1,460	**Not expected to occur**. The project site is outside the known geographic range for this species and there is no suitable vernal pool habitat present. The nearest documented occurrence is located greater than 10 miles northeast of the project site (CDFW 2017).
Erigeron greenei	Greene's narrow-leaved daisy	None/None/1B.2	Chaparral (serpentinite or volcanic)/perennial herb/May–Sep/262–3,297	**Not expected to occur**. No suitable chaparral habitat present.

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Erigeron serpentinus	serpentine daisy	None/None/1B.3	Chaparral (serpentinite, seeps)/perennial herb/May–Aug/197–2,198	**Not expected to occur**. No suitable chaparral habitat present.
Erysimum concinnum	bluff wallflower	None/None/1B.2	Coastal bluff scrub, coastal dunes, coastal prairie/annual / perennial herb/Feb–July/0–607	**Not expected to occur**. Suitable bluff and dune habitat are not present onsite. The nearest documented occurrence for this species is located approximately 3 miles west of the project site near Bodega Bay (CDFW 2017).
Erythronium revolutum	coast fawn lily	None/None/2B.2	Bogs and fens, broadleafed upland forest, north coast coniferous forest; mesic, streambanks/perennial bulbiferous herb/Mar–July (Aug)/0–5,249	**Not expected to occur**. No suitable forest habitat present.
Fissidens pauperculus	minute pocket moss	None/None/1B.2	North coast coniferous forest (damp coastal soil)/moss/N.A./33–3,360	**Not expected to occur**. No suitable forest habitat present.
Fritillaria lanceolata var. *tristulis*	Marin checker lily	None/None/1B.1	Coastal bluff scrub, coastal prairie, coastal scrub/perennial bulbiferous herb/Feb–May/49–492	**Not expected to occur**. The project site is outside the known geographic range for this species. The nearest documented occurrence is located greater than 5 miles south of the project site near Point Reyes (CDFW 2017).
Fritillaria liliacea	fragrant fritillary	None/None/1B.2	Cismontane woodland, coastal prairie, coastal scrub, valley and foothill grassland; often serpentinite/perennial bulbiferous herb/Feb–Apr/10–1,345	**Moderate potential to occur**. Mesic areas in the grassland onsite may provide potentially suitable habitat for this species. The nearest documented occurrence for this species is located directly north and adjacent to the project site; however, this occurrence was last documented in 1924 (CDFW 2017).
Gilia capitata ssp. *chamissonis*	blue coast gilia	None/None/1B.1	Coastal dunes, coastal scrub/annual herb/Apr–July/7–656	**Not expected to occur**. No suitable dune or scrub habitat present.
Gilia capitata ssp. *pacifica*	Pacific gilia	None/None/1B.2	Coastal bluff scrub, chaparral (openings), coastal prairie, valley and foothill grassland/annual herb/Apr–Aug/16–5,463	**Not expected to occur**. The project site is outside the known geographic range for this species. The nearest documented occurrence is located greater than 10 miles north of the project site (CDFW 2017).
Gilia capitata ssp. *tomentosa*	woolly-headed gilia	None/None/1B.1	Coastal bluff scrub, valley and foothill grassland; serpentinite, rocky, outcrops/annual herb/May–July/33–722	**Moderate potential to occur**. Rocky outcrops in the grassland onsite may provide potentially suitable habitat for this species. The nearest documented occurrence for this species is located approximately 2 miles west of the project site (CDFW 2017).

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Gilia millefoliata	dark-eyed gilia	None/None/1B.2	Coastal dunes/annual herb/Apr–July/7–98	**Not expected to occur**. No suitable dune habitat present.
Hemizonia congesta ssp. *congesta*	congested-headed hayfield tarplant	None/None/1B.2	Valley and foothill grassland; sometimes roadsides/annual herb/Apr–Nov/66–1,837	**Present**. This species was documented at the site during the 2017 botanical surveys.
Hesperevax sparsiflora var. *brevifolia*	short-leaved evax	None/None/1B.2	Coastal bluff scrub (sandy), coastal dunes, coastal prairie/annual herb/Mar–June/0–705	**Not expected to occur**. There are no suitable sandy soil substrates present. The nearest documented occurrence for this species is located approximately 3 miles southwest of the project site, along the coast (CDFW 2017).
Horkelia marinensis	Point Reyes horkelia	None/None/1B.2	Coastal dunes, coastal prairie, coastal scrub; sandy/perennial herb/May–Sep/16–2,477	**Not expected to occur**. There are no suitable sandy soil substrates present. The nearest documented occurrence for this species is located approximately 2.5 miles southwest of the project site, along the coast (CDFW 2017).
Horkelia tenuiloba	thin-lobed horkelia	None/None/1B.2	Broadleafed upland forest, chaparral, valley and foothill grassland; mesic openings, sandy/perennial herb/May–July (Aug)/164–1,640	**Not expected to occur**. The project site is outside the known geographic range for this species. The nearest documented occurrence is located greater than 10 miles northeast of the project site (CDFW 2017).
Lasthenia burkei	Burke's goldfields	FE/CE/1B.1	Meadows and seeps (mesic), vernal pools/annual herb/Apr–June/49–1,969	**Not expected to occur**. The project site is outside the known geographic range for this species. The nearest documented occurrence is located greater than 10 miles northeast of the project site (CDFW 2017).
Lasthenia californica ssp. *bakeri*	Baker's goldfields	None/None/1B.2	Closed-cone coniferous forest (openings), coastal scrub, meadows and seeps, marshes and swamps/perennial herb/Apr–Oct/197–1,706	**Moderate potential to occur**. Mesic areas in the grassland onsite may provide potentially suitable habitat for this species. The nearest documented occurrence for this species is located directly north and adjacent to the project site; however, this occurrence was last documented in 1934. There are multiple other occurrences documented within 5 miles of the project site (CDFW 2017).
Lasthenia californica ssp. *macrantha*	perennial goldfields	None/None/1B.2	Coastal bluff scrub, coastal dunes, coastal scrub/perennial herb/Jan–Nov/16–1,706	**Not expected to occur**. No suitable dune or scrub habitat present.

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Lasthenia conjugens	Contra Costa goldfields	FE/None/1B.1	Cismontane woodland, playas (alkaline), valley and foothill grassland, vernal pools; mesic/annual herb/Mar–June/0–1,542	**Not expected to occur**. The site is outside the known geographic range for this species.
Layia carnosa	beach layia	FE/CE/1B.1	Coastal dunes, coastal scrub (sandy)/annual herb/Mar–July/0–197	**Not expected to occur**. No suitable sandy soils or dune habitat present.
Legenere limosa	legenere	None/None/1B.1	Vernal pools/annual herb/Apr–June/3–2,887	**Not expected to occur**. No suitable vernal pool habitat present and the site is outside the known geographical range for this species.
Leptosiphon jepsonii	Jepson's leptosiphon	None/None/1B.2	Chaparral, cismontane woodland; usually volcanic/annual herb/Mar–May/328–1,640	**Not expected to occur**. No suitable chaparral or woodland habitat present.
Leptosiphon rosaceus	rose leptosiphon	None/None/1B.1	Coastal bluff scrub/annual herb/Apr–July/0–328	**Not expected to occur**. No suitable scrub habitat present.
Lessingia arachnoidea	Crystal Springs lessingia	None/None/1B.2	Cismontane woodland, coastal scrub, valley and foothill grassland; serpentinite, often roadsides/annual herb/July–Oct/197–656	**Not expected to occur**. The project site is outside the known geographic range for this species. The nearest documented occurrence is located greater than 8 miles north of the project site (CDFW 2017).
Lilium pardalinum ssp. *pitkinense*	Pitkin Marsh lily	FE/CE/1B.1	Cismontane woodland, meadows and seeps, marshes and swamps (freshwater); mesic, sandy/perennial bulbiferous herb/June–July/115–213	**Not expected to occur**. The site is outside the known geographical range for this species.
Limnanthes vinculans	Sebastopol meadowfoam	FE/CE/1B.1	Meadows and seeps, valley and foothill grassland, vernal pools; vernally mesic/annual herb/Apr–May/49–1,001	**Not expected to occur**. The site is outside the known geographical range for this species.
Lupinus tidestromii	Tidestrom's lupine	FE/CE/1B.1	Coastal dunes/perennial rhizomatous herb/Apr–June/0–328	**Not expected to occur**. No suitable dune habitat present.
Microseris paludosa	marsh microseris	None/None/1B.2	Closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland/perennial herb/Apr–June (July)/16–1,165	**Not expected to occur**. The project site is outside the known geographic range for this species. The nearest documented occurrence is located greater than 10 miles northeast of the project site (CDFW 2017).
Monardella sinuata ssp. *nigrescens*	northern curly-leaved monardella	None/None/1B.2	Chaparral (Santa Cruz County), coastal dunes, coastal scrub, lower montane coniferous forest (Santa Cruz County, ponderosa pine sandhills); sandy/annual herb/(Apr) May–July (Aug) (Sep)/0–984	**Not expected to occur**. No suitable sandy soil substrates or forest habitat present.

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Navarretia leucocephala ssp. *bakeri*	Baker's navarretia	None/None/1B.1	Cismontane woodland, lower montane coniferous forest, meadows and seeps, valley and foothill grassland, vernal pools; mesic/annual herb/Apr–July/16–5,709	**Not expected to occur**. The project site is outside the known geographic range for this species. The nearest documented occurrence is located greater than 10 miles northeast of the project site (CDFW 2017).
Navarretia leucocephala ssp. *plieantha*	many-flowered navarretia	FE/CE/1B.2	Vernal pools (volcanic ash flow)/annual herb/May–June/98–3,117	**Not expected to occur**. No suitable vernal pool habitat present.
Phacelia insularis var. *continentis*	North Coast phacelia	None/None/1B.2	Coastal bluff scrub, coastal dunes; sandy, sometimes rocky/annual herb/Mar–May/33–558	**Not expected to occur**. No suitable sandy coastal habitat present.
Pleuropogon hooverianus	North Coast semaphore grass	None/CT/1B.1	Broadleafed upland forest, meadows and seeps, north coast coniferous forest; open areas, mesic/perennial rhizomatous herb/Apr–June/33–2,201	**Not expected to occur**. No suitable mesic forest opening habitat present.
Polemonium carneum	Oregon polemonium	None/None/2B.2	Coastal prairie, coastal scrub, lower montane coniferous forest/perennial herb/Apr–Sep/0–6,004	**Low potential to occur**. The grassland onsite may provide potentially suitable habitat for this species. The nearest documented occurrence for this species is located approximately 2.4 miles west of the project site; however, this population was last documented in 1935 (CDFW 2017).
Potentilla uliginosa	Cunningham Marsh cinquefoil	None/None/1A	Marshes and swamps; freshwater, permanent oligotrophic wetlands/perennial herb/May–Aug/98–131	**Not expected to occur**. The project site is outside the known geographic range for this species. The nearest documented occurrence is located greater than 8 miles east of the project site (CDFW 2017).
Rhynchospora alba	white beaked-rush	None/None/2B.2	Bogs and fens, meadows and seeps, marshes and swamps (freshwater)/perennial rhizomatous herb/July–Aug/197–6,693	**Not expected to occur**. The project site is outside the known geographic range for this species. The nearest documented occurrence is located greater than 15 miles northeast of the project site (CDFW 2017).
Rhynchospora californica	California beaked-rush	None/None/1B.1	Bogs and fens, lower montane coniferous forest, meadows and seeps (seeps), marshes and swamps (freshwater)/perennial rhizomatous herb/May–July/148–3,314	**Not expected to occur**. The project site is outside the known geographic range for this species. The nearest documented occurrence is located greater than 10 miles northeast of the project site (CDFW 2017).

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Rhynchospora capitellata	brownish beaked-rush	None/None/2B.2	Lower montane coniferous forest, meadows and seeps, marshes and swamps, upper montane coniferous forest; mesic/perennial herb/July–Aug/148–6,562	**Not expected to occur**. The project site is outside the known geographic range for this species. The nearest documented occurrence is located greater than 10 miles northeast of the project site (CDFW 2017).
Rhynchospora globularis	round-headed beaked-rush	None/None/2B.1	Marshes and swamps (freshwater)/perennial rhizomatous herb/July–Aug/148–197	**Not expected to occur**. The project site is outside the known geographic range for this species. The nearest documented occurrence is located greater than 10 miles northeast of the project site (CDFW 2017).
Sidalcea calycosa ssp. *rhizomata*	Point Reyes checkerbloom	None/None/1B.2	Marshes and swamps (freshwater, near coast)/perennial rhizomatous herb/Apr–Sep/10–246	**Moderate potential to occur**. The mesic habitat within the stream and at seeps within the project site may provide potentially suitable habitat for this species. The nearest documented occurrence for this species is located approximately 0.7 mile east of the project site (CDFW 2017).
Sidalcea hickmanii ssp. *viridis*	Marin checkerbloom	None/None/1B.3	Chaparral (serpentinite)/perennial herb/May–June/164–1,411	**Not expected to occur**. No suitable chaparral habitat present and the nearest documented occurrence is located more than 10 miles north of the project site (CDFW 2017).
Sidalcea malviflora ssp. *purpurea*	purple-stemmed checkerbloom	None/None/1B.2	Broadleafed upland forest, coastal prairie/perennial rhizomatous herb/May–June/49–279	**Moderate potential to occur**. The grassland onsite provides potentially suitable habitat for this species. There are two documented occurrences for this species within 5 miles of the project site (CDFW 2017)
Stebbinsoseris decipiens	Santa Cruz microseris	None/None/1B.2	Broadleafed upland forest, closed-cone coniferous forest, chaparral, coastal prairie, coastal scrub, valley and foothill grassland; open areas, sometimes serpentinite/annual herb/Apr–May/33–1,640	**Low potential to occur**. Although the grassland onsite provides potentially suitable habitat for this species, the nearest documented occurrence is located more than 5 miles south of the project site (CDFW 2017).
Thamnolia vermicularis	whiteworm lichen	None/None/2B.1	Chaparral, valley and foothill grassland; on rocks derived from sandstone/fruticose lichen (terricolous)/N.A./295–295	**Not expected to occur**. No rocks derived from sandstone substrates are present within the grassland onsite.

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Trifolium amoenum	two-fork clover	FE/None/1B.1	Coastal bluff scrub, valley and foothill grassland (sometimes serpentinite)/annual herb/Apr–June/16–1,362	**High potential to occur**. The grassland onsite provides potentially suitable habitat for this species. This species has been previously documented in 1945 in a non-specific area that includes the project site, as well as more recent occurrence approximately 1 mile south of the project site (CDFW 2017).
Trifolium buckwestiorum	Santa Cruz clover	None/None/1B.1	Broadleafed upland forest, cismontane woodland, coastal prairie; gravelly, margins/annual herb/Apr–Oct/344–2,001	**Not expected to occur**. The project site is outside the known geographic range of this species and there is no suitable habitat present.
Trifolium hydrophilum	saline clover	None/None/1B.2	Marshes and swamps, valley and foothill grassland (mesic, alkaline), vernal pools/annual herb/Apr–June/0–984	**Not expected to occur**. Alkaline soil substrates and vernal poll habitat are not present.
Triphysaria floribunda	San Francisco owl's-clover	None/None/1B.2	Coastal prairie, coastal scrub, valley and foothill grassland; usually serpentinite/annual herb/Apr–June/33–525	**Moderate potential to occur**. Potentially suitable habitat for this species occurs in the grassland onsite. The nearest documented occurrence for this species is located approximately 2.5 miles southwest of the project site along the coast (CDFW 2017).
Triquetrella californica	coastal triquetrella	None/None/1B.2	Coastal bluff scrub, coastal scrub; soil/moss/N.A./33–328	**Not expected to occur**. No suitable coastal scrub habitat present.
Viburnum ellipticum	oval-leaved viburnum	None/None/2B.3	Chaparral, cismontane woodland, lower montane coniferous forest/perennial deciduous shrub/May–June/705–4,593	**Not expected to occur**. No suitable woodland or forest habitat present and the site is outside the known elevation range for this species.

1A - Extirpated, Extinct
1B - Rare, Endangered
2A - Extirpated in CA
2B - Endangered in CA

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APPENDIX E

List of Plant Species Observed on Site

Appendix E
List of Plant Species Observed on the Estero Trail Project Site

FERNS AND FERN ALLIES

DENNSTAEDTIACEAE—BRACKEN FAMILY

Pteridium aquilinum—western brackenfern

DRYOPTERIDACEAE—WOOD FERN FAMILY

Polystichum munitum—western swordfern

EQUISETACEAE—HORSETAIL FAMILY

Equisetum hyemale—scouringrush horsetail

GYMNOSPERMS AND GNETOPHYTES

PINACEAE—PINE FAMILY

Pinus radiata—Monterey pine

MONOCOTS

AGAVACEAE—AGAVE FAMILY

Chlorogalum pomeridianum var. *pomeridianum*—wavyleaf soap plant

ALISMATACEAE—WATER-PLANTAIN FAMILY

Alisma triviale—northern water plantain

ARACEAE—ARUM FAMILY

Lemna minor—duckweed

CYPERACEAE—SEDGE FAMILY

Carex bolanderi—Bolander's sedge
Carex densa—dense sedge
Carex praegracilis—clustered field sedge
Carex tumulicola—splitawn sedge
Isolepis carinata—keeled bulrush
Isolepis cernua—low bulrush
Carex barbarae—white-root beds

IRIDACEAE—IRIS FAMILY

Iris douglasiana—Douglas iris
Sisyrinchium bellum—western blue-eyed grass
* *Romulea rosea* var. *australis*—rosy sandcrocus

JUNCACEAE—RUSH FAMILY

Juncus bolanderi—Bolander's rush
Juncus bufonius var. *bufonius*—toad rush
Juncus effusus ssp. *pacificus*—Pacific rush
Juncus phaeocephalus var. *phaeocephalus*—brownhead rush
Luzula comosa—Pacific woodrush
Juncus balticus—no common name

JUNCAGINACEAE—ARROW-GRASS FAMILY

Triglochin scilloides—awl-leaf lilaea

LILIACEAE—LILY FAMILY

Calochortus luteus—yellow mariposa lily

ORCHIDACEAE—ORCHID FAMILY

Spiranthes romanzoffiana—hooded lady's tresses

POACEAE—GRASS FAMILY

* *Avena barbata*—slender oat
Bromus carinatus var. *carinatus*—California brome
Bromus carinatus—California brome
Festuca rubra—red fescue
Glyceria leptostachya—davy mannagrass
Pleuropogon californicus var. *californicus*—annual semaphoregrass
Poa secunda ssp. *secunda*—Sandberg bluegrass
* *Aira caryophyllea*—silver hairgrass
* *Briza maxima*—big quakinggrass
* *Briza minor*—little quakinggrass
* *Bromus diandrus*—ripgut brome
* *Bromus hordeaceus*—soft brome
* *Bromus madritensis* ssp. *rubens*—red brome
* *Hordeum marinum*—seaside barley
* *Hordeum murinum*—mouse barley
* *Cynosurus echinatus*—annual dogtails
Danthonia californica—California oat grass
* *Holcus lanatus*—common velvet grass
* *Poa pratensis*—Kentucky blue grass
* *Festuca perennis*—perennial rye grass
Stipa pulchra—purple needle grass
Festuca microstachys—six-weeks fescue
* *Anthoxanthum odoratum*—sweet vernal grass

THEMIDACEAE—BRODIAEA FAMILY

Brodiaea terrestris ssp. *terrestris*—dwarf brodiaea
Dichelostemma capitatum—bluedicks
Triteleia ixioides—prettyface
Triteleia laxa—Ithuriel's spear

EUDICOTS

ANACARDIACEAE—SUMAC OR CASHEW FAMILY

Toxicodendron diversilobum—poison oak

APIACEAE—CARROT FAMILY

Eryngium armatum—coastal eryngo
Lomatium utriculatum—common lomatium
Sanicula bipinnatifida—purple sanicle
Sanicula laciniata—coastal blacksnakeroot

ASTERACEAE—SUNFLOWER FAMILY

* *Sonchus oleraceus*—common sowthistle
Achillea millefolium—common yarrow
Corethrogyne filaginifolia—common sandaster
Grindelia hirsutula—hairy gumweed
Heterotheca sessiliflora ssp. *bolanderi*—sessileflower false goldenaster
Lasthenia californica ssp. *californica*—California goldfields
Madia exigua—small tarweed
Madia gracilis—grassy tarweed
Pseudognaphalium stramineum—cottonbatting plant
Psilocarphus tenellus—slender woollyheads
Symphyotrichum chilense—Pacific aster
Wyethia angustifolia—California compassplant
* *Carduus pycnocephalus*—Italian plumeless thistle
* *Helminthotheca echioides*—bristly oxtongue
* *Hypochaeris glabra*—smooth cat's ear
* *Lactuca serriola*—prickly lettuce
* *Logfia gallica*—narrowleaf cottonrose
* *Matricaria discoidea*—disc mayweed
* *Senecio vulgaris*—old-man-in-the-Spring
Hemizonia congesta ssp. *congesta*—congested-headed hayfield tarplant
Baccharis pilularis—coyote brush

BORAGINACEAE—BORAGE FAMILY

* *Myosotis discolor*—changing forget-me-not

BRASSICACEAE—MUSTARD FAMILY

Cardamine oligosperma—little western bittercress
Nasturtium officinale—watercress
* *Brassica nigra*—black mustard
* *Raphanus raphanistrum*—wild radish
* *Raphanus sativus*—cultivated radish

CARYOPHYLLACEAE—PINK FAMILY

* *Cerastium glomeratum*—sticky chickweed
* *Spergularia media*—no common name

CONVOLVULACEAE—MORNING-GLORY FAMILY

Calystegia collina ssp. *collina*—coast range false bindweed
Dichondra donelliana—California ponysfoot

CRASSULACEAE—STONECROP FAMILY

Crassula connata—sand pygmyweed

CUCURBITACEAE—GOURD FAMILY

Marah fabacea—California man-root

FABACEAE—LEGUME FAMILY

Acmispon brachycarpus—foothill deervetch
Acmispon wrangelianus—Chilean bird's-foot trefoil
Lupinus bicolor—miniature lupine
Lupinus formosus—summer lupine
Lupinus microcarpus var. *microcarpus*—valley lupine
Lupinus nanus—sky lupine
Trifolium barbigerum—bearded clover
Trifolium ciliolatum—foothill clover
Trifolium depauperatum var. depauperatum—cowbag clover
Trifolium dichotomum—branched Indian clover
Trifolium gracilentum—pinpoint clover
Trifolium willdenovii—tomcat clover
Hosackia gracilis—harlequin lotus
* *Lotus corniculatus*—bird's-foot trefoil
* *Medicago polymorpha*—burclover

* *Trifolium campestre*—field clover
* *Trifolium dubium*—suckling clover
* *Trifolium glomeratum*—clustered clover
* *Trifolium subterraneum*—subterranean clover
* *Ulex europaeus*—common gorse
Astragalus breweri—Brewer's milk-vetch
Acmispon americanus—Spanish clover

GENTIANACEAE—GENTIAN FAMILY
Cicendia quadrangularis—Oregon timwort
Zeltnera muehlenbergii—Muhlenberg's centaury

GERANIACEAE—GERANIUM FAMILY
* *Erodium cicutarium*—redstem stork's bill
* *Erodium botrys*—longbeak stork's bill
* *Geranium dissectum*—cutleaf geranium
* *Geranium molle*—dovefoot geranium

LAMIACEAE—MINT FAMILY
* *Mentha pulegium*—pennyroyal
Monardella villosa ssp. *villosa*—coyote mint
Stachys ajugoides—bugle hedgenettle
* *Lamium amplexicaule*—henbit deadnettle
* *Lamium purpureum*—purple deadnettle

LYTHRACEAE—LOOSESTRIFE FAMILY
* *Lythrum hyssopifolia*—hyssop loosestrife

MALVACEAE—MALLOW FAMILY
Sidalcea malviflora ssp. *rostrata*—dwarf checkerbloom

MONTIACEAE—MONTIA FAMILY
Calandrinia menziesii—red maids

MYRSINACEAE—MYRSINE FAMILY
* *Lysimachia arvensis*—scarlet pimpernel

ONAGRACEAE—EVENING PRIMROSE FAMILY
Taraxia ovata—goldeneggs

OROBANCHACEAE—BROOM-RAPE FAMILY

Triphysaria eriantha ssp. *eriantha*—johnny-tuck
Triphysaria eriantha ssp. *rosea*—johnny-tuck
Triphysaria versicolor ssp. *faucibarbata*—yellowbeak owl's-clover
Triphysaria versicolor ssp. *versicolor*—yellowbeak owl's-clover
Castilleja affinis ssp. *litoralis*—coast Indian paintbrush
Castilleja ambigua var. *ambigua*—johnny-nip
* *Parentucellia viscosa*—yellow glandweed

PAPAVERACEAE—POPPY FAMILY

Eschscholzia californica—California poppy

PLANTAGINACEAE—PLANTAIN FAMILY

Callitriche marginata—winged water-starwort
* *Plantago lanceolata*—narrowleaf plantain
Plantago erecta—dwarf plantain

POLYGONACEAE—BUCKWHEAT FAMILY

Eriogonum nudum—naked buckwheat
Rumex salicifolius—willow dock
* *Rumex acetosella*—common sheep sorrel
* *Rumex pulcher*—fiddle dock

RANUNCULACEAE—BUTTERCUP FAMILY

Ranunculus californicus—California buttercup
* *Ranunculus muricatus*—spinyfruit buttercup

RHAMNACEAE—BUCKTHORN FAMILY

Frangula californica ssp. *californica*—California buckthorn

ROSACEAE—ROSE FAMILY

Potentilla anserina—silverweed cinquefoil
Acaena pinnatifida var. *californica*—California biddy-biddy
* *Cotoneaster franchetii*—orange cotoneaster
* *Rosa rubiginosa*—sweetbriar rose
* *Rubus armeniacus*—Himalayan black berry

SALICACEAE—WILLOW FAMILY

Salix lasiolepis—arroyo willow

SAXIFRAGACEAE—SAXIFRAGE FAMILY

Lithophragma affine—San Francisco woodland-star

SCROPHULARIACEAE—FIGWORT FAMILY

Scrophularia californica—California figwort

VIOLACEAE—VIOLET FAMILY

Viola pedunculata—Johnny-jump-up

Viola adunca—hookedspur violet

* signifies introduced (non-native) species

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APPENDIX F

Botanical Report

DUDEK

853 LINCOLN WAY, SUITE #208
AUBURN, CALIFORNIA 95603
T 530.885.8232 F 530.885.8372

November 3, 2017 10326

Rich Stabler
Sonoma County Agricultural Preservation and Open Space District
2550 Ventura Avenue
Santa Rosa, California 95403

Subject: Botanical Survey Results for the Estero Trail Project, Sonoma County, California

Dear Mr. Stabler:

This report documents the findings of a botanical survey conducted for the Estero Trail Project (proposed project) near Valley Ford in Sonoma County, California (Figure 1, Regional Map and Figure 2, Site and Vicinity Map). The survey was completed to document existing conditions along the proposed trail alignment and other proposed improvements at the Bordessa property, and to determine whether the project area supports existing special-status plant species, suitable habitat for special-status plant species, or sensitive natural communities.

METHODOLOGY AND CONSTRAINTS

For the purposes of this analysis, the survey area included the proposed trail alignment, any other proposed improvements, and temporary staging areas, plus a 100-foot buffer.

Background Research and Literature Review

Prior to conducting the site survey, a review of pertinent online and literature sources was performed. This review consisted of the following online databases and previous reports:

- The California Department of Fish and Wildlife's California Natural Diversity Database focused on the Valley Ford, California, and eight surrounding U.S. Geological Survey topographic quadrangles (CDFW 2017).
- List of plants in the Valley Ford, California, and eight surrounding U.S. Geological Survey topographic quadrangles from the California Native Plant Society's Inventory of Rare and Endangered Plants of California (CNPS 2017)
- List of potential threatened, endangered, proposed, or candidate species in Sonoma County from the Sacramento Office of the U.S. Fish and Wildlife Service (USFWS 2017)

- Soils map and report for the project area (USDA 2017)
- Rare Plant/Wetland Habitat Assessment–Estero Trail Site, prepared by the County of Sonoma Permit and Resources Management Department (2014)

A list of special-status plant species was generated based on available data. The full list of potentially occurring special-status plant species is included in this report as Attachment 1. An abbreviated list of target special-status species with moderate to high potential to occur was then produced based on available habitat, elevation, soils, geographic range, and past occurrence data. The abbreviated list is discussed further in Table 1 of the Survey Results section of this report. Plants with no to low potential to occur on site due to lack of suitable soils or habitat (Figure 3, Soils Map), or because the project site is outside their known elevation or geographic ranges, are not discussed further in this document.

Survey

Dudek botanist Laura Burris conducted a pedestrian survey of the project area consisting of meandering transects on the following dates: April 13 and 14, May 25 and 26, and August 2 and 3, 2017. The survey followed recommended methodology described in the California Native Plant Society's Botanical Survey Guidelines (CNPS 2001), the California Department of Fish and Wildlife's Protocols for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Natural Communities (CDFW 2009), and the U.S. Fish and Wildlife Service's Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants (USFWS 2000).

The survey was floristic in nature and consisted of walking the trail alignment and a 100-foot buffer. Special-status plant species encountered were recorded using a handheld GPS device. The timing of the survey was such that target species would be evident and identifiable. All botanical resources were identified to a level necessary to determine rarity and botanical nomenclature follows the Jepson Manual: Vascular Plants of California, Second Edition (Baldwin et al. 2012).

Constraints

California has been experiencing a severe drought during the last 5 years and more. Drought can affect native plant populations, including special-status species, in adverse ways. It is possible that annual seeds in the seed bank will not germinate due to lack of rainfall, or perennial species may perish. That being said, the 2016/2017 rain season produced average rainfall and conditions at the project site were consistent with what would be expected during a normal rainfall year.

PROJECT SITE DESCRIPTION

Proposed Project

The proposed project would include the selection of a general location (within the 100-foot buffer area; approximately 50 feet on either side of the proposed trail) for two public access trails over a portion of the approximately 495-acre Bordessa property. The trail easement would be 50 feet wide and approximately 5 miles in length. The proposed trail system would be the principal means for providing comprehensive public access to the property. The trails would be constructed for pedestrian use and hand-carried non-motorized boats, kayaks, and canoes. The trail would be 5 feet wide, with a surface of compacted native material or other permeable surface, including wet crossings made of rock, within the easement. Trail marker posts and benches would be placed along the trail. The existing main access road and gate, or improved replacements, are expected to remain in similar locations. Two staging areas not to exceed 1.5 acres in size would be added to accommodate parking for trail users. Each staging area would be suitable for use by pedestrians, bicyclists, and drivers of motor vehicles. Staging areas may include one or more of the following: restroom facilities, accessible parking, bicycle parking, picnic tables, benches, trash and recycling containers, and operations signage. Likely improvements would consist of entry road improvements and road extension to provide operations, maintenance, emergency vehicle access, and public access to the larger southern staging area.

Soils

According to the Natural Resources Conservation Service (USDA 2017), 10 soil types are mapped within the project site (Figure 3): Blucher fine sandy loam (overwash), 0% to 2% slopes, is a somewhat poorly drained, non-saline to very slightly saline soil derived from sedimentary rock. Kneeland sandy loam (sandy variant), 2% to 15% and 15% to 30% slopes, is a well-drained residuum weathered from sedimentary rock. Kneeland rocky sandy loam (sandy variant), 9% to 30% slopes, is a well-drained residuum weathered from sedimentary rock found on back and side slopes on marine terraces. Los Osos clay loam (thin solum), 30% to 50% slopes, is a well-drained residuum weathered from sedimentary rock found on hillsides. The remaining soil type is Steinbeck loam occurring on 2% to 9% slopes, 9% to 15% slopes, 9% to 15% slopes (eroded), 15% to 30% slopes (eroded), and 30% to 50% slopes (eroded). This is a moderately well-drained residuum weathered from sandstone found on back and side slopes of terraces.

Vegetation Communities and Land Cover Types

The land cover within the project area consists of a combination of terrestrial non-vegetative land covers and natural vegetation communities, as well as aquatic land cover types. The vegetation communities and land covers have been adapted from the Manual of California Vegetation, Second Edition (Sawyer et al. 2009), and the California Wildlife Habitat Relationship System (originally published by Mayer and Laudenslayer in 1988). The following vegetation communities and land cover types have been documented on site and are described in further detail below: California annual grassland, common velvet grass–sweet vernal grass meadows, perennial ryegrass fields, slough sedge swards, purple needlegrass grassland, coyote brush scrub, arroyo willow thickets, eucalyptus groves, Baltic and Mexican rush marshes, ruderal roadways/developed, seasonal wetlands, seep, pond, intermittent drainage, ephemeral drainage, and vegetated swale (Figure 4, Vegetation Communities).

California Annual Grassland. The dominant habitat type in the project area, the California annual grassland on site is dominated by non-native grasses such as slender wild oats (*Avena barbata*), velvet grass (*Holcus lanatus*), big quaking grass (*Briza maxima*), little quakinggrass (*Briza minor*), and annual dogtails (*Cynosurus echinatus*). Also present in this habitat are non-native forbs such as bull thistle (*Cirsium vulgare*), Italian plumeless thistle (*Carduus pycnocephalus*), bird's-foot trefoil (*Lotus corniculatus*), smooth cat's ear (*Hypochaeris glabra*), hairy cat's ear (*H. radicata*), pale flax (*Linum bienne*), and common sheep sorrel (*Rumex acetosella*). Native grasses and forbs were present in less density than the non-natives and include: purple needlegrass (*Stipa pulchra*), meadow barley (*Hordeum brachyantherum*), common yarrow (*Achillea millefolium*), dwarf brodiaea (*Brodiaea terrestris*), California poppy (*Eschscholzia californica*), miniature lupine (*Lupinus bicolor*), blue-eyed grass (*Sisyrinchium bellum*), and western brackenfern (*Pteridium aquilinum*). Congested-headed hayfield tarplant (*Hemizonia congesta* ssp. *congesta*), a California Rare Plant Rank (CRPR) 1B.2 species, was present in large numbers in the grassland on site.

Common Velvet Grass–Sweet Vernal Grass Meadows (*Holcus lanatus–Anthoxanthum odoratum* Herbaceous Semi-Natural Alliance). Common velvet grass–sweet vernal grass meadows on site is co-dominated by these two non-native grass species. This vegetation community generally occurs in more mesic areas of the California annual grassland in the western hills of the project site. Non-native sweet briar rose (*Rosa rubiginosa*) also occurs sporadically in this vegetation community.

Perennial Ryegrass Fields (*Lolium perennis* (*Festuca perennis*) Herbaceous Semi-Natural Alliance). Perennial ryegrass fields on site contain nearly 100% cover of perennial ryegrass (*Festuca perennis*). This vegetation community occurs directly adjacent to the barn on site and is typically associated with moist soils.

Slough Sedge Swards (*Carex obnupta* Herbaceous Alliance). Slough sedge swards occur in the grassland throughout the project site where moisture appears to be maintained in the soil due to the site's microtopography. This vegetation community is dominated by slough sedge (*Carex obnupta*), with some velvet grass, sweet vernal grass, poison hemlock (*Conium maculatum*), and California blackberry (*Rubus ursinus*) interspersed.

Purple Needlegrass Grassland (*Nassella* (*Stipa*) *pulchra* Herbaceous Alliance). Purple needlegrass grassland occurs sporadically throughout the grassland in the southern and western portions of the project site. This vegetation community is characterized by at least 10% total cover of purple needle grass (*Stipa pulchra*). Other species commonly found in this vegetation community include native forbs such as Douglas iris (*Iris douglasiana*), California compassplant (*Wyethia angustifolia*), coyote mint (*Monardella villosa*), and purple sanicle (*Sanicula bipinnatifida*).

Coyote Brush Scrub (*Baccharis pilularis* Shrubland Alliance). Coyote brush (*Baccharis pilularis*) is the dominant shrub in this vegetation community. Coyote brush scrub occurs intermittently in the western portion of the project site, primarily on north- and east-facing hill slopes. Other shrub species observed in this vegetation community include sweet briar rose, California coffee berry (*Frangula californica*), hawthorn (*Crataegus* spp.), and common gorse (*Ulex europaeus*). Scattered Monterey pine trees (*Pinus radiata*) are also present in low numbers within this vegetation community on the northwestern slopes within the project site. The herbaceous understory of this vegetation community contains grass and herb species consistent with those found in California annual grassland, described above, with the addition of a high concentration of western brackenfern.

Arroyo Willow Thickets (*Salix lasiolepis* Shrubland Alliance). Arroyo willow (*Salix lasiolepis*) is the dominant tree cover along the two intermittent drainages on site. Other tree species observed with the arroyo willow along the central drainage include Lombardy poplar (*Populus nigra*) and blue gum (*Eucalyptus globulus*). The understory of this vegetation community primarily consisted of rushes (*Juncus patens* and *J. effusus*) and western brackenfern.

Eucalyptus Groves (*Eucalyptus* (*globulus, camaldulensis*) Woodland Semi-Natural Alliance). Several eucalyptus (also known as blue gum; *Eucalyptus globulus*) groves occur on site, one along an ephemeral drainage in the western portion of the project site and the other

along the main, central intermittent drainage. This vegetation community is dominated by blue gum in the overstory, with sporadic shrub and small tree species in the understory including arroyo willow, hawthorn (*Crataegus* spp.), poison oak (*Toxicodendron diversilobum*), and California blackberry. Western brackenfern and grasses typical of the California annual grassland described above were common in the herbaceous layer.

Baltic and Mexican Rush Marshes (*Juncus (balticus, mexicanus*) Herbaceous Alliance). This vegetation community consisted of a mix of *Juncus* species including *Juncus balticus*, *J. mexicanus*, *J. patens*, and *J. effusus*. The rush marshes occurred along the drainages and adjacent to the Estero where they mixed with pickleweed (*Salicornia* spp.).

Ruderal Roadways/Developed. This land cover type consisted of the developed dirt and gravel access road leading from Highway 1 to the barn on site, as well as the barn and associated anthropogenic influences associated with cattle ranching. Vegetation is generally absent from the access road, and Himalayan blackberry (*Rubus armeniacus*) was common adjacent to the barn.

Seasonal Wetlands. Seasonal wetlands are similar to the seeps on site in that they appear to have some groundwater influence; however, they do not appear to maintain saturation to the extent of the seeps. These wetlands were found primarily in the western portion of the project site on hills and many were associated with microtopography and small depressions in the hillslopes. The dominant species in the seasonal wetlands consisted of slough sedge, poison hemlock, and sweet briar rose.

Seeps. A number of seeps occur within the project site. Seeps are area where groundwater seeps through the top layers of soil, creating hydric conditions in an otherwise xeric area of grassland. Several seeps occur along the intermittent drainages and appear to contribute to the water flow of these systems. Vegetation observed within the seeps include slough sedge, rushes, and poison hemlock.

Intermittent Drainage. There are two intermittent drainages within or directly adjacent to the project site. The central drainage flows from north to south through the center portion of the project site, and the proposed trail alignment crosses it twice. A second drainage borders the proposed trail alignment at the eastern edge of the project site. The channels are characterized by defined bed and bank created by the flow of water through the systems. Common plant species associated with both drainages include rushes (*Juncus effusus*, *J. patens*, *J. mexicanus*), arroyo willow, velvet grass, and sweet vernal grass. Water was present in these drainages during the August surveys and is assumed to be present year-round; however, these features appear only to flow during the rainy season. Where water was ponded, species such as duckweed (*Lemna* spp.) and lanceleaf water plantain (*Alisma lanceolatum*).

Ephemeral Drainage. Two ephemeral drainages occur in the western portion of the project site, draining water runoff from the western hills east to the central intermittent drainage. These two drainages contain defined bed and banks but appear to maintain water flow only during the rainy season. Neither of these drainages held water during the May surveys. The southernmost drainage contains a mature overstory of blue gum, whereas the other does not have a tree canopy. Common species observed in these drainages include Himalayan blackberry, western brackenfern, swordfern (*Polystichum minutum*), and hawthorn.

Vegetated Swale. One vegetated swale occurs directly adjacent and to the west of the gravel access road on site. This feature appears to channel rain water runoff from the hill west of the gravel access road, south to a culvert under the road, and eventually feeds into the central intermittent drainage. Vegetation present in this feature consists primarily of sweet vernal grass, velvet grass, congested-headed hayfield tarplant, and pennyroyal (*Mentha pulegium*).

Representative photographs of the project area are included in Attachment 2 of this report.

SURVEY RESULTS

Based on results of the records searches described above, 116 special-status plant species have been documented in the vicinity of the project site. Of these, 104 species were removed from consideration due to lack of suitable habitat, or low quantity of habitat, or the site was out of the species' known geographic or elevation range (refer to Attachment 1).

The 12 remaining species, Johnny-nip (*Castilleja ambigua* var. *ambigua*), golden larkspur (*Delphinium luteum*), western leatherwood (*Dirca occidentalis*), fragrant fritillary (*Fritillaria liliacea*), woolly-headed gilia (*Gilia capitata* ssp. *tomentosa*), congested-headed hayfield tarplant, harlequin lotus (*Hosackia gracilis*), Baker's goldfields (*Lasthenia californica* ssp. *bakeri*), Point Reyes checkerbloom (*Sidalcea calycosa* ssp. *rhizomata*), purple-stemmed checkerbloom (*Sidalcea malviflora* ssp. *purpurea*), two-fork clover (*Trifolium amoenum*), and San Francisco owl's-clover (*Triphysaria floribunda*) have a moderate or high potential to occur, or have been identified on site during the botanical surveys (Table 1). Plants that were determined to have no or low potential to occur within the project site based on lack of suitable habitat or because the project area is outside the geographic or elevation range of the species are not discussed further in this document.

Table 1
Target Special-Status Species

Scientific Name	Common Name	Status
		Federal/State/CRPR or Other
Castilleja ambigua var. *ambigua*	Johnny-nip	None/None/4.2
Delphinium luteum	golden larkspur	FE/CR/1B.1
Dirca occidentalis	western leatherwood	None/None/1B.2
Fritillaria liliacea	fragrant fritillary	None/None/1B.2
Gilia capitata ssp. *tomentosa*	woolly-headed gilia	None/None/1B.1
Hemizonia congesta ssp. *congesta*	congested-headed hayfield tarplant	None/None/1B.2
Hosackia gracilis	harlequin lotus	None/None/4.2
Lasthenia californica ssp. *bakeri*	Baker's goldfields	None/None/1B.2
Sidalcea calycosa ssp. *rhizomata*	Point Reyes checkerbloom	None/None/1B.2
Sidalcea malviflora ssp. *purpurea*	purple-stemmed checkerbloom	None/None/1B.2
Trifolium amoenum	two-fork clover	FE/None/1B.1
Triphysaria floribunda	San Francisco owl's-clover	None/None/1B.2

Sources: CNPS 2017, CDFW 2017, USFWS 2017.
Notes: CRPR = California Rare Plant Rank.
Federal Status:
FE = federal endangered species
State Status:
CR = California rare species
CRPR:
1B = plants rare, threatened, or endangered in California and elsewhere
4 = plants of limited distribution – a watch list
Threat Ranks:
.1 = seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)
.2 = moderately threatened in California (20%–80% of occurrences threatened/moderate degree and immediacy of threat)

All species observed within the project area were identified to the lowest taxonomic level to determine rarity and are included in this report in Attachment 3.

The following special-status plant species were identified on site during the botanical survey and are discussed in further detail in the following section: Johnny-nip, congested-headed hayfield tarplant, and harlequin lotus.

Johnny-Nip (*Castilleja ambigua* var. *ambigua*). Johnny-nip is a hemiparasitic annual herb found in coastal bluff scrub, coastal prairie, coastal scrub, marshes and swamps, alley and foothill grassland, and along the margins of vernal pools. This species generally blooms from March through August at elevations ranging from 0 to 1,427 feet above mean sea level (amsl) (CNPS 2017). Johnny-nip has a CRPR of 4.2, meaning it is of limited distribution in California and fairly endangered in California (CNPS 2017).

This species was observed in the grassland habitat in the eastern portion of the project site during the 2017 botanical survey (Figure 5, Botanical Resources). Approximately nine individuals were documented. Common associates of this species included congested-headed hayfield tarplant, meadow barley, and California button-celery (*Eryngium aristulatum*).

Congested-Headed Hayfield Tarplant (*Hemizonia congesta* ssp. *congesta*). Congested-headed hayfield tarplant is an annual herb found in valley and foothill grasslands and sometimes along roadways. This species generally blooms from April through November at elevations ranging from 66 to 1,837 feet amsl (CNPS 2017). Congested-headed hayfield tarplant has a CRPR of 1B.2, meaning it is rare or endangered in California and elsewhere (CNPS 2017).

This species was observed in the grassland habitat throughout the project site during the 2017 botanical survey. Thousands of individuals were documented, with the largest populations located on west-facing slopes east of the central drainage (Figure 4). Common associates of this species on site include meadow barley,

Harlequin Lotus (*Hosackia gracilis*). Harlequin lotus is a perennial rhizomatous herb found in wetlands and along roadsides in the following habitats: broadleafed upland forest, coastal bluff scrub, closed-cone coniferous forest, cismontane woodland, coastal prairie, coastal scrub, meadows and seeps, marshes and swamps, north coast coniferous forest, and valley and foothill grassland. This species generally blooms from March through July at elevations ranging from 0 to 2,297 feet amsl (CNPS 2017). Harlequin lotus has a CRPR of 4.2, meaning it is of limited distribution in California and fairly endangered in California.

This species was observed in the grassland habitat throughout the project site during the botanical survey, although it was most commonly associated with more mesic grasslands and conditions. Hundreds of individuals were documented primarily in the northern half of the project site (Figure 4). Species commonly associated with harlequin lotus include big quakinggrass, slough sedge, common sheep sorrel, and velvet grass.

CONCLUSIONS AND RECOMMENDATIONS

Three special-status plant species (Johnny-nip, congested-headed hayfield tarplant, and harlequin lotus) were documented on site. Development of the proposed trail alignment would result in impacts to special-status species through ground-disturbing activities associated with trail construction. The following avoidance, minimization, and mitigation measures should be implemented to reduce impacts on special-status plant populations on site:

1. If construction of the proposed project does not take place within 1 year of the completion of this report, additional rare plant surveys are recommended. Many special-

status plant species are annuals and thus may lie dormant in seedbanks or shift geographic location based on annual weather conditions.

2. Prior to ground disturbance in areas occupied by congested-headed hayfield tarplant, a salvage and translocation plan should be developed and implemented. The plan should include plant collection and replanting methods and locations. Because this species is an annual, methods of translocation may include collection of seed, if timing is appropriate, or collection of topsoil. The seed and/or topsoil should be placed in an area of similar topography and soils to ensure the greatest likelihood of translocation success.
3. Buffers (either physical or spatial) should be implemented between the trail alignment and special-status plants/unique native plant assemblages to discourage off-trail exploration/ flower picking.

In accordance with survey guidance, if the project does not commence within 1 year, the botanical surveys should be repeated to verify the distribution of special-status species and to document any additional species that may have sprouted from the seedbank or may have been subsequently introduced in the project area.

Please contact Laura Burris at lburris@dudek.com or 916.835.9671 if there are any questions or concerns regarding the information presented herein.

Sincerely,



Laura Burris
Botanist
CDFW Voucher Plant Collection Permit No. 2081(a)-10-55-V

Attachments

Figures 1–5
1 Special-Status Plant Species Potential to Occur within the Project Area
2 Representative Site Photographs
3 Plant Species Observed within the Project Area

cc: Christine Kronenberg, Dudek

REFERENCES

Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken, eds. 2012. *The Jepson Manual: Vascular Plants of California*. Second Edition. Berkeley, California: University of California Press.

CDFW (California Department of Fish and Wildlife). 2009. *Protocols for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Natural Communities*. Sacramento, California: CDFW. November 24, 2009.

CDFW. 2017. Rarefind 5. California Natural Diversity Database. CDFW, Biogeographic Data Branch. Accessed March 2017. https://map.dfg.ca.gov/rarefind/view/RareFind.aspx.

CNPS (California Native Plant Society). 2001. *CNPS Botanical Survey Guidelines*. Sacramento, California: CNPS. Revised June 2, 2001.

CNPS. 2017. "Inventory of Rare and Endangered Plants." Online edition, v8-02. Sacramento, California: CNPS, Rare Plant Program. Accessed March 2017. http://www.rareplants.cnps.org.

County of Sonoma. 2014. *Rare Plant/Wetland Habitat Assessment–Estero Trail Site*. County of Sonoma, Permit and Resources Management Department.

Sawyer, J.O., T. Keeler-Wolf, and J.M. Evens. 2009. *A Manual of California Vegetation, Second Edition*. Sacramento, California: California Native Plant Society.

USDA (U.S. Department of Agriculture). 2017. Web Soil Survey for Placer County. USDA Natural Resources Conservation Service, Soil Survey Staff. Accessed March 2017. http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm.

USFWS (U.S. Fish and Wildlife Service). 2000. *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants*.

USFWS. 2017. "List of Threatened, Endangered, Potential, or Candidate Species in Placer County." Sacramento, California: USFWS. Accessed March 2017.



SOURCE: ArcGIS Online Basemap

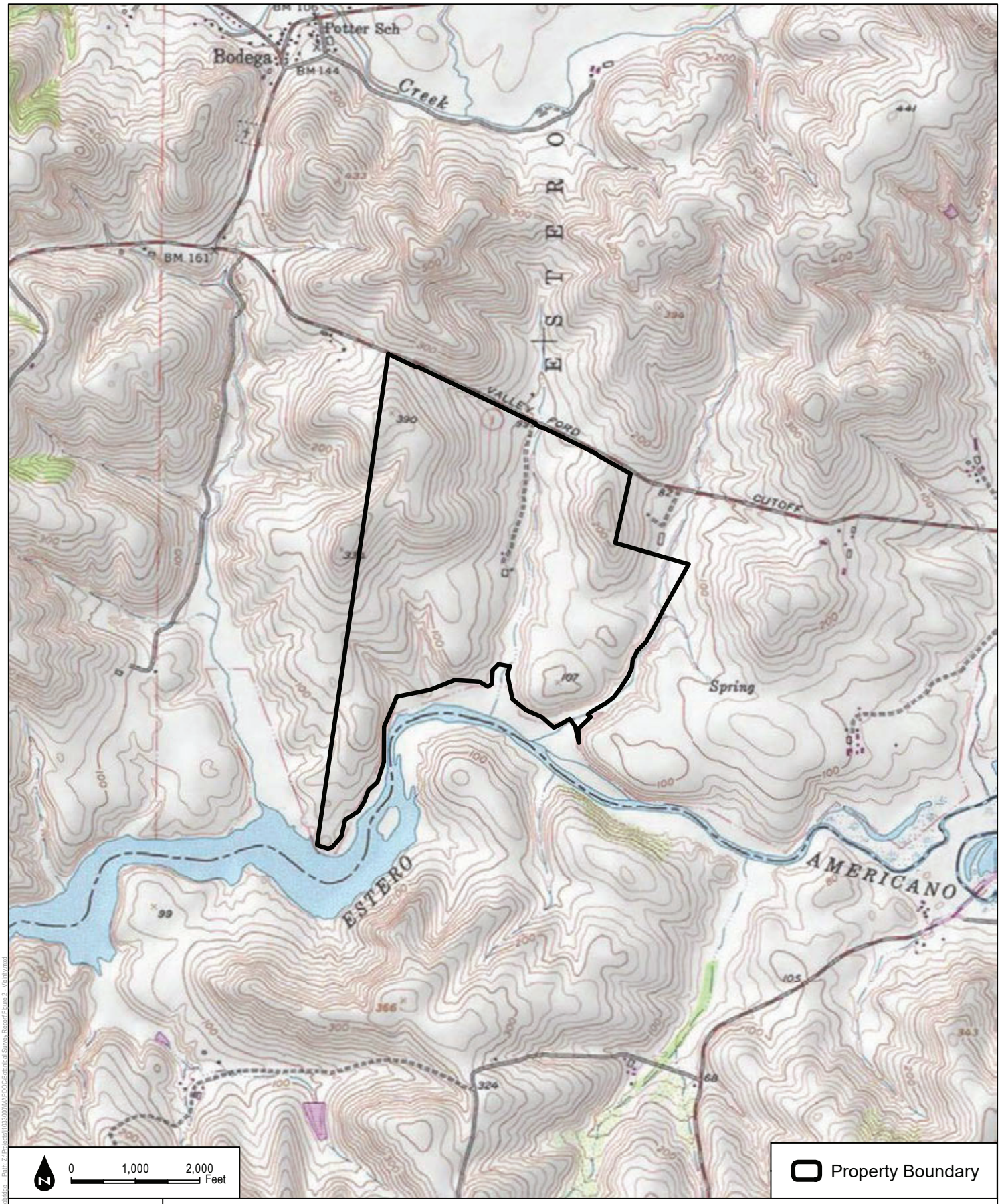
FIGURE 1

Regional Map

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Bordessa Ranch - Estero Trail

Botanical Survey Report



SOURCE: USGS 7.5-Minute Series Valley Ford Quadrangle
Township 6N; Range 10W; Sections 27, 28, 33, 34

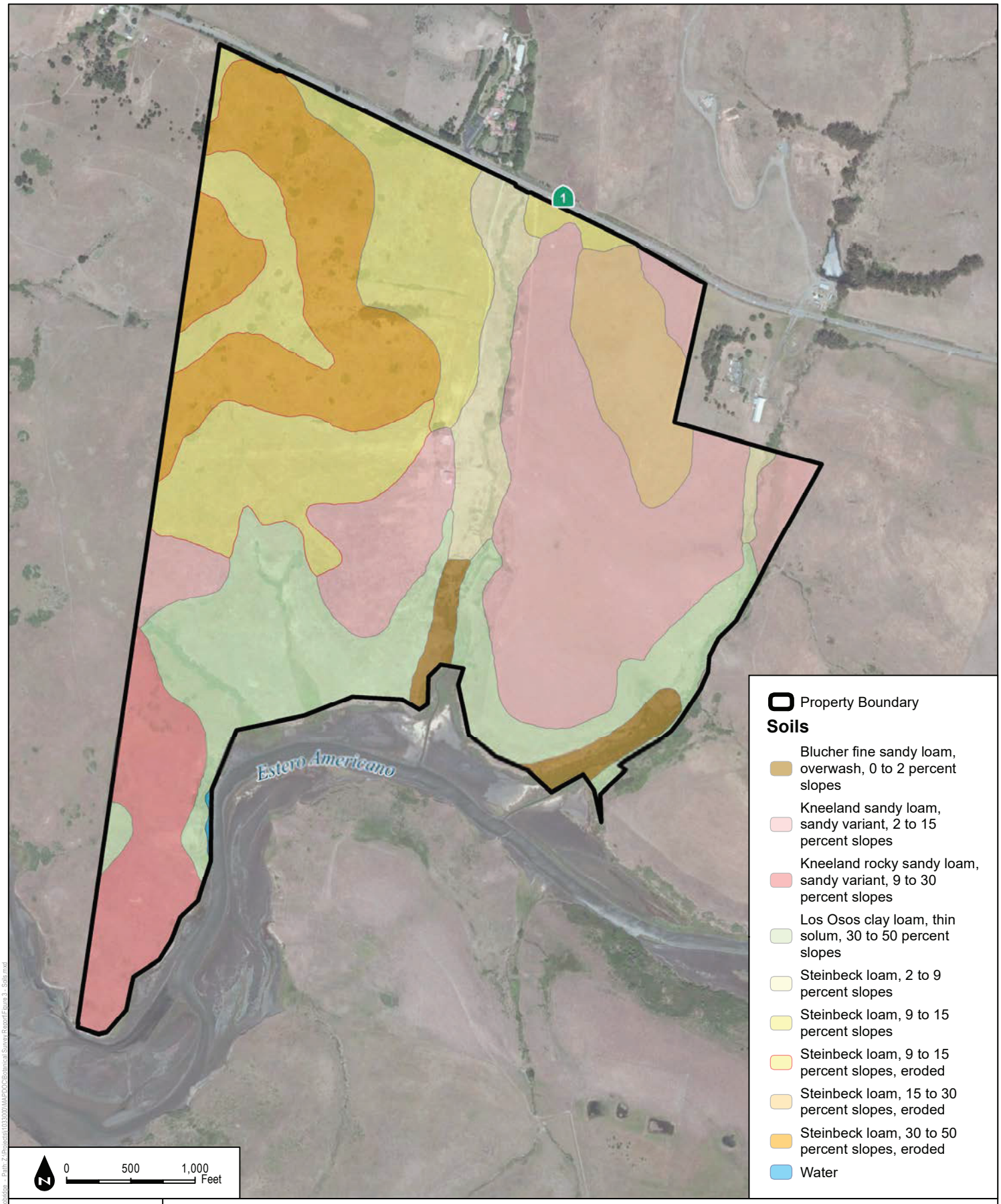
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FIGURE 2
Vicinity Map

Bordessa Ranch - Estero Trail

Botanical Survey Report

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SOURCE: Bing Maps (Accessed 2017); USDA NRCS Soils

FIGURE 3

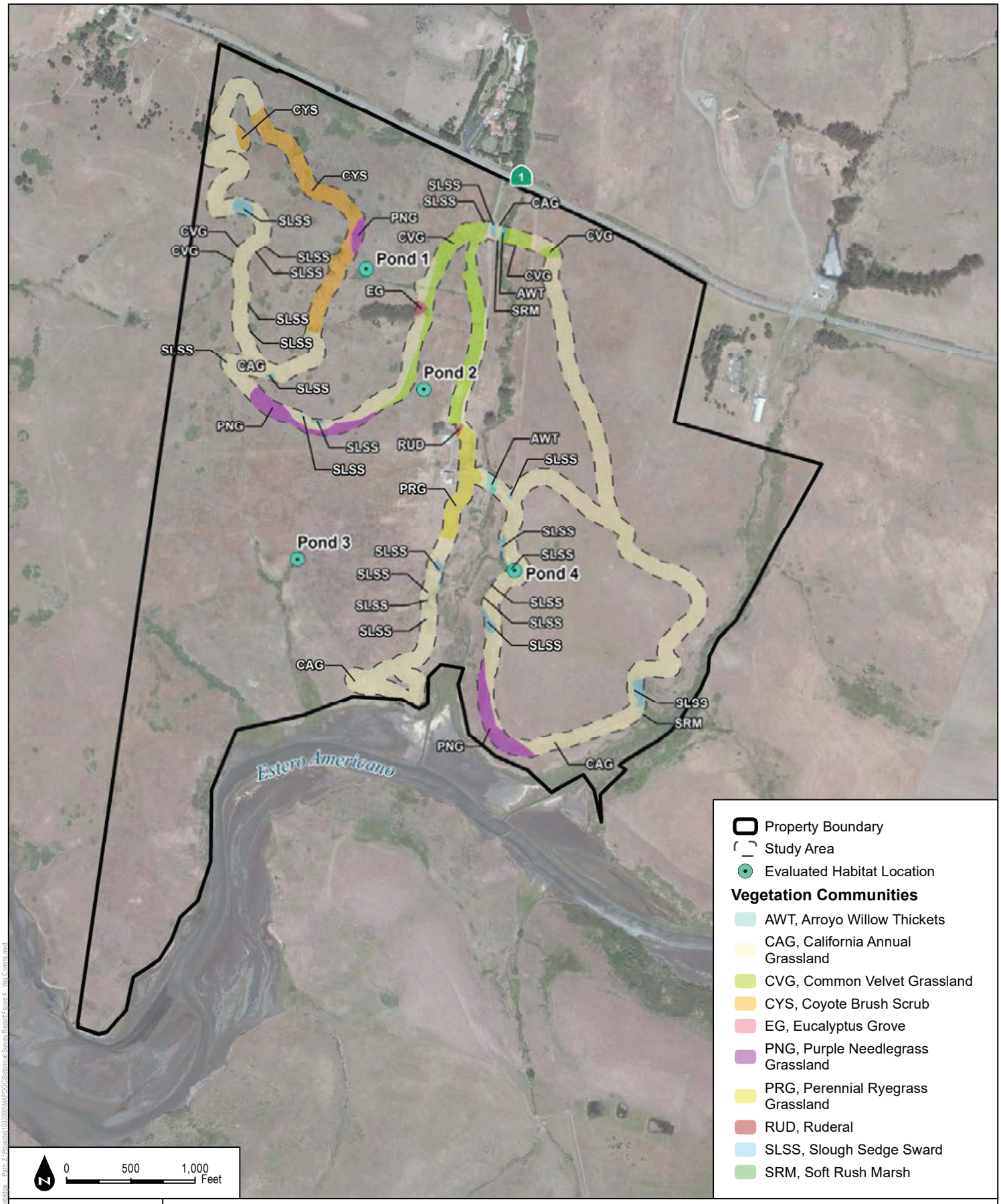
Soils Map

DUDEK

Bordessa Ranch - Estero Trail

Botanical Survey Report

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SOURCE: Bing Maps (Accessed 2017)

FIGURE 4

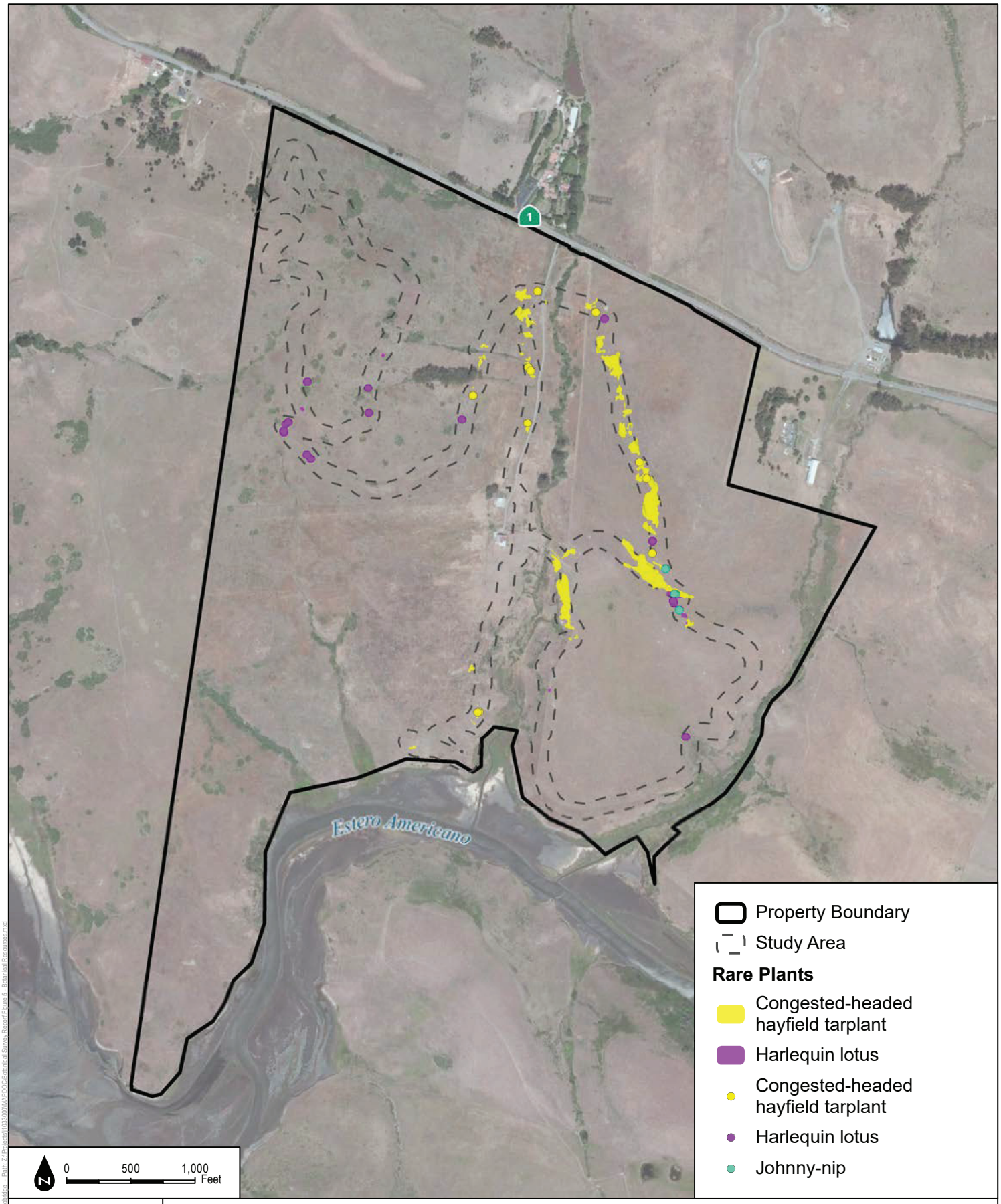
Vegetation Communities

DUDEK

Bordessa Ranch - Estero Trail

Botanical Survey Report

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SOURCE: Bing Maps (Accessed 2017)

FIGURE 5

Botanical Resources

DUDEK

Bordessa Ranch - Estero Trail

Botanical Survey Report

ATTACHMENT 1

Special-Status Plant Species Potential to Occur within the Project Area

ATTACHMENT 1
Special-Status Plant Species Potential to Occur within the Project Area

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/Life Form/| | Blooming Period/Elevation Range (feet amsl)	Potential to Occur
Abronia umbellata var. *breviflora*	pink sand-verbena	None/None/1B.1	Coastal dunes/perennial herb/June–Oct/0–33	**Not expected to occur**. No suitable dune habitat present. The nearest documented occurrence of this species is located approximately 3.5 miles west near Bodega Bay (CDFW 2017).
Agrostis blasdalei	Blasdale's bent grass	None/None/1B.2	Coastal bluff scrub, coastal dunes, coastal prairie/perennial rhizomatous herb/May–July/0–492	**Not expected to occur**. No suitable coastal habitat present. The nearest documented occurrence of this species is located approximately 4 miles west near Bodega Head (CDFW 2017).
Allium peninsulare var. *franciscanum*	Franciscan onion	None/None/1B.2	Cismontane woodland, valley and foothill grassland; clay, volcanic, often serpentinite/perennial bulbiferous herb/May–June/171–1,001	**Low potential to occur**. Although there is there is potentially suitable grassland habitat at the project site, the nearest documented occurrence of this spices is approximately 4 miles northwest of the site along the coast (CDFW 2017). This species was not observed during the 2017 botanical survey.
Alopecurus aequalis var. *sonomensis*	Sonoma alopecurus	FE/None/1B.1	Marshes and swamps (freshwater), riparian scrub/perennial herb/May–July/16–1,198	**Low potential to occur**. There is potentially suitable habitat for this species in the riparian habitat on site. The nearest documented occurrence for this species is located approximately 4.5 miles east of the site along Highway 1 (CDFW 2017). This species was not observed during the 2017 botanical survey.
Amorpha californica var. *napensis*	Napa false indigo	None/None/1B.2	Broadleafed upland forest (openings), chaparral, cismontane woodland/perennial deciduous shrub/Apr–July/394–6,562	**Not expected to occur**. No suitable chaparral or woodland habitat present.
Amsinckia lunaris	bent-flowered fiddleneck	None/None/1B.2	Coastal bluff scrub, cismontane woodland, valley and foothill grassland/annual herb/Mar–June/10–1,640	**Not expected to occur.** Although there is potentially suitable grassland habitat on site, the nearest documented occurrence for this species is located more than 10 miles northeast of the project site, near Santa Rosa (CDFW 2017).

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/Life Form/| | Blooming Period/Elevation Range (feet amsl)	Potential to Occur
Arabis blepharophylla	coast rockcress	None/None/4.3	Broadleafed upland forest, coastal bluff scrub, coastal prairie, coastal scrub; rocky/perennial herb/Feb–May/10–3,609	**Low potential to occur**. Although the annual grassland in the project site may provide potentially suitable habitat for this species, rocky habitat was scarce and this species was not observed during the 2017 surveys. The nearest documented occurrence of this species was last recorded in 1974 along Highway 1, approximately 0.5 miles west of the project site (Consortium of California Herbaria 2011).
Arctostaphylos bakeri ssp. *bakeri*	Baker's manzanita	None/CR/1B.1	Broadleafed upland forest, chaparral; often serpentinite/perennial evergreen shrub/Feb–Apr/246–984	**Not expected to occur**. No suitable forest or chaparral habitat present.
Arctostaphylos densiflora	Vine Hill manzanita	None/CE/1B.1	Chaparral (acid marine sand)/perennial evergreen shrub/Feb–Apr/164–394	**Not expected to occur**. No suitable chaparral habitat present.
Arctostaphylos hispidula	Howell's manzanita	None/None/4.2	Chaparral (serpentinite or sandstone)/perennial evergreen shrub/Mar–Apr/394–4,101	**Not expected to occur**. No suitable chaparral habitat present.
Arctostaphylos stanfordiana ssp. *decumbens*	Rincon Ridge manzanita	None/None/1B.1	Chaparral (rhyolitic), cismontane woodland/perennial evergreen shrub/Feb–Apr (May)/246–1,214	**Not expected to occur**. No suitable woodland or chaparral habitat present.
Arctostaphylos virgata	Marin manzanita	None/None/1B.2	Broadleafed upland forest, closed-cone coniferous forest, chaparral, north coast coniferous forest; sandstone or granitic/perennial evergreen shrub/Jan–Mar/197–2,297	**Not expected to occur**. No suitable forest or chaparral habitat present.
Blennosperma bakeri	Sonoma sunshine	FE/CE/1B.1	Valley and foothill grassland (mesic), vernal pools/annual herb/Mar–May/33–361	**Not expected to occur**. Although there is potentially suitable habitat in mesic areas of the grassland on site, the site is outside of the known geographic region for this species. The nearest documented occurrences for this species are located greater than 10 miles northeast of the site near Santa Rosa (CDFW 2017).

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/Life Form/| | Blooming Period/Elevation Range (feet amsl)	Potential to Occur
Blennosperma nanum var. *robustum*	Point Reyes blennosperma	None/CR/1B.2	Coastal prairie, coastal scrub/annual herb/Feb–Apr/33–476	**Not expected to occur**. Although there is potentially suitable habitat in the grassland on site, the site is outside of the known geographic region for this species. The nearest documented occurrences for this species are located greater than 5 miles south of the site near Point Reyes (CDFW 2017).
Calamagrostis bolanderi	Bolander's reed grass	None/None/4.2	Bogs and fens, broadleafed upland forest, closed-cone coniferous forest, coastal scrub, meadows and seeps (mesic), marshes and swamps (freshwater), north coast coniferous forest; mesic/perennial rhizomatous herb/May–Aug/0–1,493	**Low potential to occur**. The wet areas of the grassland on site may provide potentially suitable habitat for this species; however, the nearest documented occurrence of this species was observed in 1961 approximately 2 miles north of the project site (Consortium of California Herbaria 2011).
Calamagrostis crassiglumis	Thurber's reed grass	None/None/2B.1	Coastal scrub (mesic), marshes and swamps (freshwater)/perennial rhizomatous herb/May–Aug/33–197	**Not expected to occur**. Although there is potentially suitable habitat in mesic areas of the grassland on site, the site is outside of the known geographic region for this species. The nearest documented occurrences for this species are located greater than 5 miles west of the site near Bodega Head (CDFW 2017).
Calochortus umbellatus	Oakland star-tulip	None/None/4.2	Broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland; often serpentinite/perennial bulbiferous herb/Mar–May/328–2,297	**Not expected to occur**. Although the grassland on site may provide potentially suitable habitat for this species, it has not been previously documented in Sonoma County (Consortium of California Herbaria 2011).
Calochortus uniflorus	pink star-tulip	None/None/4.2	Coastal prairie, coastal scrub, meadows and seeps, north coast coniferous forest/perennial bulbiferous herb/Apr–June/33–3,510	**Not expected to occur**. Although the grassland on site may provide potentially suitable habitat for this species, the nearest documented occurrence was observed in 1990 approximately 4 miles northwest of the project site (Consortium of California Herbaria 2011).
Calystegia purpurata ssp. *saxicola*	coastal bluff morning-glory	None/None/1B.2	Coastal bluff scrub, coastal dunes, coastal scrub, north coast coniferous forest/perennial herb/(Mar) Apr–Sep/33–344	**Not expected to occur**. No suitable dune, scrub, or forest habitat present.

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/Life Form/| | Blooming Period/Elevation Range (feet amsl)	Potential to Occur
Campanula californica	swamp harebell	None/None/1B.2	Bogs and fens, closed-cone coniferous forest, coastal prairie, meadows and seeps, marshes and swamps (freshwater), north coast coniferous forest; mesic/perennial rhizomatous herb/June–Oct/3–1,329	**Low potential to occur**. Although the mesic areas in the grassland might provide potentially suitable habitat for this species, the nearest documented occurrences are located approximately 5 miles west and south of the project site, along the coast (CDFW 2017). This species was not observed during the 2017 botanical survey.
Carex comosa	bristly sedge	None/None/2B.1	Coastal prairie, marshes and swamps (lake margins), valley and foothill grassland/perennial rhizomatous herb/May–Sep/0–2,051	**Low potential to occur**. Although the mesic areas in the grassland might provide potentially suitable habitat for this species, the nearest documented occurrences are located approximately 5 miles west of the project site, along the coast (CDFW 2017). This species was not observed during the 2017 botanical survey.
Castilleja ambigua var. *ambigua*	Johnny-nip	None/None/4.2	Coastal bluff scrub, coastal prairie, coastal scrub, marshes and swamps, valley and foothill grassland, vernal pools (margins)/annual herb (hemiparasitic)/Mar–Aug/0–1,427	**Present**. This species was documented on site during the 2017 botanical surveys.
Castilleja ambigua var. *humboldtiensis*	Humboldt Bay owl's-clover	None/None/1B.2	Marshes and swamps (coastal salt)/annual herb (hemiparasitic)/Apr–Aug/0–10	**Low potential to occur**. Although the mesic areas in the grassland and along the drainage may provide potentially suitable habitat for this species, the nearest documented occurrences are located approximately 6.5 miles south of the project site, along the coast (CDFW 2017). This species was not observed during the 2017 botanical survey.
Castilleja leschkeana	Point Reyes paintbrush	None/None/1A	Marshes and swamps (coastal)/perennial herb (hemiparasitic)/June/0–33	**Not expected to occur.** The site is outside the known geographic range for this species, which is limited to the Point Reyes area (CDFW 2017).
Castilleja uliginosa	Pitkin Marsh paintbrush	None/CE/1A	Marshes and swamps (freshwater)/perennial herb (hemiparasitic)/June–July/787–787	**Not expected to occur**. The site is outside the known geographical and elevation range for this species.
Ceanothus confusus	Rincon Ridge ceanothus	None/None/1B.1	Closed-cone coniferous forest, chaparral, cismontane woodland; volcanic or serpentinite/perennial evergreen shrub/Feb–June/246–3,494	**Not expected to occur**. No suitable forest, chaparral, or woodland habitat present.

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/Life Form/| | Blooming Period/Elevation Range (feet amsl)	Potential to Occur
Ceanothus foliosus var. *vineatus*	Vine Hill ceanothus	None/None/1B.1	Chaparral/perennial evergreen shrub/Mar–May/148–1,001	**Not expected to occur**. No suitable chaparral habitat present and the site is outside the known geographical range for this species.
Ceanothus gloriosus var. *exaltatus*	glory brush	None/None/4.3	Chaparral/perennial evergreen shrub/Mar–June (Aug)/98–2,001	**Not expected to occur**. No suitable chaparral habitat present.
Ceanothus gloriosus var. *gloriosus*	Point Reyes ceanothus	None/None/4.3	Coastal bluff scrub, closed-cone coniferous forest, coastal dunes, coastal scrub; sandy/perennial evergreen shrub/Mar–May/16–1,706	**Not expected to occur**. No suitable sandy soils or forest habitat present.
Ceanothus gloriosus var. *porrectus*	Mt. Vision ceanothus	None/None/1B.3	Closed-cone coniferous forest, coastal prairie, coastal scrub, valley and foothill grassland/perennial evergreen shrub/Feb–May/82–1,001	**Not expected to occur**. The project site is outside the known geographic range for this species, which is limited to the Point Reyes area (CDFW 2017).
Ceanothus masonii	Mason's ceanothus	None/CR/1B.2	Chaparral (openings, rocky, serpentinite)/perennial evergreen shrub/Mar–Apr/755–1,640	**Not expected to occur**. No suitable chaparral habitat present and the site is outside the species' known elevation range.
Ceanothus purpureus	holly-leaved ceanothus	None/None/1B.2	Chaparral, cismontane woodland; volcanic, rocky/perennial evergreen shrub/Feb–June/394–2,100	**Not expected to occur**. No suitable chaparral or woodland habitat present.
Chloropyron maritimum ssp. *palustre*	Point Reyes bird's-beak	None/None/1B.2	Marshes and swamps (coastal salt)/annual herb (hemiparasitic)/June–Oct/0–33	**Not expected to occur**. There is no suitable coastal salt marsh present.
Chorizanthe cuspidata var. *cuspidata*	San Francisco Bay spineflower	None/None/1B.2	Coastal bluff scrub, coastal dunes, coastal prairie, coastal scrub; sandy/annual herb/Apr–July (Aug)/10–705	**Not expected to occur**. No suitable sandy soil substrates are present.
Chorizanthe cuspidata var. *villosa*	woolly-headed spineflower	None/None/1B.2	Coastal dunes, coastal prairie, coastal scrub; sandy/annual herb/May–July (Aug)/10–197	**Not expected to occur**. No suitable sandy soil substrates are present.
Chorizanthe robusta var. *robusta*	robust spineflower	FE/None/1B.1	Chaparral (maritime), cismontane woodland (openings), coastal dunes, coastal scrub; sandy or gravelly/annual herb/Apr–Sep/10–984	**Not expected to occur**. No suitable sand soils or dune habitat present.
Chorizanthe valida	Sonoma spineflower	FE/CE/1B.1	Coastal prairie (sandy)/annual herb/June–Aug/33–1,001	**Not expected to occur**. No suitable sandy coastal prairie is present at the site.

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Cicuta maculata var. *bolanderi*	Bolander's water-hemlock	None/None/2B.1	Marshes and swamps; coastal, fresh or brackish water/perennial herb/July–Sep/0–656	**Not expected to occur**. The project site is outside the known geographic range for this species and there is no suitable vernal pool habitat present. The nearest documented occurrence is located greater than 10 miles south of the project site (CDFW 2017).
Cirsium andrewsii	Franciscan thistle	None/None/1B.2	Broadleafed upland forest, coastal bluff scrub, coastal prairie, coastal scrub; mesic, sometimes serpentinite/perennial herb/Mar–July/0–492	**Not expected to occur**. Suitable coastal habitat is not present. The nearest documented occurrence for this species is located approximately 3 miles west of the project site, near Bodega Bay (CDFW 2017).
Clarkia concinna ssp. *raichei*	Raiche's red ribbons	None/None/1B.1	Coastal bluff scrub/annual herb/Apr–May/0–328	**Not expected to occur**. No suitable coastal bluff scrub habitat present.
Clarkia imbricata	Vine Hill clarkia	FE/CE/1B.1	Chaparral, valley and foothill grassland; acidic sandy loam/annual herb/June–Aug/164–246	**Not expected to occur**. The site is outside the known geographic range for this species, which is known exclusively from the Vine Hill region (CDFW 2017).
Collomia diversifolia	serpentine collomia	None/None/4.3	Chaparral, cismontane woodland; serpentinite, rocky or gravelly/annual herb/May–June/656–1,969	**Not expected to occur**. No suitable woodland or chaparral habitat present and the site is outside the species' known elevation range.
Cordylanthus tenuis ssp. *brunneus*	serpentine bird's-beak	None/None/4.3	Closed-cone coniferous forest, chaparral, cismontane woodland; usually serpentinite/annual herb (hemiparasitic)/July–Aug/1,001–3,002	**Not expected to occur**. The site is outside of the species' known elevation range and there is no suitable forest, chaparral, or woodland habitat present.
Cordylanthus tenuis ssp. *capillaris*	Pennell's bird's-beak	FE/CR/1B.2	Closed-cone coniferous forest, chaparral; serpentinite/annual herb (hemiparasitic)/June–Sep/148–1,001	**Not expected to occur**. No suitable forest or chaparral habitat present.
Cuscuta obtusiflora var. *glandulosa*	Peruvian dodder	None/None/2B.2	Marshes and swamps (freshwater)/annual vine (parasitic)/July–Oct/49–919	**Not expected to occur**. No suitable freshwater marsh habitat present.
Cuscuta pacifica var. *papillata*	Mendocino dodder	None/None/1B.2	Coastal dunes (interdune depressions)/annual vine (parasitic)/July–Oct/0–164	**Not expected to occur**. No suitable dune habitat present.
Cypripedium californicum	California lady's-slipper	None/None/4.2	Bogs and fens, lower montane coniferous forest; seeps and streambanks, usually serpentinite/perennial rhizomatous herb/Apr–Aug (Sep)/98–9,022	**Not expected to occur**. No suitable forest habitat present.

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/Life Form/| | Blooming Period/Elevation Range (feet amsl)	Potential to Occur
Delphinium bakeri	Baker's larkspur	FE/CE/1B.1	Broadleafed upland forest, coastal scrub, valley and foothill grassland; decomposed shale, often mesic/perennial herb/Mar–May/262–1,001	**Not expected to occur**. No suitable decomposed shale soil substrates present. The nearest documented occurrence for this species is located approximately 5 miles south of the project site (CDFW 2017).
Delphinium luteum	golden larkspur	FE/CR/1B.1	Chaparral, coastal prairie, coastal scrub; rocky/perennial herb/Mar–May/0–328	**Moderate potential to occur**. The grassland on site may provide potentially suitable habitat for this species. The nearest documented occurrence for this species is located approximately 1.3 miles west of the project site (CDFW 2017).
Dirca occidentalis	western leatherwood	None/None/1B.2	Broadleafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, north coast coniferous forest, riparian forest, riparian woodland; mesic/perennial deciduous shrub/Jan–Mar (Apr)/82–1,394	**Moderate potential to occur**. The drainages on site provide potentially suitable habitat for this species. It was not observed during the 2017 botanical surveys.
Downingia pusilla	dwarf downingia	None/None/2B.2	Valley and foothill grassland (mesic), vernal pools/annual herb/Mar–May/3–1,460	**Not expected to occur**. The project site is outside the known geographic range for this species and there is no suitable vernal pool habitat present. The nearest documented occurrence is located greater than 10 miles northeast of the project site (CDFW 2017).
Eleocharis parvula	small spikerush	None/None/4.3	Marshes and swamps/perennial herb/(Apr) June–Aug (Sep)/3–9,908	**Not expected to occur**. Although freshwater emergent wetland adjacent to the drainage on site may provide potentially suitable habitat for this species, the nearest documented occurrence is located approximately 3 miles north along Lower Salmon Creek and was last documented in 1973 (Consortium of California Herbaria 2011).
Erigeron biolettii	streamside daisy	None/None/3	Broadleafed upland forest, cismontane woodland, north coast coniferous forest; rocky, mesic/perennial herb/June–Oct/98–3,609	**Not expected to occur**. No suitable forest or woodland habitat present.
Erigeron greenei	Greene's narrow-leaved daisy	None/None/1B.2	Chaparral (serpentinite or volcanic)/perennial herb/May–Sep/262–3,297	**Not expected to occur**. No suitable chaparral habitat present.
Erigeron serpentinus	serpentine daisy	None/None/1B.3	Chaparral (serpentinite, seeps)/perennial herb/May–Aug/197–2,198	**Not expected to occur**. No suitable chaparral habitat present.

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/Life Form/| | Blooming Period/Elevation Range (feet amsl)	Potential to Occur
Eriophorum gracile	slender cottongrass	None/None/4.3	Bogs and fens, meadows and seeps, upper montane coniferous forest; acidic/perennial rhizomatous herb/May–Sep/4,199–9,514	**Not expected to occur**. The site is outside of the species' known elevation range.
Erysimum concinnum	bluff wallflower	None/None/1B.2	Coastal bluff scrub, coastal dunes, coastal prairie/annual / perennial herb/Feb–July/0–607	**Not expected to occur**. Suitable bluff and dune habitat are not present on site. The nearest documented occurrence for this species is located approximately 3 miles west of the project site near Bodega Bay (CDFW 2017).
Erysimum franciscanum	San Francisco wallflower	None/None/4.2	Chaparral, coastal dunes, coastal scrub, valley and foothill grassland; often serpentinite or granitic, sometimes roadsides/perennial herb/Mar–June/0–1,804	**Not expected to occur**. Although grassland on site may provide potentially suitable habitat for this species, the nearest documented occurrence was last observed in 1902 approximately 2 miles west of the project site along Highway 1 (Consortium of California Herbaria 2011).
Erythronium revolutum	coast fawn lily	None/None/2B.2	Bogs and fens, broadleafed upland forest, north coast coniferous forest; mesic, streambanks/perennial bulbiferous herb/Mar–July (Aug)/0–5,249	**Not expected to occur**. No suitable forest habitat present.
Fissidens pauperculus	minute pocket moss	None/None/1B.2	North coast coniferous forest (damp coastal soil)/moss/NA/33–3,360	**Not expected to occur**. No suitable forest habitat present.
Fritillaria lanceolata var. *tristulis*	Marin checker lily	None/None/1B.1	Coastal bluff scrub, coastal prairie, coastal scrub/perennial bulbiferous herb/Feb–May/49–492	**Not expected to occur**. The project site is outside the known geographic range for this species. The nearest documented occurrence is located greater than 5 miles south of the project site near Point Reyes (CDFW 2017).
Fritillaria liliacea	fragrant fritillary	None/None/1B.2	Cismontane woodland, coastal prairie, coastal scrub, valley and foothill grassland; often serpentinite/perennial bulbiferous herb/Feb–Apr/10–1,345	**Moderate potential to occur**. Mesic areas in the grassland on site may provide potentially suitable habitat for this species. The nearest documented occurrence for this species is located directly north and adjacent to the project site; however, this occurrence was last documented in 1924 (CDFW 2017).
Gilia capitata ssp. *chamissonis*	blue coast gilia	None/None/1B.1	Coastal dunes, coastal scrub/annual herb/Apr–July/7–656	**Not expected to occur**. No suitable dune or scrub habitat present.

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/Life Form/| | Blooming Period/Elevation Range (feet amsl)	Potential to Occur
Gilia capitata ssp. *pacifica*	Pacific gilia	None/None/1B.2	Coastal bluff scrub, chaparral (openings), coastal prairie, valley and foothill grassland/annual herb/Apr–Aug/16–5,463	**Not expected to occur**. The project site is outside the known geographic range for this species. The nearest documented occurrence is located greater than 10 miles north of the project site (CDFW 2017).
Gilia capitata ssp. *tomentosa*	woolly-headed gilia	None/None/1B.1	Coastal bluff scrub, valley and foothill grassland; serpentinite, rocky, outcrops/annual herb/May–July/33–722	**Moderate potential to occur**. Rocky outcrops in the grassland on site may provide potentially suitable habitat for this species. The nearest documented occurrence for this species is located approximately 2 miles west of the project site (CDFW 2017).
Gilia millefoliata	dark-eyed gilia	None/None/1B.2	Coastal dunes/annual herb/Apr–July/7–98	**Not expected to occur**. No suitable dune habitat present.
Grindelia hirsutula var. *maritima*	San Francisco gumplant	None/None/3.2	Coastal bluff scrub, coastal scrub, valley and foothill grassland; sandy or serpentinite/perennial herb/June–Sep/49–1,312	**Not expected to occur**. There is no suitable sandy or serpentine soil substrates on site.
Hemizonia congesta ssp. *congesta*	congested-headed hayfield tarplant	None/None/1B.2	Valley and foothill grassland; sometimes roadsides/annual herb/Apr–Nov/66–1,837	**Present**. This species was documented at the site during the 2017 botanical surveys.
Hesperevax sparsiflora var. *brevifolia*	short-leaved evax	None/None/1B.2	Coastal bluff scrub (sandy), coastal dunes, coastal prairie/annual herb/Mar–June/0–705	**Not expected to occur**. There are no suitable sandy soil substrates present. The nearest documented occurrence for this species is located approximately 3 miles southwest of the project site, along the coast (CDFW 2017).
Horkelia marinensis	Point Reyes horkelia	None/None/1B.2	Coastal dunes, coastal prairie, coastal scrub; sandy/perennial herb/May–Sep/16–2,477	**Not expected to occur**. There are no suitable sandy soil substrates present. The nearest documented occurrence for this species is located approximately 2.5 miles southwest of the project site, along the coast (CDFW 2017).
Horkelia tenuiloba	thin-lobed horkelia	None/None/1B.2	Broadleafed upland forest, chaparral, valley and foothill grassland; mesic openings, sandy/perennial herb/May–July (Aug)/164–1,640	**Not expected to occur**. The project site is outside the known geographic range for this species. The nearest documented occurrence is located greater than 10 miles northeast of the project site (CDFW 2017).

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/Life Form/| | Blooming Period/Elevation Range (feet amsl)	Potential to Occur
Hosackia gracilis	harlequin lotus	None/None/4.2	Broadleafed upland forest, coastal bluff scrub, closed-cone coniferous forest, cismontane woodland, coastal prairie, coastal scrub, meadows and seeps, marshes and swamps, north coast coniferous forest, valley and foothill grassland; wetlands, roadsides/perennial rhizomatous herb/Mar–July/0–2,297	**Present.** This species was observed in the grasslands on site during the 2017 botanical surveys.
Iris longipetala	coast iris	None/None/4.2	Coastal prairie, lower montane coniferous forest, meadows and seeps; mesic/perennial rhizomatous herb/Mar–May/0–1,969	**Low potential to occur.** Mesic areas in the grasslands on site may provide potentially suitable habitat for this species; however, the nearest documented occurrence was last observed in 1980 approximately 2.5 miles northwest of the project site near Bodega Bay (Calflora 2017).
Lasthenia burkei	Burke's goldfields	FE/CE/1B.1	Meadows and seeps (mesic), vernal pools/annual herb/Apr–June/49–1,969	**Not expected to occur**. The project site is outside the known geographic range for this species. The nearest documented occurrence is located greater than 10 miles northeast of the project site (CDFW 2017).
Lasthenia californica ssp. *bakeri*	Baker's goldfields	None/None/1B.2	Closed-cone coniferous forest (openings), coastal scrub, meadows and seeps, marshes and swamps/perennial herb/Apr–Oct/197–1,706	**Moderate potential to occur**. Mesic areas in the grassland on site may provide potentially suitable habitat for this species. The nearest documented occurrence for this species is located directly north and adjacent to the project site; however, this occurrence was last documented in 1934. There are multiple other occurrences documented within 5 miles of the project site (CDFW 2017).
Lasthenia californica ssp. *macrantha*	perennial goldfields	None/None/1B.2	Coastal bluff scrub, coastal dunes, coastal scrub/perennial herb/Jan–Nov/16–1,706	**Not expected to occur**. No suitable dune or scrub habitat present.
Lasthenia conjugens	Contra Costa goldfields	FE/None/1B.1	Cismontane woodland, playas (alkaline), valley and foothill grassland, vernal pools; mesic/annual herb/Mar–June/0–1,542	**Not expected to occur**. The site is outside the known geographic range for this species.
Layia carnosa	beach layia	FE/CE/1B.1	Coastal dunes, coastal scrub (sandy)/annual herb/Mar–July/0–197	**Not expected to occur**. No suitable sandy soils or dune habitat present.

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/Life Form/| | Blooming Period/Elevation Range (feet amsl)	Potential to Occur
Legenere limosa	legenere	None/None/1B.1	Vernal pools/annual herb/Apr–June/3–2,887	**Not expected to occur**. No suitable vernal pool habitat present and the site is outside the known geographical range for this species.
Leptosiphon grandiflorus	large-flowered leptosiphon	None/None/4.2	Coastal bluff scrub, closed-cone coniferous forest, cismontane woodland, coastal dunes, coastal prairie, coastal scrub, valley and foothill grassland; usually sandy/annual herb/Apr–Aug/16–4,003	**Not expected to occur**. There are no suitable sandy soils present at the project site.
Leptosiphon jepsonii	Jepson's leptosiphon	None/None/1B.2	Chaparral, cismontane woodland; usually volcanic/annual herb/Mar–May/328–1,640	**Not expected to occur**. No suitable chaparral or woodland habitat present.
Leptosiphon rosaceus	rose leptosiphon	None/None/1B.1	Coastal bluff scrub/annual herb/Apr–July/0–328	**Not expected to occur**. No suitable scrub habitat present.
Lessingia arachnoidea	Crystal Springs lessingia	None/None/1B.2	Cismontane woodland, coastal scrub, valley and foothill grassland; serpentinite, often roadsides/annual herb/July–Oct/197–656	**Not expected to occur**. The project site is outside the known geographic range for this species. The nearest documented occurrence is located greater than 8 miles north of the project site (CDFW 2017).
Lessingia hololeuca	woolly-headed lessingia	None/None/3	Broadleafed upland forest, coastal scrub, lower montane coniferous forest, valley and foothill grassland; clay, serpentinite/annual herb/June–Oct/49–1,001	**Not expected to occur**. Although the grassland on site may provide potentially suitable habitat, this species has not been documented in the vicinity since 1936, when an occurrence was noted approximately 3 miles north of the project site (Consortium of California Herbaria 2011).
Lilium pardalinum ssp. *pitkinense*	Pitkin Marsh lily	FE/CE/1B.1	Cismontane woodland, meadows and seeps, marshes and swamps (freshwater); mesic, sandy/perennial bulbiferous herb/June–July/115–213	**Not expected to occur**. The site is outside the known geographical range for this species.
Limnanthes vinculans	Sebastopol meadowfoam	FE/CE/1B.1	Meadows and seeps, valley and foothill grassland, vernal pools; vernally mesic/annual herb/Apr–May/49–1,001	**Not expected to occur**. The site is outside the known geographical range for this species.
Lupinus arboreus var. *eximius*	San Mateo tree lupine	None/None/3.2	Chaparral, coastal scrub/perennial evergreen shrub/Apr–July/295–1,804	**Not expected to occur**. No suitable chaparral habitat present.
Lupinus tidestromii	Tidestrom's lupine	FE/CE/1B.1	Coastal dunes/perennial rhizomatous herb/Apr–June/0–328	**Not expected to occur**. No suitable dune habitat present.

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/Life Form/| | Blooming Period/Elevation Range (feet amsl)	Potential to Occur
Microseris paludosa	marsh microseris	None/None/1B.2	Closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland/perennial herb/Apr–June (July)/16–1,165	**Not expected to occur**. The project site is outside the known geographic range for this species. The nearest documented occurrence is located greater than 10 miles northeast of the project site (CDFW 2017).
Monardella sinuata ssp. *nigrescens*	northern curly-leaved monardella	None/None/1B.2	Chaparral (Santa Cruz County), coastal dunes, coastal scrub, lower montane coniferous forest (Santa Cruz County, ponderosa pine sandhills); sandy/annual herb/(Apr) May–July (Aug) (Sep)/0–984	**Not expected to occur**. No suitable sandy soil substrates or forest habitat present.
Navarretia leucocephala ssp. *bakeri*	Baker's navarretia	None/None/1B.1	Cismontane woodland, lower montane coniferous forest, meadows and seeps, valley and foothill grassland, vernal pools; mesic/annual herb/Apr–July/16–5,709	**Not expected to occur**. The project site is outside the known geographic range for this species. The nearest documented occurrence is located greater than 10 miles northeast of the project site (CDFW 2017).
Navarretia leucocephala ssp. *plieantha*	many-flowered navarretia	FE/CE/1B.2	Vernal pools (volcanic ash flow)/annual herb/May–June/98–3,117	**Not expected to occur**. No suitable vernal pool habitat present.
Perideridia gairdneri ssp. *gairdneri*	Gairdner's yampah	None/None/4.2	Broadleafed upland forest, chaparral, coastal prairie, valley and foothill grassland, vernal pools; vernally mesic/perennial herb/June–Oct/0–2,001	**Not expected to occur**. Although the grassland on site may provide potentially suitable habitat, this species has not been documented in the vicinity since 1946, when an occurrence was noted approximately 5 miles east of the project site (Consortium of California Herbaria 2011).
Phacelia insularis var. *continentis*	north coast phacelia	None/None/1B.2	Coastal bluff scrub, coastal dunes; sandy, sometimes rocky/annual herb/Mar–May/33–558	**Not expected to occur**. No suitable sandy coastal habitat present.
Piperia michaelii	Michael's rein orchid	None/None/4.2	Coastal bluff scrub, closed-cone coniferous forest, chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest/perennial herb/Apr–Aug/10–3,002	**Not expected to occur**. No suitable forest, woodland, or chaparral habitat present.
Pleuropogon hooverianus	north coast semaphore grass	None/CT/1B.1	Broadleafed upland forest, meadows and seeps, north coast coniferous forest; open areas, mesic/perennial rhizomatous herb/Apr–June/33–2,201	**Not expected to occur**. No suitable mesic forest opening habitat present.

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/Life Form/| | Blooming Period/Elevation Range (feet amsl)	Potential to Occur
Polemonium carneum	Oregon polemonium	None/None/2B.2	Coastal prairie, coastal scrub, lower montane coniferous forest/perennial herb/Apr–Sep/0–6,004	**Low potential to occur**. The grassland on site may provide potentially suitable habitat for this species. The nearest documented occurrence for this species is located approximately 2.4 miles west of the project site; however, this population was last documented in 1935 (CDFW 2017).
Polygonum marinense	Marin knotweed	None/None/3.1	Marshes and swamps (coastal salt or brackish)/annual herb/(Apr) May–Aug (Oct)/0–33	**Not expected to occur**. Suitable coastal salt marsh is not present in the project site. The nearest documented occurrence for this species is located approximately 3.8 miles west, near Bodega Bay (CDFW 2017).
Potentilla uliginosa	Cunningham Marsh cinquefoil	None/None/1A	Marshes and swamps; freshwater, permanent oligotrophic wetlands/perennial herb/May–Aug/98–131	**Not expected to occur**. The project site is outside the known geographic range for this species. The nearest documented occurrence is located greater than 8 miles east of the project site (CDFW 2017).
Ranunculus lobbii	Lobb's aquatic buttercup	None/None/4.2	Cismontane woodland, north coast coniferous forest, valley and foothill grassland, vernal pools; mesic/annual herb/Feb–May/49–1,542	**Not expected to occur**. Although mesic areas in the grassland on site may provide potentially suitable habitat for this species, it has not been recorded in the vicinity since a 1906 observation in Valley Ford, approximately 1 miles east of the project site (Consortium of California Herbaria 2011).
Rhynchospora alba	white beaked-rush	None/None/2B.2	Bogs and fens, meadows and seeps, marshes and swamps (freshwater)/perennial rhizomatous herb/July–Aug/197–6,693	**Not expected to occur**. The project site is outside the known geographic range for this species. The nearest documented occurrence is located greater than 15 miles northeast of the project site (CDFW 2017).
Rhynchospora californica	California beaked-rush	None/None/1B.1	Bogs and fens, lower montane coniferous forest, meadows and seeps (seeps), marshes and swamps (freshwater)/perennial rhizomatous herb/May–July/148–3,314	**Not expected to occur**. The project site is outside the known geographic range for this species. The nearest documented occurrence is located greater than 10 miles northeast of the project site (CDFW 2017).
Rhynchospora capitellata	brownish beaked-rush	None/None/2B.2	Lower montane coniferous forest, meadows and seeps, marshes and swamps, upper montane coniferous forest; mesic/perennial herb/July–Aug/148–6,562	**Not expected to occur**. The project site is outside the known geographic range for this species. The nearest documented occurrence is located greater than 10 miles northeast of the project site (CDFW 2017).

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/Life Form/| | Blooming Period/Elevation Range (feet amsl)	Potential to Occur
Rhynchospora globularis	round-headed beaked-rush	None/None/2B.1	Marshes and swamps (freshwater)/perennial rhizomatous herb/July–Aug/148–197	**Not expected to occur**. The project site is outside the known geographic range for this species. The nearest documented occurrence is located greater than 10 miles northeast of the project site (CDFW 2017).
Sidalcea calycosa ssp. *rhizomata*	Point Reyes checkerbloom	None/None/1B.2	Marshes and swamps (freshwater, near coast)/perennial rhizomatous herb/Apr–Sep/10–246	**Moderate potential to occur**. The mesic habitat within the stream and at seeps within the project site may provide potentially suitable habitat for this species. The nearest documented occurrence for this species is located approximately 0.7 miles east of the project site (CDFW 2017).
Sidalcea hickmanii ssp. *viridis*	Marin checkerbloom	None/None/1B.3	Chaparral (serpentinite)/perennial herb/May–June/164–1,411	**Not expected to occur**. No suitable chaparral habitat present and the nearest documented occurrence is located more than 10 miles north of the project site (CDFW 2017).
Sidalcea malviflora ssp. *purpurea*	purple-stemmed checkerbloom	None/None/1B.2	Broadleafed upland forest, coastal prairie/perennial rhizomatous herb/May–June/49–279	**Moderate potential to occur**. The grassland on site provides potentially suitable habitat for this species. There are two documented occurrences for this species within 5 miles of the project site (CDFW 2017).
Stebbinsoseris decipiens	Santa Cruz microseris	None/None/1B.2	Broadleafed upland forest, closed-cone coniferous forest, chaparral, coastal prairie, coastal scrub, valley and foothill grassland; open areas, sometimes serpentinite/annual herb/Apr–May/33–1,640	**Low potential to occur**. Although the grassland on site provides potentially suitable habitat for this species, the nearest documented occurrence is located more than 5 miles south of the project site (CDFW 2017).
Thamnolia vermicularis	whiteworm lichen	None/None/2B.1	Chaparral, valley and foothill grassland; on rocks derived from sandstone/fruticose lichen (terricolous)/NA/295–295	**Not expected to occur**. No rocks derived from sandstone substrates are present within the grassland on site.
Trifolium amoenum	two-fork clover	FE/None/1B.1	Coastal bluff scrub, valley and foothill grassland (sometimes serpentinite)/annual herb/Apr–June/16–1,362	**High potential to occur**. The grassland on site provides potentially suitable habitat for this species. This species has been previously documented in 1945 in a non-specific area that includes the project site, as well as more recent occurrence approximately 1 mile south of the project site (CDFW 2017).

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/Life Form/| | Blooming Period/Elevation Range (feet amsl)	Potential to Occur
Trifolium buckwestiorum	Santa Cruz clover	None/None/1B.1	Broadleafed upland forest, cismontane woodland, coastal prairie; gravelly, margins/annual herb/Apr–Oct/344–2,001	**Not expected to occur**. The project site is outside the known geographic range of this species and there is no suitable habitat present.
Trifolium hydrophilum	saline clover	None/None/1B.2	Marshes and swamps, valley and foothill grassland (mesic, alkaline), vernal pools/annual herb/Apr–June/0–984	**Not expected to occur**. Alkaline soil substrates and vernal poll habitat are not present.
Triphysaria floribunda	San Francisco owl's-clover	None/None/1B.2	Coastal prairie, coastal scrub, valley and foothill grassland; usually serpentinite/annual herb/Apr–June/33–525	**Moderate potential to occur**. Potentially suitable habitat for this species occurs in the grassland on site. The nearest documented occurrence for this species is located approximately 2.5 miles southwest of the project site along the coast (CDFW 2017).
Triquetrella californica	coastal triquetrella	None/None/1B.2	Coastal bluff scrub, coastal scrub; soil/moss/NA/33–328	**Not expected to occur**. No suitable coastal scrub habitat present.
Usnea longissima	Methuselah's beard lichen	None/None/4.2	Broadleafed upland forest, north coast coniferous forest; on tree branches; usually on old growth hardwoods and conifers/fruticose lichen (epiphytic)/NA/164–4,790	**Not expected to occur.** No suitable forest habitat present.
Viburnum ellipticum	oval-leaved viburnum	None/None/2B.3	Chaparral, cismontane woodland, lower montane coniferous forest/perennial deciduous shrub/May–June/705–4,593	**Not expected to occur**. No suitable woodland or forest habitat present and the site is outside the known elevation range for this species.

CRPR = California Rare Plant Rank; amsl = above mean sea level; NA = not applicable.

Federal Status:

FE = federal threatened

State Status:

CR = California rare
CE = California endangered
CT = California threatened

CRPR:

1A = plants presumed extirpated in California and either rare or extinct elsewhere
1B = plants rare, threatened, or endangered in California and elsewhere
2B = plants rare, threatened, or endangered in California, but more common elsewhere
3 = plants about which more information is needed – a review list
4 = plants of limited distribution – a watch list

Threat Rank:

1 = seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)
2 = moderately threatened in California (20%–80% of occurrences threatened/moderate degree and immediacy of threat)
3 = Not very threatened in California (less than 20% of occurrences threatened/low degree and immediacy of threat or no current threats known)

REFERENCES

Calflora: Information on California plants for education, research and conservation. [web application]. 2017. Berkeley, California. *The Calflora Database* [a non-profit organization]. Available: http://www.calflora.org/ (Accessed November 02, 2017).

CDFW (California Department of Fish and Wildlife. 2017. Rarefind 5. *California Natural Diversity Database*. CDFW, Biogeographic Data Branch. Accessed March 2017. https://map.dfg.ca.gov/rarefind/view/RareFind.aspx.

Consortium of California Herbaria. 2011. ucjeps.berkeley.edu/consortium/. Accessed November 2, 2017. Regents of the University of California.

ATTACHMENT 2

Representative Site Photographs

ATTACHMENT 2
Representative Site Photographs



Photo 1 – View of annual grassland in the northwestern portion of the project site, facing south (April 13, 2017)



Photo 2 – View of coyote brush scrub in the northern portion of the project site, facing west (May 25, 2017)



Photo 3 – View of rush marsh where the perennial drainage meets the Estero Americano, facing southeast (April 13, 2017)



Photo 4 – View of rock outcroppings in the annual grassland, facing southeast (April 13, 2017)



Photo 5 – Perennial drainage at the proposed trail crossing location, facing south (April 14, 2017)



Photo 6 – View of congested-headed hayfield tarplant in the northeastern portion of the project site, facing southwest (May 26, 2017)

ATTACHMENT 3

Plant Species Observed within the Project Area

ATTACHMENT 3
Plant Species Observed within the Project Area

VASCULAR SPECIES

FERNS AND FERN ALLIES

DENNSTAEDTIACEAE – BRACKEN FAMILY

Pteridium aquilinum – western brackenfern

DRYOPTERIDACEAE – WOOD FERN FAMILY

Polystichum munitum – western swordfern

EQUISETACEAE – HORSETAIL FAMILY

Equisetum hyemale – scouringrush horsetail

GYMNOSPERMS AND GNETOPHYTES

PINACEAE – PINE FAMILY

Pinus radiata – Monterey pine

MONOCOTS

AGAVACEAE – AGAVE FAMILY

Chlorogalum pomeridianum var. *pomeridianum* – wavyleaf soap plant

ALISMATACEAE – WATER-PLANTAIN FAMILY

Alisma triviale – northern water plantain

ARACEAE – ARUM FAMILY

Lemna minor – duckweed

CYPERACEAE – SEDGE FAMILY

Carex bolanderi – Bolander's sedge
Carex densa – dense sedge
Isolepis carinata – keeled bulrush
Isolepis cernua – low bulrush
Carex obnupta – slough sedge swards
Carex barbarae – white-root beds

IRIDACEAE – IRIS FAMILY

Iris douglasiana – Douglas iris
Sisyrinchium bellum – western blue-eyed grass
* *Romulea rosea* var. *australis* – rosy sandcrocus

JUNCACEAE – RUSH FAMILY

Juncus bolanderi – Bolander's rush
Juncus bufonius var. *bufonius* – toad rush
Juncus effusus ssp. *pacificus* – Pacific rush
Juncus phaeocephalus var. *phaeocephalus* – brownhead rush
Luzula comosa – Pacific woodrush
Juncus balticus – no common name

JUNCAGINACEAE – ARROW-GRASS FAMILY

Triglochin scilloides – awl-leaf lilaea

LILIACEAE – LILY FAMILY

Calochortus luteus – yellow mariposa lily

ORCHIDACEAE – ORCHID FAMILY

Spiranthes romanzoffiana – hooded lady's tresses

POACEAE – GRASS FAMILY

* *Avena barbata* – slender oat
Bromus carinatus var. *carinatus* – California brome
Bromus carinatus – California brome
Festuca rubra – red fescue
Glyceria leptostachya – davy mannagrass
Pleuropogon californicus var. *californicus* – annual semaphoregrass
Poa secunda ssp. *secunda* – Sandberg bluegrass
* *Aira caryophyllea* – silver hairgrass
* *Briza maxima* – big quakinggrass
* *Briza minor* – little quakinggrass
* *Bromus diandrus* – ripgut brome
* *Bromus hordeaceus* – soft brome
* *Bromus madritensis* ssp. *rubens* – red brome
* *Hordeum marinum* – seaside barley
* *Hordeum murinum* – mouse barley
* *Cynosurus echinatus* – annual dogtails
Danthonia californica – California oat grass
* *Holcus lanatus* – common velvet grass
* *Poa pratensis* – Kentucky blue grass
* *Festuca perennis* – perennial rye grass
Stipa pulchra – purple needle grass

Festuca microstachys – six-weeks fescue
* *Anthoxanthum odoratum* – sweet vernal grass

THEMIDACEAE – BRODIAEA FAMILY
Brodiaea terrestris ssp. *terrestris* – dwarf brodiaea
Dichelostemma capitatum – bluedicks
Triteleia ixioides – prettyface
Triteleia laxa – Ithuriel's spear

EUDICOTS

ANACARDIACEAE – SUMAC OR CASHEW FAMILY
Toxicodendron diversilobum – poison oak

APIACEAE – CARROT FAMILY
Eryngium armatum – coastal eryngo
Lomatium utriculatum – common lomatium
Sanicula bipinnatifida – purple sanicle
Sanicula laciniata – coastal blacksnakeroot

ASTERACEAE – SUNFLOWER FAMILY
* *Sonchus oleraceus* – common sowthistle
Achillea millefolium – common yarrow
Corethrogyne filaginifolia – common sandaster
Grindelia hirsutula – hairy gumweed
Heterotheca sessiliflora ssp. *bolanderi* – sessileflower false goldenaster
Lasthenia californica ssp. *californica* – California goldfields
Madia exigua – small tarweed
Madia gracilis – grassy tarweed
Pseudognaphalium stramineum – cottonbatting plant
Psilocarphus tenellus – slender woollyheads
Symphyotrichum chilense – Pacific aster
Wyethia angustifolia – California compassplant
* *Carduus pycnocephalus* – Italian plumeless thistle
* *Helminthotheca echioides* – bristly oxtongue
* *Hypochaeris glabra* – smooth cat's ear
* *Lactuca serriola* – prickly lettuce
* *Logfia gallica* – narrowleaf cottonrose
* *Matricaria discoidea* – disc mayweed
* *Senecio vulgaris* – old-man-in-the-spring

Hemizonia congesta ssp. *congesta* – congested-headed hayfield tarplant
Baccharis pilularis – coyote brush

BORAGINACEAE – BORAGE FAMILY

* *Myosotis discolor* – changing forget-me-not

BRASSICACEAE – MUSTARD FAMILY

Cardamine oligosperma – little western bittercress
Nasturtium officinale – watercress
* *Brassica nigra* – black mustard
* *Raphanus raphanistrum* – wild radish
* *Raphanus sativus* – cultivated radish

CARYOPHYLLACEAE – PINK FAMILY

* *Cerastium glomeratum* – sticky chickweed
* *Spergularia media* – no common name

CONVOLVULACEAE – MORNING-GLORY FAMILY

Calystegia collina ssp. *collina* – coast range false bindweed
Dichondra donelliana – California ponysfoot

CRASSULACEAE – STONECROP FAMILY

Crassula connata – sand pygmyweed

CUCURBITACEAE – GOURD FAMILY

Marah fabacea – California man-root

FABACEAE – LEGUME FAMILY

Acmispon brachycarpus – foothill deervetch
Acmispon wrangelianus – Chilean bird's-foot trefoil
Lupinus bicolor – miniature lupine
Lupinus formosus – summer lupine
Lupinus microcarpus var. *microcarpus* – valley lupine
Lupinus nanus – sky lupine
Trifolium barbigerum – bearded clover
Trifolium ciliolatum – foothill clover
Trifolium depauperatum var. *depauperatum* – cowbag clover
Trifolium dichotomum – branched Indian clover
Trifolium gracilentum – pinpoint clover
Trifolium willdenovii – tomcat clover
Hosackia gracilis – harlequin lotus

* *Lotus corniculatus* – bird's-foot trefoil
* *Medicago polymorpha* – burclover
* *Trifolium campestre* – field clover
* *Trifolium dubium* – suckling clover
* *Trifolium glomeratum* – clustered clover
* *Trifolium subterraneum* – subterranean clover
* *Ulex europaeus* – common gorse

Astragalus breweri – Brewer's milk-vetch
Acmispon americanus – Spanish clover

GENTIANACEAE – GENTIAN FAMILY

Cicendia quadrangularis – Oregon timwort
Zeltnera muehlenbergii – Muhlenberg's centaury

GERANIACEAE – GERANIUM FAMILY

* *Erodium cicutarium* – redstem stork's bill
* *Erodium botrys* – longbeak stork's bill
* *Geranium dissectum* – cutleaf geranium
* *Geranium molle* – dovefoot geranium

LAMIACEAE – MINT FAMILY

* *Mentha pulegium* – pennyroyal

Monardella villosa ssp. *villosa* – coyote mint
Stachys ajugoides – bugle hedgenettle

* *Lamium amplexicaule* – henbit deadnettle
* *Lamium purpureum* – purple deadnettle

LYTHRACEAE – LOOSESTRIFE FAMILY

* *Lythrum hyssopifolia* – hyssop loosestrife

MALVACEAE – MALLOW FAMILY

Sidalcea malviflora ssp. *rostrata* – dwarf checkerbloom

MONTIACEAE – MONTIA FAMILY

Calandrinia menziesii – red maids

MYRSINACEAE – MYRSINE FAMILY

* *Lysimachia arvensis* – scarlet pimpernel

ONAGRACEAE – EVENING PRIMROSE FAMILY

Taraxia ovata – goldeneggs

OROBANCHACEAE – BROOM-RAPE FAMILY

Triphysaria eriantha ssp. *eriantha* – Johnny-tuck
Triphysaria eriantha ssp. *rosea* – Johnny-tuck
Triphysaria versicolor ssp. *faucibarbata* – yellowbeak owl's-clover
Triphysaria versicolor ssp. *versicolor* – yellowbeak owl's-clover
Castilleja affinis ssp. *litoralis* – coast Indian paintbrush
Castilleja ambigua var. *ambigua* – Johnny-nip
* *Parentucellia viscosa* – yellow glandweed

PAPAVERACEAE – POPPY FAMILY

Eschscholzia californica – California poppy

PLANTAGINACEAE – PLANTAIN FAMILY

Callitriche marginata – winged water-starwort
* *Plantago lanceolata* – narrowleaf plantain
Plantago erecta – dwarf plantain

POLYGONACEAE – BUCKWHEAT FAMILY

Eriogonum nudum – naked buckwheat
Rumex salicifolius – willow dock
* *Rumex acetosella* – common sheep sorrel
* *Rumex pulcher* – fiddle dock

RANUNCULACEAE – BUTTERCUP FAMILY

Ranunculus californicus – California buttercup
* *Ranunculus muricatus* – spinyfruit buttercup

RHAMNACEAE – BUCKTHORN FAMILY

Frangula californica ssp. *californica* – California buckthorn

ROSACEAE – ROSE FAMILY

Crataegus douglasii – black hawthorn
Potentilla anserina – silverweed cinquefoil
Acaena pinnatifida var. *californica* – California biddy-biddy
* *Cotoneaster franchetii* – orange cotoneaster
* *Rosa rubiginosa* – sweetbriar rose
* *Rubus armeniacus* – Himalayan black berry

SALICACEAE – WILLOW FAMILY

Salix lasiolepis – arroyo willow

SAXIFRAGACEAE – SAXIFRAGE FAMILY

Lithophragma affine – San Francisco woodland-star

SCROPHULARIACEAE – FIGWORT FAMILY

Scrophularia californica – California figwort

VIOLACEAE – VIOLET FAMILY

Viola pedunculata – Johnny-jump-up

Viola adunca – hookedspur violet

* signifies introduced (non-native) species

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California Red-Legged Frog (*Rana draytonii*) Habitat Assessment and Surveys Report for the Estero Trail Project Sonoma County, California

Prepared For:

County of Sonoma

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California Red-Legged Frog (*Rana draytonii*) Habitat Assessment and Surveys Report for the Estero Trail Project

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California Red-Legged Frog (*Rana draytonii*) Habitat Assessment and Surveys Report for the Estero Trail Project

1 INTRODUCTION

At the request of Sonoma County, Dudek conducted a habitat assessment and daytime survey within the Estero Trail project (study area) for the federally threatened California red-legged frog (*Rana draytonii*) (CRF). The study area is located within an elevation range from sea level to 119 meters (m) (0 to 390 feet [ft]) above mean sea level, and is located along the Estero American 2 miles west of the town of Valley Ford (Figures 1 and 2, Regional and Vicinity Maps). The site occurs within Section 33, Township 6 North, and Range 10 West of the "Valley Ford" 7.5-minute topographic quadrangles. The approximate center of the study area is located at 38°19'25" North and 122°57'41" West.

The site is currently owned by the Bordessa family and is known as Bordessa Ranch. In 2010, the Bordessa family submitted an inquiry to the Sonoma County Agricultural Preservation and Open Space District (District) about District purchase of a Conservation Easement over the property, including a public access trail. In 2012, imminent subdivision of the ranch was prevented by the District through purchase of a Conservation Easement. Under the terms of the agreement between the District and the Bordessa family, the District will hold the Conservation Easement over the Property in perpetuity with the intention to preserve its important agricultural, natural, and scenic values, along with a trail easement, to provide the public with outdoor recreational opportunities. Regional Parks and the District have since worked together to develop the trail easement and public access. With a grant from the State Coastal Conservancy, Regional Parks is providing environmental review and easement trail planning.

The proposed project would establish two main pedestrian only trails and parking lots that would allow for low-intensity public recreational access. The proposed trail alignments would not be more than 5 miles in length and the parking lots would not be more than 1.5 acres in combined size (Figure 3, Project Site). The proposed trail system is the principal means for providing public access to the property and the Estero. The trails will be constructed for pedestrian use and hand-carried non-motorized boats, kayaks and canoes. The trail will be 5 ft wide and composed of compacted native material or other permeable surface, including rocked crossings only where the trail would span a stream. Several benches and trail marker posts would be placed along the trail. The existing main access road and gate are expected to remain in similar locations.

The study area contains four man-made ponds, two unnamed intermittent drainages (ID-01 and ID-02), several small ephemeral drainages, and several seeps and springs (spring boxes). The CRF habitat assessment and daytime surveys were conducted on September 26 and 27, 2017, by senior aquatic ecologist Craig Seltenrich and biologist Paul Keating of Dudek.

1.1 Environmental Setting

The site and study area are located in primarily non-native annual grassland habitat, although the southern portion of the site includes tidal habitat along drainages ID-01 and ID-02 located in the center and eastern portions of the site (Figure 4, Vegetation Communities).

1.1.1 Vegetation Community Types

California Annual Grassland. The dominant habitat type in the project area, the California annual grassland is dominated by non-native grasses such as slender wild oats (*Avena barbata*), velvet grass (*Holcus lanatus*), rattlesnake grass (*Briza maxima*), little quaking grass (*Briza minor*), hedgehog dogtail grass (*Cynosurus echinatus*). Also present in this habitat are non-native forbs such as bull thistle (*Cirsium vulgare*), Italian thistle (*Carduus pycnocephalus*), birdsfoot trefoil (*Lotus corniculatus*), cat's ears (*Hypochaeris glabra*; *H. radicata*), pale flax (*Linum bienne*), and sheep sorrel (*Rumex acetosella*). Native grasses and forbs were present in less density than the non-natives and include: purple needlegrass (*Stipa pulchra*), yarrow (*Achillea millefolium*), dwarf brodiaea (*Brodiaea terrestris*), California poppy (*Eschscholzia californica*), annual lupine (*Lupinus bicolor*), blue-eyed grass (*Sisyrinchium bellum*), and scattered coyote brush (*Baccharis pilularis*).

Coyote Brush Scrub (*Baccharis pilularis* Shrubland Alliance). Coyote brush (*Baccharis pilularis*) is the dominant shrub in this vegetation community. Coyote brush scrub occurs intermittently in the western portion of the project site, primarily on north- and east-facing hill slopes. Other shrub species observed in this vegetation community include coffeeberry (*Frangula californica*), hawthorn (*Crataegus* spp.), and gorse (*Ulex europaeus*). Scattered Monterey pine trees (*Pinus radiata*) are also present in low numbers within this vegetation community. The herbaceous understory of this vegetation community contains grass and herb species consistent with those found in the California Annual Grassland, described above.

Arroyo Willow Thickets (*Salix lasiolepis* Shrubland Alliance). Arroyo willow (*Salix lasiolepis*) is the dominant tree cover along the two intermittent drainages ID-01 and ID-02. Other tree species observed with the arroyo willow along the central drainage ID-01 include Lombardy poplar (*Populus nigra*) and blue gum (*Eucalyptus globulus*). The understory of this vegetation community primarily consisted of rushes (*Juncus patens* and *J. effusus*), and bracken fern (*Pteridium aquilinum*).



SOURCE: ArcGIS Online Basemap

FIGURE 1

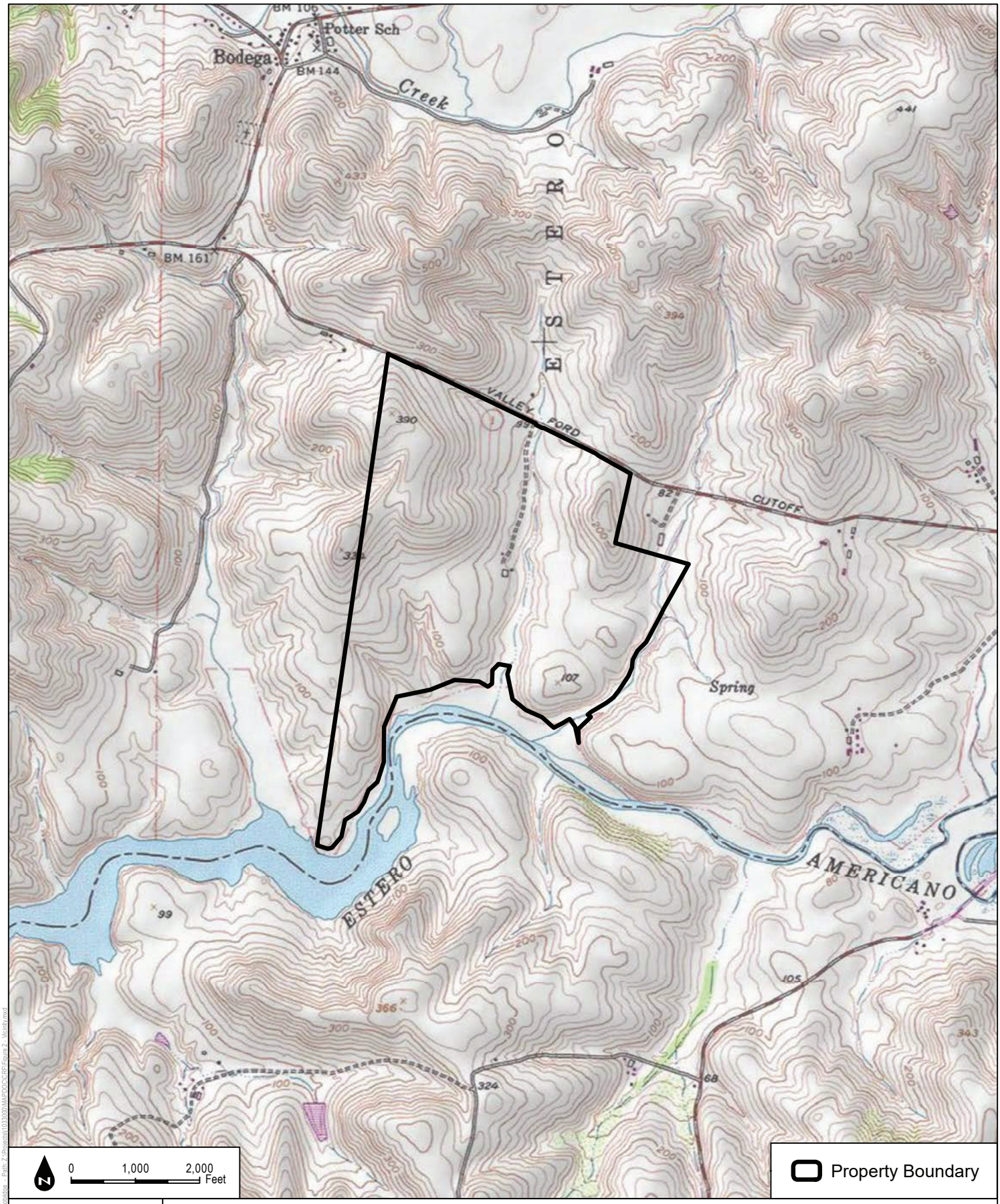
Regional Map

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Bordessa Ranch - Estero Trail

California Red-legged Frog Habitat Assessment and Surveys Report

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SOURCE: USGS 7.5-Minute Series Valley Ford Quadrangle
Township 6N; Range 10W; Sections 27, 28, 33, 34

FIGURE 2

Vicinity Map

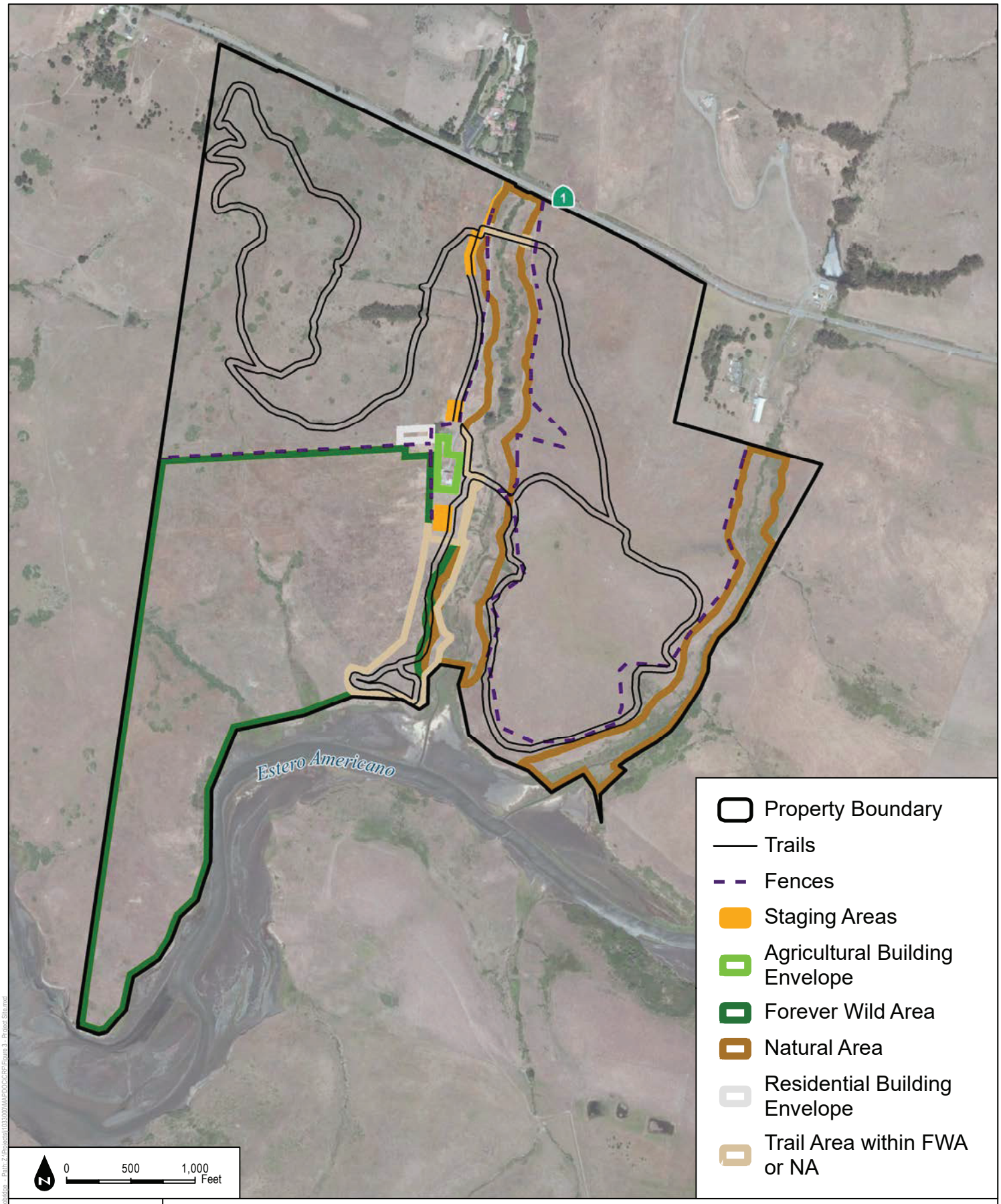
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Bordessa Ranch - Estero Trail

California Red-legged Frog Habitat Assessment and Surveys Report

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SOURCE: Bing Maps (Accessed 2017)

FIGURE 3
Project Site

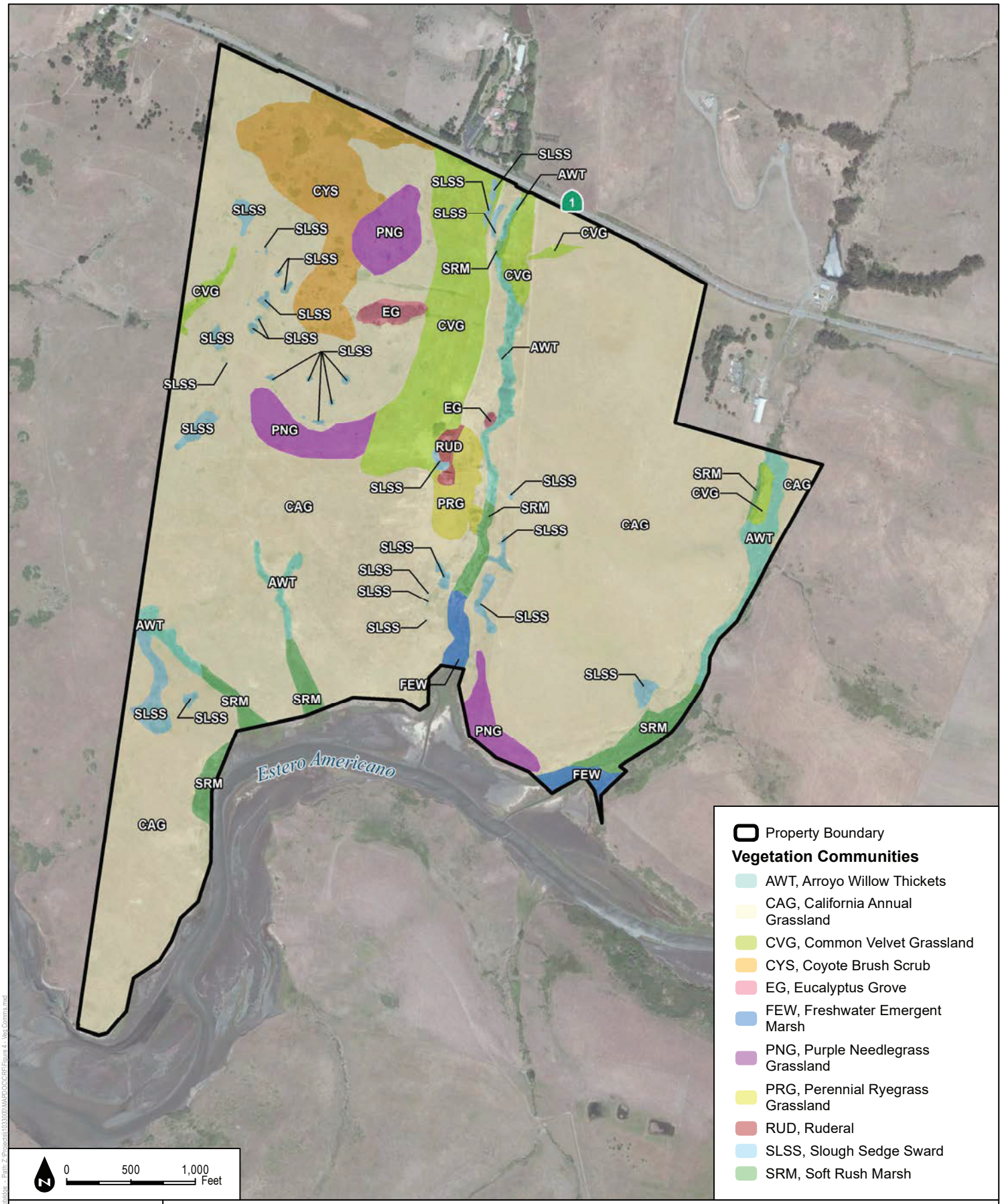
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Bordessa Ranch - Estero Trail

California Red-legged Frog Habitat Assessment and Surveys Report

Date: 11/3/2017 Last saved by: ctroyer Path: Z:\Projects\103\000\MAPDOC\CRF\Figure 3 - Project Site.mxd

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SOURCE: Bing Maps (Accessed 2017)

FIGURE 4

Vegetation Communities

Bordessa Ranch - Estero Trail

California Red-legged Frog Habitat Assessment and Surveys Report

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Eucalyptus Groves (*Eucalyptus* (*globulus, camaldulensis*) Woodland Semi-Natural Alliance). Several eucalyptus (*Eucalyptus globulus*) groves occur on site, one along an ephemeral drainage in the western portion of the project site and the other along drainage ID-01.

Slough Sedge Swards (*Carex obnupta* Herbaceous Alliance). Slough sedge swards occur in the grassland throughout the project site where moisture appears to be maintained in the soil due to the site's micro-topography. This vegetation community is dominated by slough sedge (*Carex obnupta*), with some velvet grass, sweet vernal grass (*Anthoxanthum odoratum*), and California blackberry (*Rubus ursinus*) interspersed.

1.1.2 Aquatic Features

Aquatic habitats present within the site include four man-made ponds, some of which appear to be perennial in average and above average water years, two intermittent drainages ID-01 and ID-02, and several ephemeral drainages, springs and seeps, and numerous other small shallow ephemeral features.

1.1.3 Soils

Soils information for the site was obtained from the Natural Resources Conservation Service Soil Survey of Sonoma County, California, Western Part (USDA 2017). Steinbeck loam and Kneeland sandy loam, on varying slopes, are the most common soil types present and both are found throughout the eastern and western hills. Los Osos clay loam, thin solum, 30%–50% slopes occurs on the south facing slopes of both hills. Bulcher fine sandy loam, overwash 0–2% slopes is also present along drainages ID-01 and ID-02 where they meet with the Estero Americano (Figure 5, Natural Resources Conservation Service Soils Types).

1.2 California Red-Legged Frog General Ecology

1.2.1 Status

The CRF was listed as a threatened species by the U.S. Fish and Wildlife Service (USFWS) on May 23, 1996 (USFWS 1996). In 2002, the USFWS published the *Recovery Plan for the California Red-Legged Frog* (*Rana aurora draytonii,* now *Rana draytonii*) (USFWS 2002). The CRF was listed as a threatened species by the USFWS on May 23, 1996 (USFWS 1996), and in 2002, the USFWS published the *Recovery Plan for the California Red-Legged Frog* (Rana aurora draytonii) (USFWS 2002). On April 13, 2006, the USFWS designated critical habitat for the CRF (Federal Register Vol. 70, No. 71: 19243-19346) pursuant to the Endangered Species Act of 1973, as amended.

1.2.2 Distribution

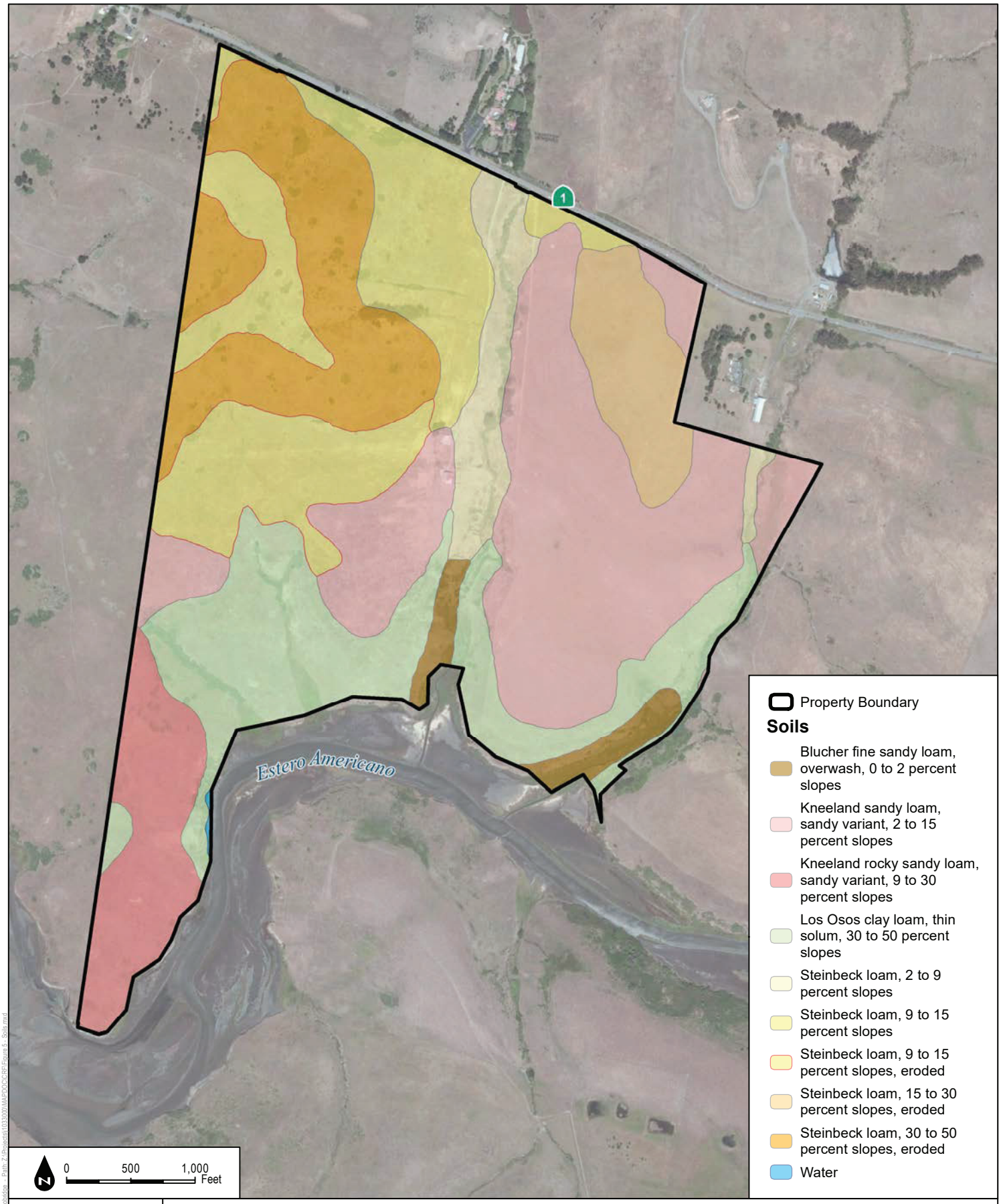
The historic range of the CRF extended coastally from the vicinity of Elk Creek in Mendocino

County, California, and inland from the vicinity of Redding in Shasta County, California, southward to northwestern Baja California, Mexico (Fellers 2005; Jennings and Hayes 1985; Hayes and Krempels 1986). CRF were historically documented in 46 counties; however, they are now restricted to 238 streams or drainages within 23 counties. This represents a loss of 70% of its former range (USFWS 2002). CRF are still locally abundant within portions of the San Francisco Bay Area and the Central Coast. Within the current distribution of the species, only isolated populations have been documented in the Sierra Nevada, northern coast, and northern Transverse Ranges. CRF are believed to be extirpated from the southern Transverse and Peninsular Ranges, but are still present in Baja California, Mexico.

1.2.3 Adults

Adult CRF prefer dense, shrubby or emergent riparian vegetation closely associated with deep >0.7 m (>2.3 ft), still, or slow-moving water (Hayes and Jennings 1988). However, frogs have also been found breeding in ephemeral creeks and drainages and in ponds that may or may not have riparian vegetation, and depths less than 0.7 m (2.3 ft) (C. Seltenrich and A. Pool, personal observations). The largest densities of CRF are typically associated with deep pools with dense stands of overhanging willows (*Salix* species) and an intermixed fringe of cattails (*Typha latifolia*) (Jennings 1988). CRF disperse upstream and downstream of their breeding habitat, as well as across upland areas, to forage and seek sheltering habitat.

During the non-breeding season, habitat includes nearly any area within one to two miles of a breeding site that remains moist and cool through the summer (Fellers 2005), which can include vegetated areas with coyote bush (*Baccharis pilularis*), California blackberry thickets (*Rubus ursinus*), and root masses associated with willow (*Salix* spp.) and California bay trees (*Umbellularia californica*). Non-breeding habitat used by CRF can be extremely limited in size (e.g., non-breeding CRF have been found in a 2 m [6 ft] wide coyote bush thicket growing along a tiny intermittent creek surrounded by heavily grazed grassland [Fellers 2005]). Sheltering habitat for CRF potentially includes all aquatic, riparian, and upland areas within the range of the species. In addition, any landscape features that provide cover (such as existing animal burrows, boulders or rocks, organic debris such as downed trees or logs, and industrial debris) or agricultural features (such as drains, watering troughs, spring boxes, abandoned sheds, or hay stacks) may also be used by CRF. Incised stream channels with portions narrower and depths greater than 0.45 m (1.5 ft) may also provide important summer sheltering habitat. Accessibility to sheltering habitat is essential for the survival of CRF within a watershed, and can be a factor limiting population numbers and survival.



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SOURCE: Bing Maps (Accessed 2017); USDA NRCS Soils

FIGURE 5

Natural Resources Conservation Service Soil Types

Bordessa Ranch - Estero Trail

California Red-legged Frog Habitat Assessment and Surveys Report

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The diet of adult and sub-adult CRFs is highly variable; although, studies have shown that invertebrates were the most common food items; although, vertebrates, such as Pacific chorus frogs (*Pseudacris regilla*) and California mice (*Peromyscus californicus*) represent over half the prey mass eaten by larger frogs (Hayes and Tennant 1985). Juvenile frogs were generally active diurnally and nocturnally, whereas adult frogs were largely nocturnal. Feeding activity probably occurs primarily along the shoreline and on the surface of the water (Hayes and Tennant 1985).

1.2.4 Breeding

Sexual maturity normally is reached at three to four years of age (Storer 1925; Jennings and Hayes 1985), and frogs may live eight to 10 years (Jennings et al. 1992). Populations of CRF fluctuate from year to year, and when conditions are favorable, this species can experience extremely high rates of reproduction and thus produce large numbers of dispersing young and a concomitant increase in the number of occupied sites. When conditions are stressful (e.g., drought), CRF may temporarily disappear from an area.

CRF do not have a distinct breeding migration (Fellers 2005). Adults are often associated with permanent bodies of water with some frogs remaining at breeding habitat all year while others disperse. Dispersal distances are typically less than 0.8 kilometer (km) (0.5 mile [mi]), with a few individual moving up to 1.6 to 3.2 km (1 to 2 mi) (Fellers 2005). Movements are typically along riparian corridors, but some individuals, especially on rainy nights, may move directly from one site to another through normally inhospitable habitats, such as heavily grazed pastures or oak-grassland savannas (Fellers 2005). Dispersing frogs in northern Santa Cruz County were documented to travel distances from 0.4 km (0.25 mi) to more than 3.2 km (2 mi) without apparent regard to topography, vegetation type, or riparian corridors (Bulger et al. 2003). Fellers and Kleeman (2007) and Bulger et al. (2003) found that CRF migration corridors can be less “pristine” (e.g., closely grazed fields, plowed agricultural lands) than breeding or non-breeding habitats. Bulger et al. (2003) observed that CRF did not appear to avoid or prefer any landscape feature or vegetation type. Tagged frogs were documented crossing agricultural land, including recently tilled fields and areas with mature crops. Threats facing migrating CRF include being run over by vehicles on roads (Gibbs 1998; Vos and Chardon 1998), degradation of habitat (Vos and Stumpel 1995; Findlay and Houlahan 1997; Gibbs 1998), predation (Gibbs 1998), and desiccation (Rothermel and Semlistch 2002).

1.2.5 Eggs

Egg masses contain about 2,000 to 6,000 moderate\-sized (measuring between 2 and 3 millimeters in diameter), dark reddish brown eggs and are typically attached to vertical emergent

vegetation, such as bulrushes (*Scirpus* species) or cattails (Jennings et al. 1992). However, egg masses have also been found laying in depressions along the margins of ponds (C. Seltenrich and A. Pool, personal observations). CRF are often prolific breeders, laying their eggs during or shortly after large rainfall events in late winter and early spring (Hayes and Miyamoto 1984). The egg mass is well defined and about the size of a softball. Eggs hatch in 6 to 14 days (Jennings 1988). In coastal lagoons, the most significant mortality factor in the pre-hatching stage is water salinity (Jennings et al. 1992). Eggs exposed to salinities greater than 4.5 parts per thousand results in 100% mortality (Jennings and Hayes 1990). Increased siltation during the breeding season can cause asphyxiation of eggs and small larvae.

1.2.6 Larvae

CRF larvae (tadpoles) range from 14 to 80 millimeters (0.5 to 3.5 inches) in length and undergo metamorphosis in 3.5 to 7 months after hatching (Storer 1925; Wright and Wright 1949; Jennings and Hayes 1990).

Of all CRF life stages, larvae probably experience the highest mortality rates, with less than 1% of eggs laid reaching metamorphosis (Jennings et al. 1992). The diet of CRF larvae has not been well studied, but their diet is likely similar to other ranid larvae that feed on algae, diatoms, and detritus by grazing on the surface of rocks and vegetation (Fellers 2005; Kupferberg 1996a, 1996b).

1.2.7 Reasons for Decline

In California, the decline and eventual local disappearance of California and northern red-legged frogs has been observed in systems supporting bullfrogs (Jennings and Hayes 1990; Twedt 1993), red swamp crayfish (*Procambarus clarkia*), signal crayfish (*Pacifastacus leniusculus*), and several species of warm water fish including sunfish (*Lepomis* spp.), goldfish (*Carassius auratus*), common carp (*Cyprinus carpio*), and mosquitofish. These declines and disappearances have been attributed to predation, competition, and reproduction interference. Habitat loss, non-native species introduction, and urban encroachment are the primary factors that have adversely affected the CRF throughout its range.

Twedt (1993) documented bullfrog predation of juvenile northern red-legged frogs, and indicated that bullfrogs may also prey on subadult northern red-legged frogs as well. Bullfrogs may also have a competitive advantage over red-legged frogs, since bullfrogs are larger and posses more generalized food habitats (Bury and Whelan 1984), and bullfrog larvae are unpalatable to predatory fish (Kruse and Francis 1977). In addition, bullfrogs have an extended breeding season (Storer 1933) during which an individual female can produce as many as 20,000 eggs (Emlen

1977). Bullfrogs can also interfere with red-legged frog reproduction, since California and northern red-legged frogs have been observed in amplexus with both male and female bullfrogs (Jennings and Hayes 1990; USFWS 1993; Twedt 1993). Thus, bullfrogs are able to prey upon and out-compete red-legged frogs, especially in sub-optimal habitat.

The urbanization of land within and adjacent to CRF habitat has also adversely affected this species. These declines are attributed to channelization of riparian areas, enclosure of the channels by urban development that blocks CRF dispersal, and the introduction of predatory fishes and bullfrogs. The conversion and isolation of perennial pool habitats resulting from urbanization is an ongoing threat to CRF.

1.3 Occurrence Records within 1.6 Kilometers (1.0 Mile) of the Site, and Critical Habitat

The California Natural Diversity Data Base (CNDDB) (CDFW 2017) was queried for CRF occurrences within 1.6 km (1 mi) of the project area (Figure 6, CNDDB Occurrences (and Documented Field Observations) of California Red-Legged Frog). The closest CNDDB occurrence is located within the study area (Occurrence Record #1423) at Pond 2 and drainage ID-01. The next closest record is located approximately 1.6 km (1 mi) north of the study area and represents an observation of a juvenile CRF along Salmon creek near the town of Bodega (Occurrence Record (#1456; observed in 2016). Two additional unprocessed occurrence records also occur within approximately one mile of the project site. Both occurrence records (#743 and #845) occur north of the study area; although, the exact locations have been suppressed. Location information provided by CDFW indicates that both records are situated in separate locations within one mile of the project site. Both occurrence records represent adult CRF. Copies of the CNDDB occurrence records are provided in Attachment A.

The nearest critical habitat unit is located immediately adjacent to the project site on the other side of the Estero Americano (MRN-1, Estero), California (see Figure 6).

1.4 Aquatic Habitats within 1.6 km (1.0 mi) of the Site

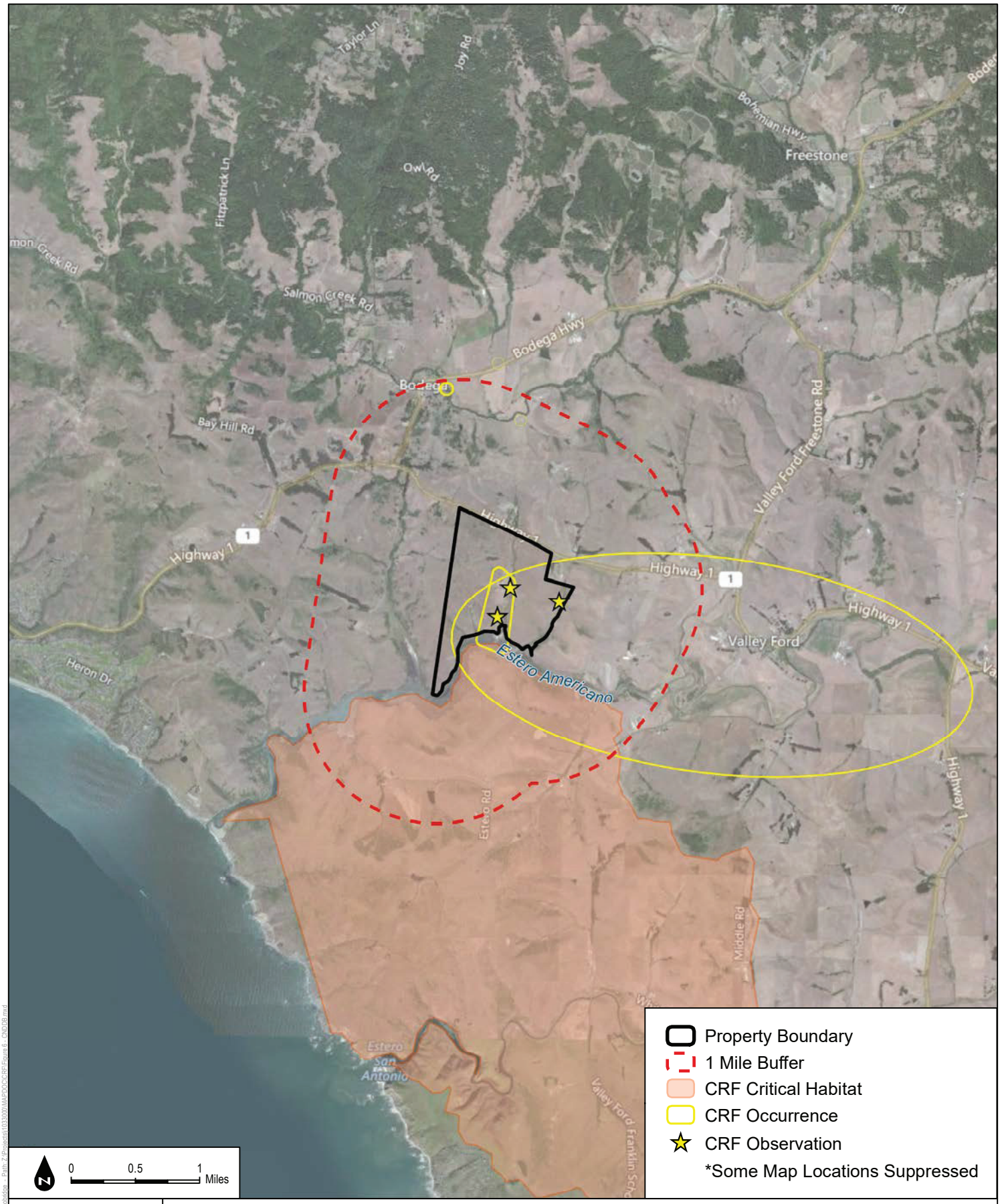
Aquatic habitats located outside the study area on private property were not evaluated as part of the field assessment; however, USFWS guidelines require a cursory assessment of potential aquatic the habitats within 1.6 km (1.0 mi) of project boundaries. Information on aquatic habitats in the vicinity of the study area was obtained from aerial photographs, and from the "Valley Ford, California" USGS 7½ minute topographic quad.

Based on available information and a thorough review of the topographic map and several aerial photographs (Google Earth 2017), several aquatic features are present within 1.6 km of the site. Six perennial ponds were identified within 1.6 km of the site including two *stock* ponds located approximately 1.5 km (1 mi) east, one pond located approximately 0.2 km (0.1 mi) west, and three ponds north of the site across Highway 1. Given the extent of grazing in the surrounding area, several other ponds were observed in the general area on Google Earth but historical inundation patterns could not be determined.

The area surrounding the project site is similar in character, consisting of rolling hills vegetated with annual grasslands used primarily for grazing. Within these rolling hills numerous unnamed ephemeral drainages of varying sizes exist. A drainage 0.8 km (0.5 mi) to the west appears to have similar characteristics to the two intermittent drainages evaluated on site. Both of the ponds east of the site are relatively large stock ponds that appear to be perennial in most years and receive intensive livestock use. Based on aerial photographs both ponds lack any surrounding vegetation and appear heavily trampled. North of the project site, there are two perennial ponds just north of Highway 1, each located on the two drainages (ID-01 and ID-02) that flow through the site. Further to the northwest, there are two additional perennial stock ponds (located 1 km (0.6 mi) northwest of the site and 0.3km (0.2 mi) west of the site which appear to receive less intensive use than the ponds east of the site. These ponds have surrounding vegetation and cover present. Several ponds are also present within Critical Habitat Unit MRN-1 located south of the project site; however, they are geographically isolated by the Estero Americano.

1.5 Adjacent Land Use

Similar to the project site, land use in the surrounding area are rural, agricultural and livestock grazing. The surrounding area is characterized by annual grasslands with similar topography (rolling hills). The only other land use in the immediate vicinity is the Sonoma Coast Villa and Spa located immediately east of the project site and Highway 1.



SOURCE: Bing Maps (Accessed 2017); CNDDB (2017)

FIGURE 6

CNDDB Occurrences (and Documentation of Field Observations) of California Red-Legged Frog

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2 METHODS

On the September 25 and 26, 2017, Dudek biologist Craig Seltenrich and Paul Keating performed daytime visual encounter surveys for CRF at all aquatic sites that still contained water (ponds 3 and 4 and drainages ID-01 and ID-02) prior to conducting habitat assessments for each aquatic site and associated upland areas within the study area. Qualifications for conducting habitat assessments for these species are provided in Attachment B. Aquatic habitat areas evaluated as part of the habitat assessment included four man-made ponds (ponds 1–4), two intermittent drainages (ID-01 and ID-02), and several springs/seeps.

Initially, the CNDDB was queried for CRF occurrences within the "Valley Ford, California" quadrangle. Surveys were conducted by approaching each water body slowly and visually scanning the water, banks, and aquatic plants (using binoculars) for presence of CRF. Following the use of binoculars, each habitat was slowly approached and scanned visually by naked eye. Habitat evaluations were conducted by walking around the perimeter of all potential aquatic habitats and through adjacent upland areas. At each site, general and specific habitat conditions (e.g., type and location, physical parameters, upland habitat information) were recorded for both aquatic and adjacent terrestrial environments. Additionally, photographs were taken to document existing habitat conditions.

The CRF habitat assessment and daytime surveys were based on habitat requirements and survey protocols as described in the *Revised Guidance on Site Assessments and Field Surveys for the California Red-Legged Frog* (USFWS 2005). Aquatic habitats and potential aquatic habitats, and adjacent uplands, were evaluated by assessing their potential to support breeding, foraging activities, provide refuge and/or aestivation habitat, and as dispersal corridors for adult and juvenile frogs. In addition, habitats were also evaluated based on personal knowledge and experience with CRF in northern and central California. Information collected during the site survey, and from environmental documents, included data on the following site characteristics:

- Terrain – elevation and topography
- Land use – historic and current for the project area and adjacent lands
- Plant communities
- Upland habitat
- Aquatic habitat types and aquatic features – vegetation present, water surface area and depth, approximate drying date of water body
- Potential underground refugia

- Potential foraging habitat
- Potential breeding habitat

3 RESULTS

Site and habitat characteristics (both aquatic and terrestrial) and a summary of the formal survey results at each pond location are described below. Copies of habitat assessment data sheets completed for each of the sites are provided in Attachment C. Photographs of the aquatic habitats and representative upland areas within the site are provided in Attachment D.

3.1 Aquatic Habitat Descriptions

At the time of the site assessment conducted in September 2017, a total of six aquatic features (ponds 1–4, and intermittent drainages ID-01 and ID-02) were evaluated as potential CRF breeding habitat. Additional wetland features were evaluated during the assessment; however, most are likely only inundated during the winter and early spring. These ephemeral features are too shallow to provide suitable breeding habitat for CRF, but may provide foraging areas when inundated.

Site-specific descriptions are provided for the six primary aquatic habitats (ponds 1–4 and intermittent drainages ID-01 and ID-02) documented during the site assessment (Figure 7, Aquatic Habitats Evaluated within the Estero Trail Study Area). The other remaining drainages are all highly ephemeral and do not appear to pond water for a sufficient period to provide suitable breeding habitat and limited summer refugia for CRF. Multiple seeps occur in the surrounding upland areas, and several spring boxes or watering troughs for cattle are present as well. These features may provide for dispersal, foraging habitat, and cover during various seasons. In addition to the aquatic habitat characteristics at each site, a description of the surrounding uplands and presence of terrestrial cover in the vicinity of the feature is also provided.

3.2 Man-Made Ponds

3.2.1 Pond 1

Pond 1 is located in the northern portion of the study area approximately 925 ft (282 m) west of the access road. This man-made stock pond is situated on a hillside and is fed by a small ephemeral drainage that originates approximately 425 ft (130 m) uphill of the pond. This drainage continues immediately south of the pond and conveys pond overflow to drainage ID-01, located just east of the access road. At the time of the September 2017 site visit, this seasonal pond was almost dry. The only water remaining had low turbidity and occurred in depressions left by cattle hooves in the deepest portion of the pond. When full, this pond measures approximately 12 m (40 ft) long and 12 m (40 ft) wide with a maximum water depth of about 2.25 m (7.4 ft) when full. The small ephemeral drainage below the pond was also dry during the September 2017 site visit.

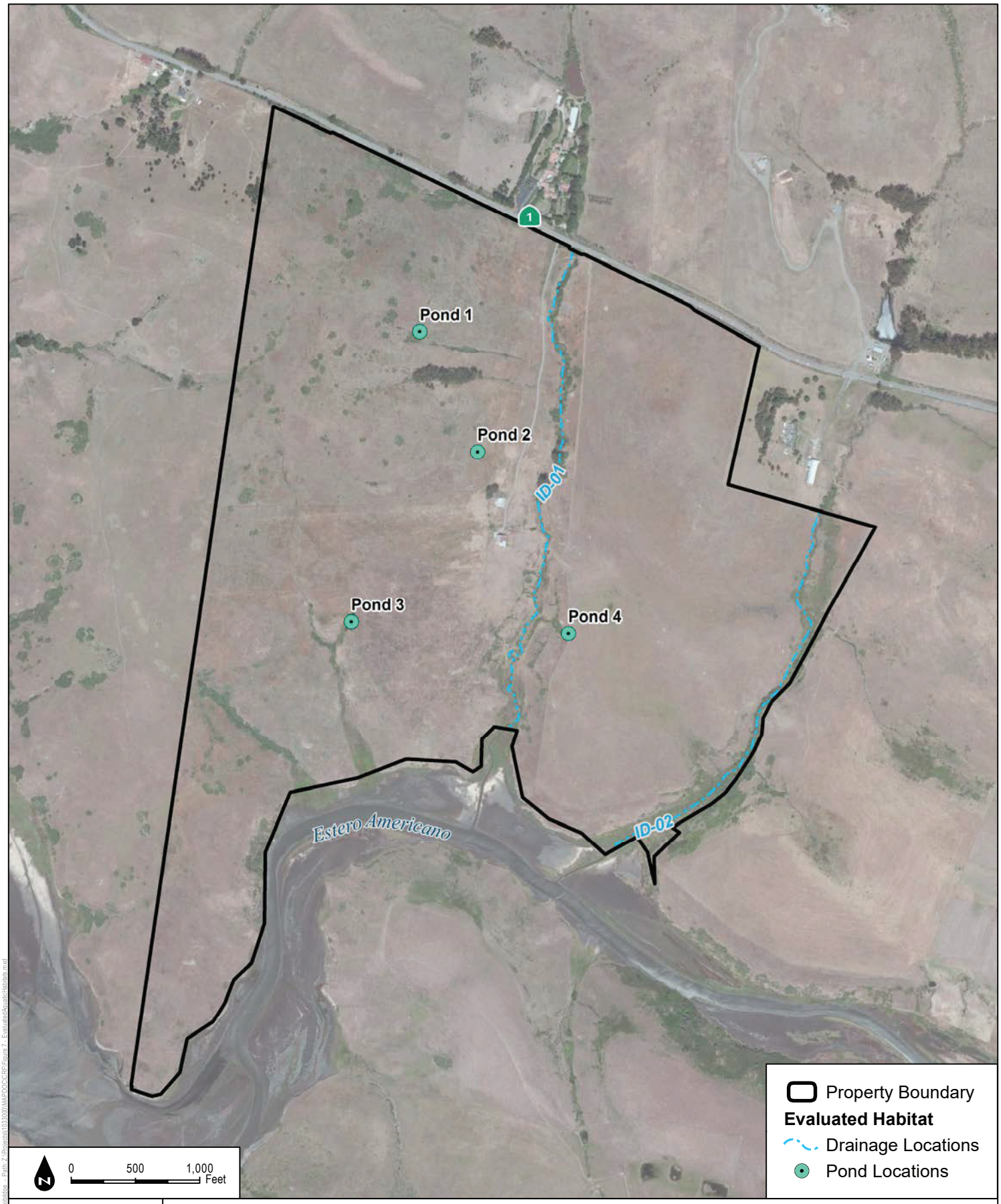
Emergent vegetation consisted of bulrush and creeping spikerush, and provided about 10% cover throughout the pond. Submerged vegetation was absent since the pond was almost dry. Most of the pond perimeter was earthen banks (70%) although coyote brush, spikerush, grasses, various forbs, and a small redwood tree were also present around the pond. Much of the vegetation in the upper portion of the pond has been recently disturbed and consisted of primarily of gorse, which had been mechanically removed. Very little overhanging vegetation occurred around the margin of the pond; and at mid-day, bulrush, coyote brush, and a small redwood tree provide about 15% shade on the water. The pond substrate was composed primarily of fine silt/mud (90%) with a small amount of sand (10%). The earthen banks were of moderate-high gradient along the pond berm and the remainder of the pond was of moderate gradient.

Uplands in the immediate vicinity of the pond consist of disturbed areas (grazing and mechanical weed control) with varying amounts of vegetation. Low to moderate small mammal (pocket gopher) activity was observed in the vicinity of the pond. Terrestrial vegetation including forbs, grasses, and coyote brush provide approximately 15% cover within 15 m (50 ft) of the pond. There are no visible barriers to CRF movement or dispersal.

Pond 1 was almost dry at the time of the survey conducted on September 26, 2017. It is difficult to ascertain when the pond typically dries from aerial imagery; however, given the presence of bulrush and the timing of this survey it is assumed that the pond remains inundated for a sufficient period to potentially support successful breeding through metamorphosis in some years. If it stays inundated through August in most years, the pond may provide breeding habitat and summer refugia for CRF. No wildlife species, either terrestrial or aquatic, were observed during the site visit.

3.2.2 Pond 2

Pond 2 is located approximately 305 m (1,000 ft) south-southeast of Pond 1 and about 100 m (330 ft) west of the access road. This man-made stock pond is located on the side of a hill and is not associated with a drainage. The pond berm appears to have been breached at some point in the past, reducing the overall depth and volume of the pond. At the time of the site assessment, this seasonal pond was completely dry and when full is estimated to measure approximately 10 m (33 ft) long and 6 m (20 ft) wide with an estimated maximum water depth of 0.5 m (1.5 ft).



SOURCE: Bing Maps (Accessed 2017)

FIGURE 7

Aquatic Habitats Evaluated within the Estero Trail Study Area

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Bordessa Ranch - Estero Trail

California Red-legged Frog Habitat Assessment and Surveys Report

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Emergent vegetation consisting of rushes was present around a portion (10%) of the pond margin, providing limited cover and no shade on the water at mid-day. Submerged vegetation was not present due to the absence of water. The pond substrate was composed primarily of silt (90%) with a small amount of sand (10%). The relatively smooth earthen banks extended around the perimeter of the pond and are of moderate to high gradient.

Uplands in the immediate vicinity of the pond consist of disturbed areas with little or no vegetation. Very little small mammal activity was observed in the vicinity of the pond, and other types of cover (other than limited vegetation) were not present. Terrestrial vegetation around the pond has been disturbed by grazing. There are no visible barriers to CRF movement or dispersal.

The on-site occurrence record (#1423), and personal communications with Richard Stabler of Sonoma County (September 27, 2017) indicate that this pond has been historically used by CRF; however, based on current conditions it doesn't appear the pond remains inundated for sufficient period to support successful CRF reproduction. No wildlife species, either terrestrial or aquatic, were observed during the site visit.

3.2.3 Pond 3

Pond 3 is located in the south-western portion of study area near the upper end of an ephemeral drainage that flows into the Estero Americano. The man-made stock pond is fenced off with barbed wire precluding access by cattle, and as a result, very little disturbance was observed around the pond. At the time of the site assessment, this apparently perennial pond was at least 75% inundated, and measured approximately 24 m (80 ft) in length and 11.5 m (38 ft) in width. Due to the heavy growth of duckweed fern (*Azolla* sp.), the maximum and average water depths could not be determined. The drainage leading from the pond to the Estero Americano was dry at the time of the September 2017 site visit.

Emergent vegetation consisted primarily of duckweed fern (which covered the entire surface of the pond) along with scattered sedges, grasses, and forbs. Arroyo willow and coffeeberry provided cover along the eastern margin of the pond. Submerged vegetation could not be evaluated due to the heavy mat of duckweed fern. Overhanging willows and other bank vegetation provided about 20% shade on the water at mid-day. Earthen banks, wood planks, and algal mats provided potential basking sites, and willow branches and potentially root balls underneath the overhanging willows provide additional cover. The pond substrate was composed primarily of silt/mud (90%) with about 10% sand. The mostly earthen banks range from low to moderate in gradient.

Uplands in the immediate vicinity of the pond consist primarily of grassland habitat (highly disturbed in some areas due to grazing) outside the barbed wire fence surrounding the pond, and undisturbed wetland/riparian and upland habitat within the fence area adjacent to the pond. Small mammal activity was generally sparse observed in the vicinity of the pond. Terrestrial vegetation including forbs, grasses, and coyote brush provide approximately 15% cover within 15 m (50 ft) of the pond. There are no visible barriers to CRF movement or dispersal.

During the September 26th site visit, audible "plops" were heard from under the overhanging willows and coffeeberry along the eastern bank of the pond. No "squeek" accompanied the plops. Due to the heavy cover, a visual confirmation of the species could not be confirmed. However, since the edge of the pond did not appear to be very steep under the willows, the "plop" was likely not due to a western pond turtle, which would have slid into the water rather than "plop." Based on the suitability of the pond to support CRF and the presence of CRF in drainage ID-01 not far from the pond, there is higher likelihood that the "plop" was due to a CRF. Even though CRF were not observed during the two surveys, the pond provides highly suitable habitat for this species and would expect the pond is utilized by this species. No other wildlife species, either terrestrial or aquatic, were observed during the site visit.

3.2.4 Pond 4

Pond 4 is a man-made stock pond located in the southern portion of study area approximately 240 ft (73 m) east of drainage ID-01. A narrow drainage occurs below the pond that conveys pond overflow to drainage ID-01. A perimeter fence occurs around this pond precluding cattle access, and as a result, very little disturbance was observed around the pond. The entire pond is currently filled with bulrush, providing about 95% shade on the water at midday. Due to the dense vegetation, the level of inundation could not be determined, although it appeared that the water depth was less than 6 inches. The pond measured approximately 12 m (39 ft) in length and 20 m (68 ft) in width.

Emergent vegetation consisted almost entirely of bulrush which covered the majority (95%) of the pond. Submerged vegetation was not observed since the pond was covered with bulrush. The majority of the pond margin and bank was vegetated with grasses and sedges. Overhanging margin and bank vegetation, which was comprised mostly of grasses, sedges, ferns and blackberry, provides about 15% cover. The pond substrate was composed primarily of fine silt/mud (85%) with a small amount of sand (15%). Earthen banks were highly limited around the pond and where present were of moderate to high gradient.

Uplands in the immediate vicinity of the pond consisted of disturbed and undisturbed areas with varying amounts of vegetation. Low to moderate small mammal (pocket gopher) activity was observed in the vicinity of the pond. Terrestrial vegetation including sedges, grasses, ferns, blackberry, coffeeberry, and coyote brush provided approximately 80% cover within 15 m (50 ft) of the pond. This pond drains into drainage ID-01 and water was still seeping through the area providing potential CRF foraging habitat. There are no visible barriers to CRF movement or dispersal.

3.3 Unnamed Intermittent Drainages

3.3.1 Drainage ID-01

Drainage ID-01 is located approximately 60 m (200 ft) east of the access road and originates approximately 0.5 mile north of Highway 1. This drainage enters the study area through a culvert under Highway 1 and terminates at the Estero Americano. Stream characteristics and riparian cover varies within drainage ID-01 from the northern to southern ends of the study area. The upper third of the drainage had dense riparian cover with a few small, isolated shallow pools, the middle portion of the drainage contained less dense riparian cover interspersed with open areas lacking riparian cover, and the lower portion of the drainage is tidally influenced upstream of the Estero Americano. The stream channel is relatively narrow and contained periodic isolated pools including a few plunge pools (that were narrow with varying length) that still contained water. The largest pools (in length) occurred in the tidally influenced portion of the drainage.

The upper third of the drainage contained fairly dense riparian vegetation, consisting of arroyo willow, eucalyptus, and Lombardy poplar, which provided approximately 90% canopy cover. Pools in this section were small and relatively shallow and most were dry, although a few pools still contained a small amount of water. Channel substrates consisted primarily of gravel and cobble with some areas containing finer sediments. The heavy canopy cover was dominated by arroyo willow with scattered eucalyptus and Lombardy poplar.

Riparian cover in the middle portion of the drainage (which extends to the tidally influenced portion of the creek) was less dense and of limited extent (relative to the upper portion of the drainage) interspersed with open areas lacking riparian cover. The primary riparian cover in this portion of the drainage consisted primarily of arroyo willow. This portion of the drainage contained more pools than in the upper part of the drainage, with varying levels of inundation. The average maximum pool depth in this section was estimated at about 1 m (3 ft), with the deepest pool recorded at approximately 2 m (6 ft). Average pool length was approximately 8 m (25 ft) with the longest pool measured at 45 m (150 ft) and widths varied from 1.5 to 3.5 m (5 to 11.5 ft).

Emergent vegetation was present in some of the pools, consisting of common rush (*Juncus effuses*), bulrush (*Scirpus* sp.), cattail (*Typha latifolia*), lanceleaf water plantain (*Alisma lanceolatum*), and several forbs. Other plants observed in drainage ID-01 include slough sedge (*Carex obnupta*), velvet grass (*Holcus lanatus*), sweet vernal grass (*Anthoxanthum oderatum*), horsetail (*Equisetum telmateia*), western brackenfern (*Pteridium aquilinum*), and western swordfern (*Polystichum munitum*). A filamentous green alga (*Cladophora* sp.) along with water milfoil (*Myriophyllum* sp.) comprised the majority of submerged vegetation. Channel substrates consisted primarily of silt/mud (85%) and sand (15%). Overhanging, emergent, and submerged vegetation and undercut banks provided the majority of the aquatic cover which averaged 40% along pool margins. Pools generally had moderate to high gradient earthen banks. Terrestrial cover (primarily vegetation) along the stream channel provides up to 90% cover. Western mosquitofish and an unidentified minnow were observed in many of the pools that still contained water.

Upland habitat along the middle portion of the drainage consists primarily of non-native annual grassland, with scattered small mammal (Botta's pocket gopher) burrows, sedges, and shrubs (coyote brush) which provide cover outside of the channel.

The lower portion of the drainage is located within the tidally influenced portion of the creek. Riparian cover was absent in this portion of the drainage. Vegetation along the channel consisted primarily of pickle weed (*Salicornia* sp.) and salt grass (*Distichlis* sp.). The channel varied in width from about 2 m (6 ft) to 4 m (12 ft). In general, the tidal portion of the drainage consisted of one long pool with varying depth. Channel substrates consisted primarily of silt/mud (85%), sand (5%), and cobble (10%). The channel banks were earthen and generally high gradient. A filamentous green alga was present throughout most of this portion of the drainage. Overhanging and submerged vegetation and undercut banks provided the majority of the aquatic cover which averaged greater than 90% along the channel. Abundant terrestrial cover (vegetation) along the stream channel provides up to 100% cover.

During the survey of drainage ID-01, an adult and juvenile CRF were observed in one of the pools in the middle portion of the drainage, approximately 45 m (150 ft) north of the bridge crossing and 83 m (275 ft) east of the barn. The adult CRF was observed on the earthen bank underneath the solitary overhanging willow and the juvenile was observed basking on duckweed. When full, this pool is approximately 14.5 m (48 ft) long and 3.5 m (12 ft) wide. The pool had a maximum water depth of about 1 m (3 ft), with a minimum depth of 0.1 m (0.3 ft), and an average depth of 0.6 m (2 ft). The water was relatively clear with a temperature was 13° C (56° F). Emergent vegetation was comprised of grasses, rushes, forbs, and arroyo willow, providing 40% cover and 35% shade at mid-day. Submerged vegetation consisted of duckweed, water primrose (*Ludwigia hexapetala*) and water plantain (*Alisma* sp.), which covered about 50% of

the pool. The pool substrate was composed primarily of fine silt/mud (90%) with a small amount of sand (10%). Moderate to high gradient earthen banks were present around 70% of the pool, except at the downstream end where the banks were low gradient.

Uplands in the immediate vicinity of the pool consist primarily of grassland habitat (slightly disturbed by grazing) with scattered shrubs and sedges. Terrestrial vegetation, including rushes, grasses, shrubs, and blackberry, provided approximately 40% cover within 15 m (50 ft) of the pool. Very little small mammal (pocket gopher) activity was observed in the vicinity of the pool. Western mosquitofish (*Gambusia affinis*) and minnows were observed in the pool.

3.3.2 Drainage ID-02

Drainage ID-02 is located along the eastern boundary of the study area. This drainage originates approximately 0.75 miles north of Highway 1, entering the study area through a culvert under Highway 1 and terminating at the Estero Americano. In general, stream characteristics were similar to drainage ID-01 with habitat characteristics and riparian cover varying from the northern to southern ends of the study area. The upper third of the drainage was fairly incised and relatively open with some scattered willow, the middle portion of the drainage was less incised and contained dense riparian cover that precluded access to the stream channel, and the lower portion of the drainage is tidally influenced upstream of the Estero Americano and lacks riparian cover. The overall channel width varies from approximately 6 to 15 m (20 to 50 ft) in areas that could be accessed. The stream gradient was low (0–1%) in the upper third of the drainage, with increased gradient (1%–3%) in the middle portion, and low gradient (0–1%) again in the lower third of the drainage upstream of the Estero Americano. The upper portion of the drainage is fairly open with sedges, grasses, and scattered willow providing limited canopy cover, with grasses and dense willow canopy dominating the middle portion of the drainage. The lower tidally influenced portion of the drainage lacked a riparian canopy, with the primary vegetation consisting of pickle weed and salt grass.

During the site assessment, two juvenile CRF were observed basking on duckweed in an isolated pool. The pool is located approximately 61 m (200 ft) south of the northern property boundary. When full, this pool measures approximately 20 m (65 ft) long and 1-4 m (3-13 ft) wide. The water temperature was 14.5° C (59° F), with a maximum water depth of approximately 1 m (3 ft), a minimum depth of 0.2 m (0.6 ft), and an average depth of 0.5 m (1.5 ft).

Overhanging vegetation, consisting of grasses, rushes, and ferns was present around 90% of the pool perimeter, providing 35-45% shade on the water at midday. Emergent vegetation was comprised of duckweed and water plantain which provided about 25% cover. Water clarity was

relatively good and submerged vegetation, consisting of water milfoil, and filamentous green algae, provided at least 30% cover. The pond substrate was composed primarily of fine silt/mud (90%) with a small amount of sand (10%). The earthen banks around 70% of the pool were of moderate to high gradient except at the southern end of the pool.

Uplands habitat in the immediate vicinity of the pool consists primarily of grassland habitat (undisturbed by grazing). Terrestrial vegetation, including grasses, sedges, coyote brush, and blackberry, provided approximately 90% cover within 15 m (50 ft) of the pool. Little to no small mammal (pocket gopher) activity was observed in the vicinity of the pool; high grasses made visual observation difficult. There were no visible barriers to CRF movement or dispersal. A western pond turtle was also found basking in the duckweed with the CRF juveniles.

The middle portion of the drainage is located on the eastern property line, which is fenced. Due to the fencing and dense riparian canopy along the property line, access to the creek was not possible without cutting vegetation. Arroyo willow was dominant vegetation, providing 95% to 100% cover along the stream channel. The tidal portion of the drainage occurs immediately downstream of this dense riparian area.

3.4 Upland Habitat Description

Upland habitat within the site consists primarily of annual grasslands with riparian habitat present along the drainages, except in the tidally influenced portion of the drainage. Numerous seeps along with scattered spring boxes were also present within the grasslands.

Terrestrial cover near the drainages and ponds consisted of small mammal burrows (primarily Botta's pocket gopher) with burrow densities ranging from sparse to numerous depending on location; other cover consisted of riparian vegetation and shrubs (e.g., coyote brush) located along and adjacent to the drainages.

3.5 Visual Encounter Surveys

CRF were observed in both drainages (ID-01 and ID-02) during the two daytime surveys conducted on September 26 and 27, 2017, at each location; and have been previously documented in Pond 2, drainage ID-01, and in the 'spring box' located approximately 320 m (1,050 ft) south of the barn. Suitable habitat is present in Pond 4 but CRF was not positively identified during the surveys.

4 DISCUSSION

During the site assessment conducted on September 26 and 27, 2017, four of the six aquatic habitats evaluated as potential breeding and summer refugia habitat for CRF contained water; although only Pond 3 was substantially inundated. Based on the habitat characteristics for each of the features, all of them provide aquatic habitat for CRF; however, only Pond 3 and possibly Pond 1 (during some years), and drainages ID-01 and ID-02 appear to retain water for a sufficient period in most years to support successful CRF breeding through metamorphosis. Habitat assessments conducted at ponds 2 and 4 indicate that water depth and the typical length of the inundation period are not sufficient to support successful breeding. The maximum depth of Pond 2 was estimated at less than 1 ft.

During the surveys, CRF were observed in residual pools in both of the drainages. Additionally, during the survey at Pond 3, an audible plop (with no "squeek") was heard from under the overhanging willows and coffeeberry along the eastern bank of the pond. Based on the relatively low bank gradient along that side of the pond, it is unlikely that the sound came from a western pond turtle which would have slid into the pond, and was more likely a CRF. This conclusion is supported by the fact that CRF were observed in drainage ID-01 not far from the pond and that the same "plop" sound was heard in both drainages during the initial survey, and were later positively identified as CRF.

Based on the relatively short length of both drainages (each approximately 1.3 mi long from the headwaters to the Estero Americano), flows in the creek during the winter and early spring are likely not sufficient to preclude breeding in the creek. Additionally, the presence of CRF juveniles and an adult in residual pools in both drainages increases the likelihood that breeding occurs in both creeks, although frogs could have also moved from Pond 3 and possibly Pond 1 if breeding is occurring in these ponds.

In addition to the four ponds and the drainages, several seeps and springs with associated spring boxes also occur within the study area. CRF have been observed in the spring box located approximately 320 m (1,050 ft) south of the barn during a previous site visit (personal communication with Richard Stabler, September 2017, Sonoma County), and may use other spring boxes on the site as temporary refugia.

4.1 Upland Habitat

Suitable upland habitat for CRF is common to abundant in the vicinity of all four ponds, consisting primarily of vegetative cover and small mammal burrows (Botta's pocket gopher). Extensive vegetative cover occurs in and immediately adjacent to both drainages upstream of the

tidally influenced portions of each drainage, and surrounding Pond 3. Vegetative cover in the vicinity of the other three ponds is generally sparse; however, small mammal burrows are present in varying abundance.

5 CONCLUSIONS

Based on the results of the habitat assessment, suitable breeding habitat is present in Pond 3 and likely Pond 1 (in some years), as well as both intermittent drainages (ID-01 and ID-02). Additionally, during the daytime survey, a CRF juvenile and adult were observed in drainage ID-01 and two juvenile CRF were observed in drainage ID-02.

Pond 1 is seasonal but has sufficient depth to support breeding in some years (likely only in average or above average rainfall years) and Pond 3 (which is generally perennial) appears to provide suitable breeding habitat in most years. Ponds 2 and 3 are relatively shallow and are unlikely to support breeding in most if not all years; however, CRF may utilize these ponds in the winter and spring/early summer for cover and foraging. Both of the intermittent drainages appear to provide suitable breeding habitat in most years, since high flashy flows are not likely to occur due to the short length of both drainages (approximately 1.3 miles each).

Additionally, some of the seeps and springs provide refugia and forage habitat for CRF during the spring and summer. CRFR have been observed using the spring box located 320 m (1,050 ft) south of the barn.

Suitable upland habitat is present adjacent to or in close proximity to all of the ponds and both intermittent drainages.

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6 RECOMMENDATIONS

To protect ponds 1–4 and drainages ID-01 and ID-02, 100 ft buffer areas should be established around the ponds and along both drainages. The proposed trail alignment is situated greater than 100 ft from potential CRF breeding locations (ponds 1 and 3, and drainages ID-01 and ID-02), with the exception of the pedestrian crossing proposed on ID-01 near the northern property boundary and the existing bridge located on ID-01 east of the barn. However, ponds 2 and 4, which provide suitable non-breeding habitat for CRF during the winter and spring/early summer, occur within approximately 50 ft of the trail alignment.

Any activities that could potentially impact the ponds and drainages (ground disturbance, human activities, etc.) within the 100 ft buffer areas will require pre-construction surveys and a biological monitor during construction even if CRF are not observed within these aquatic habitats during the pre-construction survey. In any event, fencing must be installed around the work zone to prevent CRF from entering the construction zone. If CRF are present within the buffer areas, work should be postponed until either 1) the frogs move away from that location on their own, or 2) the frogs are removed and relocated to a safe location by a qualified biologist with approval from USFWS.

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7 REFERENCES

Bulger, J.B., N.J. Scott Jr., and R.B. Seymour. 2003. Terrestrial activity and conservation of adult California red-legged frogs *Rana aurora draytonii* in coastal forests and grasslands. *Biological Conservation* 11:85-95

Bury, B. R., and J. A. Whelan. 1984. Ecology and management of the bullfrog. Resources Publication 155, U.S. Fish and Wildlife Service, Washington, DC. 23 pp.

CDFW (California Department of Fish and Wildlife). 2017. "*Rana draytonii*." Element Occurrence Query. California Natural Diversity Database (CNDDB). RareFind, Version 4.0 (Commercial Subscription). Sacramento, California: CDFW, Biogeographic Data Branch. Accessed October 2017 https://www.wildlife.ca.gov/Data/CNDDB/Maps-and-Data.

Emlen, S.T. 1977. "Double clutching" and its possible significance in the bullfrog. *Copeia* 1977 (4):749-751.

Fellers, G. M. 2005. *Rana draytonii* Baird and Girard 1852, California Red-Legged Frog. *In* Lannoo, M., editor. ed. *Amphibian Declines: The Conservation Status of United States Species*. Volume 2. 552–554.University of California Press. Berkeley.

Fellers, G.M. and P.M. Kleeman. 2007. California red-legged frog (*Rana draytonii*) movement and habitat use: Implications for conservation. *Journal of Herpetology* 41(2):271-281.

Findlay, C.S. and J. Houlahan. 1997. Anthropogenic correlates of species richness in southeastern Ontario wetlands. *Conservation Biology* 11:1000-1009.

Gibbs, J.P. 1998. Amphibian movements in response to forest edges, roads, and streambeds in southern New England. *Journal of Wildlife Management* 62: 584-589.

Google Earth. 2017. Mapping data. Accessed September 2017.

Hayes, M.P., and M.R. Jennings. 1988. Habitat correlates of distribution of the California red-legged frog (*Rana aurora draytonii*) and the foothill yellow-legged frog (*Rana boylii*): implications for management. Pages 144-158 *in* R. Sarzo, K.E. Severson, and D.R. Patton (technical coordinators). Proceedings of the symposium on the management of amphibians, reptiles, and small mammals in North America. United States Department of Agriculture, Forest Service, Rocky Mountain Range and Experiment Station, Fort Collins, Colorado. General Technical Report (RM-166): 1-458.

Hayes, M.P. and D.M. Krempels. 1986. Vocal sac variation among frogs of the genus Rana from western North America. *Copeia* 1986(4):927-936.

Hayes, M.P. and M.M. Miyamoto. 1984. Biochemical, behavioral and body size differences between *Rana aurora aurora* and *R.a. draytonii. Copeia* 1984(4): 1018-1022.

Hayes, M.P., and M.R. Tennant. 1985. Diet and feeding behavior of the California red-legged frog, *Rana aurora draytonii* (Ranidae). Southwestern Naturalist 30(4): 601-605.

Jennings, M.R. 1988. Natural history and decline of native ranids in California. Pages 61-72 in H.F. De Lisle, P.R. Brown, B. Kaufman, and B. McGurty (editors). Proceedings of the Conference on California Herpetology. Southwestern Herpetologists Society Special Publication 4:1-143.

Jennings, M.R., and M.P. Hayes. 1985. Pre-1900 overharvest of California red-legged frog (*Rana aurora draytonii*): The inducement for bullfrog (*Rana catesbeiana*) introduction. Herpetological Review 31(1):94-103.

Jennings, M.R., and M.P. Hayes. 1990. Final report of the status of the California red-legged frog (*Rana aurora draytonii*) in the Pescardero Marsh Natural Preserve. Final report prepared for the California Department of Parks and Recreation, Sacramento, California, through Agreement (4-823-9018). Department of Herpetology, California Academy of Sciences, Golden Gate Park, San Francisco, California. 30 pages.

Jennings, M.R., M.P. Hayes, and D.C. Holland. 1992. A petition to the U.S. Fish and Wildlife Service to place the California red-legged frog (*Rana aurora draytonii*) and the western pond turtle (*Clemmys marmorata*) on the list of endangered and threatened wildlife and plants. 21 pages.

Kruse, K.C. and M.G. Francis. 1977. A predation deterrent in larvae of the bullfrog, *Rana catesbeiana*. Transactions of the American Fisheries Society 106(3):248-252.

Kupferberg, S.J. 1996a. Hydrologic and geomorphic factors affecting conservation of a river-breeding frog (*Rana boylii*). Ecological Applications 6:1322-1344.

Kupferberg, S.J. 1996b. The ecology of native tadpoles (*Rana boylii* and *Hyla regilla*) and the impacts of invading bullfrogs (*Rana catesbeiana*) in a northern California river. PhD dissertation. University of California, Berkeley, California.

Rothermel, R.B. and R.D. Semlitsch. 2002. An experimental investigation of landscape resistance of forest versus old-field habits to emigrating juvenile amphibians. Conservation Biology 16: 1324-1332.

Storer, T.I. 1925. A synopsis of the amphibian of California. University of California Publications in Zoology 27:1-1-342.

Storer, T.I. 1933. Frogs and their commercial use. California Department of Fish and Game 19(3)203-213.

Twedt, B. 1993. A comparative ecology of *Rana aurora* Baird and Girard and *Rana catesbeiana* Shaw at Freshwater Lagoon, Humboldt County, California. Unpublished. Master of Science thesis. Humboldt State University, Arcata, California. 53 pages plus appendix.

USDA (U.S. Department of Agriculture). 2017. Web Soil Survey. USDA Natural Resources Conservation Service, Soil Survey Staff. Accessed October 2017. http://websoilsurvey.nrcs.usda.gov/.

USFWS (U.S. Fish and Wildlife Service). 1996. Endangered and threatened wildlife and plants; determination of threatened status for the California Red-Legged Frog. Federal Register 61: 25813-25833.

USFWS. 2002. Recovery plan for the California red-legged frog (*Rana aurora draytonii*). Portland, Oregon. 173 pages.

USFWS. 2005. *Revised Guidance on Site Assessments and Field Surveys for the California Red-Legged Frog*

Vos, C.C. and J.P. Chardon. 1998. Effects of habitat fragmentation and road density on the distribution pattern of moor frog, *Rana arvalis*. Journal of Applied Ecology 35: 44-56.

Vos, C.C. and A.H.P. Stumpel. 1995. Comparison of habitat-isolation parameters in relation to fragmentation distribution patterns in the tree frog (*Hyla arborea*). Landscape Ecology 11:203-214.

Wright, A.H. and A.A. Wright. 1949. Handbook of frogs and toads of the United States and Canada. Comstock Publishing Company, Inc., Ithaca, New York. 640 pages.

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ATTACHMENT A

CNDDB Summary Data Sheets for CRF Occurrences

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Species IS (Rana draytonii)
 AND Quad IS (Valley Ford (3812238))

Map Index Number:	20324	**EO Index:**	16266
Key Quad:	Valley Ford (3812238)	**Element Code:**	AAABH01022
Occurrence Number:	41	**Occurrence Last Updated:**	1992-03-04

Scientific Name: *Rana draytonii* **Common Name:** California red-legged frog

Listing Status: **Federal:** Threatened
State: None
Rare Plant Rank:
Other Lists: CDFW_SSC-Species of Special Concern
IUCN_VU-Vulnerable

CNDDB Element Ranks: **Global:** G2G3
State: S2S3

General Habitat:

LOWLANDS AND FOOTHILLS IN OR NEAR PERMANENT SOURCES OF DEEP WATER WITH DENSE, SHRUBBY OR EMERGENT RIPARIAN VEGETATION.

Micro Habitat:

REQUIRES 11-20 WEEKS OF PERMANENT WATER FOR LARVAL DEVELOPMENT. MUST HAVE ACCESS TO ESTIVATION HABITAT.

Last Date Observed:	1991-04-01	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1991-04-01	**Occurrence Rank:**	Unknown
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

STEMPLE CREEK, TRIBUTARY TO ESTERO DE SAN ANTONIO, JUST DOWNSTREAM FROM THE HWY 1 BRIDGE, 0.25 MI SE OF FALLON.

Detailed Location:

3 FROGS LOCATED ALONG ONE 3-METER STRETCH OF BANK.

Ecological:

Threats:

MAIN THREAT IS GRAZING.

General:

THE 3 FROGS, ALONG WITH EMYS MARMORATA, WERE FOUND DURING A SURVEY FOR SYNCARIS PACIFICA.

PLSS:	T05N, R10W, Sec. 13, SE (M)	**Accuracy:**	1/5 mile	**Area (acres):**	0
UTM:	Zone-10 N4235958 E508496	**Latitude/Longitude:**	38.27163 / -122.90286	**Elevation (feet):**	10

County Summary:	**Quad Summary:**
Marin	Valley Ford (3812238)

Sources:

SER91R0001	SERPA, L. - UNPUBLISHED REPORT (20 MAY 1991) PLUS ADDENDUM (4 SEPT 91) DETAILING SAMPLING ON STEMPLE CREEK. 1991-XX-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 24830
EO Index: 6465
Key Quad: Valley Ford (3812238)
Element Code: AAABH01022
Occurrence Number: 62
Occurrence Last Updated: 2009-04-22

Scientific Name: *Rana draytonii*
Common Name: California red-legged frog

Listing Status: **Federal:** Threatened
State: None
Rare Plant Rank:
Other Lists: CDFW_SSC-Species of Special Concern
IUCN_VU-Vulnerable

CNDDB Element Ranks: **Global:** G2G3
State: S2S3

General Habitat:

LOWLANDS AND FOOTHILLS IN OR NEAR PERMANENT SOURCES OF DEEP WATER WITH DENSE, SHRUBBY OR EMERGENT RIPARIAN VEGETATION.

Micro Habitat:

REQUIRES 11-20 WEEKS OF PERMANENT WATER FOR LARVAL DEVELOPMENT. MUST HAVE ACCESS TO ESTIVATION HABITAT.

Last Date Observed: 1993-04-05
Occurrence Type: Natural/Native occurrence
Last Survey Date: 1993-04-05
Occurrence Rank: Good
Owner/Manager: PVT
Trend: Unknown
Presence: Presumed Extant

Location:

0.3 MILE NORTH OF THE MOUTH OF ESTERO DE SAN ANTONIO, 2 MILES NNW OF DILLON BEACH.

Detailed Location:

Ecological:

HABITAT CONSISTS OF A LOW DRAINAGE IN COASTAL PRAIRIE.

Threats:

THREATENED BY DEVELOPMENT OF A PROPOSED GOLF RESORT AND INVASIVE EXOTICS.

General:

ONE OBSERVED IN 1993.

PLSS: T05N, R10W, Sec. 17 (M)
Accuracy: 1/5 mile
Area (acres): 0
UTM: Zone-10 N4236269 E502076
Latitude/Longitude: 38.27447 / -122.97626
Elevation (feet): 200

County Summary:

Marin

Quad Summary:

Valley Ford (3812238)

Sources:

CCB93F0005 CENTER FOR CONSERVATION BIOLOGY - STANFORD UNIVERSITY - FIELD SURVEY FORM FOR RANA DRAYTONII 1993-04-05

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 24978
Key Quad: Valley Ford (3812238)
Occurrence Number: 74
EO Index: 20061
Element Code: AAABH01022
Occurrence Last Updated: 1993-12-29

Scientific Name: *Rana draytonii*
Common Name: California red-legged frog

Listing Status: **Federal:** Threatened
State: None
CNDDB Element Ranks: **Global:** G2G3
State: S2S3
Rare Plant Rank:
Other Lists: CDFW_SSC-Species of Special Concern
IUCN_VU-Vulnerable

General Habitat:

LOWLANDS AND FOOTHILLS IN OR NEAR PERMANENT SOURCES OF DEEP WATER WITH DENSE, SHRUBBY OR EMERGENT RIPARIAN VEGETATION.

Micro Habitat:

REQUIRES 11-20 WEEKS OF PERMANENT WATER FOR LARVAL DEVELOPMENT. MUST HAVE ACCESS TO ESTIVATION HABITAT.

Last Date Observed: 1993-04-20
Last Survey Date: 1993-04-20
Owner/Manager: UNKNOWN
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Good
Trend: Unknown

Location:

SOUTH OF ESTERO AMERICANO, 1 MILE NORTH OF ESTERO DE SAN ANTONIO, AND WEST OF FRANKLIN SCHOOL ROAD, NW MARIN COUNTY.

Detailed Location:

Ecological:

HABITAT CONSISTS OF DEEP, PERMANENT PLUNGE POOLS WITHIN AN EPHEMERAL DRAINAGE.

Threats:

THREATENED BY A PROPOSED GOLF COURSE DEVELOPMENT AND AN ADJACENT RESIDENTIAL DEVELOPMENT.

General:

10+ OBSERVED BETWEEN THIS AND AN ADJACENT DRAINAGE TO THE NORTH; LIFE STAGE UNKNOWN.

PLSS: T05N, R10W, Sec. 08 (M)
Accuracy: nonspecific area
Area (acres): 53
UTM: Zone-10 N4237203 E501409
Latitude/Longitude: 38.28289 / -122.98389
Elevation (feet): 250

County Summary:	Quad Summary:
Marin, Pacific Ocean	Valley Ford (3812238)

Sources:

VOU93F0004 VOUCHILAS, C. - FIELD SURVEY FORM FOR RANA DRAYTONII 1993-04-20

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 24977
Key Quad: Valley Ford (3812238)
Occurrence Number: 75
EO Index: 6360
Element Code: AAABH01022
Occurrence Last Updated: 1993-12-29

Scientific Name: *Rana draytonii*
Common Name: California red-legged frog

Listing Status: **Federal:** Threatened
State: None
CNDDB Element Ranks: **Global:** G2G3
State: S2S3
Rare Plant Rank:
Other Lists: CDFW_SSC-Species of Special Concern
IUCN_VU-Vulnerable

General Habitat:

LOWLANDS AND FOOTHILLS IN OR NEAR PERMANENT SOURCES OF DEEP WATER WITH DENSE, SHRUBBY OR EMERGENT RIPARIAN VEGETATION.

Micro Habitat:

REQUIRES 11-20 WEEKS OF PERMANENT WATER FOR LARVAL DEVELOPMENT. MUST HAVE ACCESS TO ESTIVATION HABITAT.

Last Date Observed: 1993-04-20
Last Survey Date: 1993-04-29
Owner/Manager: PVT
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Good
Trend: Unknown

Location:

SOUTH OF ESTERO AMERICANO, 1.5 MILES NORTH OF ESTERO SAN ANTONIO, AND WEST OF FRANKLIN SCHOOL ROAD, NW MARIN COUNTY.

Detailed Location:

Ecological:

HABITAT CONSISTS OF DEEP, PERMANENT PLUNGE POOLS WITHIN AN EPHEMERAL DRAINAGE.

Threats:

THREATENED BY A PROPOSED GOLF COURSE DEVELOPMENT AND BY AN ADJACENT RESIDENTIAL DEVELOPMENT.

General:

10+ OBSERVED BETWEEN THIS AND A SECOND DRAINAGE TO THE SOUTH; LIFE STAGE UNKNOWN.

PLSS: T05N, R10W, Sec. 08 (M)
Accuracy: nonspecific area
Area (acres): 69
UTM: Zone-10 N4238065 E501440
Latitude/Longitude: 38.29066 / -122.98353
Elevation (feet): 250

County Summary:	Quad Summary:
Marin	Valley Ford (3812238)

Sources:

VOU93F0004 VOUCHILAS, C. - FIELD SURVEY FORM FOR RANA DRAYTONII 1993-04-20

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 45155
EO Index: 45155
Key Quad: Valley Ford (3812238)
Element Code: AAABH01022
Occurrence Number: 423
Occurrence Last Updated: 2001-11-15

Scientific Name: *Rana draytonii*
Common Name: California red-legged frog

Listing Status: **Federal:** Threatened
State: None
Rare Plant Rank:
Other Lists: CDFW_SSC-Species of Special Concern
IUCN_VU-Vulnerable

CNDDB Element Ranks: **Global:** G2G3
State: S2S3

General Habitat:

LOWLANDS AND FOOTHILLS IN OR NEAR PERMANENT SOURCES OF DEEP WATER WITH DENSE, SHRUBBY OR EMERGENT RIPARIAN VEGETATION.

Micro Habitat:

REQUIRES 11-20 WEEKS OF PERMANENT WATER FOR LARVAL DEVELOPMENT. MUST HAVE ACCESS TO ESTIVATION HABITAT.

Last Date Observed: 2001-03-13
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2001-03-13
Occurrence Rank: Good
Owner/Manager: PVT
Trend: Unknown
Presence: Presumed Extant

Location:

EBABIAS CREEK AND AN UNNAMED TRIBUTARY, TRIBUTARY TO ESTERO AMERICANO, 2 MILES NNE OF VALLEY FORD.

Detailed Location:

Ecological:

HABITAT CONSISTS OF CREEKS AND A FARM POND; SURROUNDED BY FALLOW GRASSLAND / PASTURE.

Threats:

THREATENED BY CONVERSION TO VINEYARDS.

General:

1 JUVENILE FOUND IN A WETLAND ASSOCIATED WITH EBABIAS CREEK AND 5 ADULTS FOUND IN A FARM POND ON 12 MAR 2001. 1 JUVENILE OBSERVED ON 13 MAR 2001.

PLSS: T06N, R09W, Sec. 19, SW (M)
Accuracy: specific area
Area (acres): 34
UTM: Zone-10 N4244994 E508284
Latitude/Longitude: 38.35307 / -122.90519
Elevation (feet): 100

County Summary:

Sonoma

Quad Summary:

Valley Ford (3812238)

Sources:

KJE01F0001 KJELDSEN, D. (KJELDSEN BIOLOGICAL CONSULTING) - FIELD SURVEY FORM FOR RANA DRAYTONII 2001-03-13

KJE01F0002 KJELDSEN, D. & C. KJELDSEN (KJELDSEN BIOLOGICAL CONSULTING) - FIELD SURVEY FORM FOR RANA DRAYTONII 2001-03-12

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 45290
Key Quad: Valley Ford (3812238)
Occurrence Number: 429

EO Index: 45290
Element Code: AAABH01022
Occurrence Last Updated: 2001-05-01

Scientific Name: *Rana draytonii*
Common Name: California red-legged frog

Listing Status: **Federal:** Threatened
State: None

CNDDB Element Ranks: **Global:** G2G3
State: S2S3

Rare Plant Rank:

Other Lists: CDFW_SSC-Species of Special Concern
IUCN_VU-Vulnerable

General Habitat:

LOWLANDS AND FOOTHILLS IN OR NEAR PERMANENT SOURCES OF DEEP WATER WITH DENSE, SHRUBBY OR EMERGENT RIPARIAN VEGETATION.

Micro Habitat:

REQUIRES 11-20 WEEKS OF PERMANENT WATER FOR LARVAL DEVELOPMENT. MUST HAVE ACCESS TO ESTIVATION HABITAT.

Last Date Observed: 2001-04-25
Last Survey Date: 2001-04-25
Owner/Manager: PVT-ST ANTHONY'S MONASTERY
Presence: Presumed Extant

Occurrence Type: Natural/Native occurrence
Occurrence Rank: Fair
Trend: Unknown

Location:

HEADWATER OF AN UNNAMED DRAINAGE FLOWING INTO ESTERO SAN ANTONIO, 0.7 MILE NORTH OF DILLON BEACH.

Detailed Location:

FROGS WERE FOUND IN SMALL, MUD-BOTTOMED POOLS (15" DEEP). A POTABLE WATER RESERVOIR AND TWO SEWAGE SETTLING PONDS AT THE HEAD OF THE STREAM ARE PROBABLE BREEDING SITES.

Ecological:

HABITAT CONSISTS OF SMALL, MUD-BOTTOMED POOLS IN A GULLIED AREA OF PASTURE.

Threats:

THREATENED BY EROSION / SILTATION CAUSED BY CATTLE TRAMPLING STREAM EDGES.

General:

2 ADULTS OBSERVED ON 25 APR 2001.

PLSS: T05N, R10W, Sec. 21, SE (M)
UTM: Zone-10 N4234793 E503395

Accuracy: 80 meters
Latitude/Longitude: 38.26117 / -122.96119

Area (acres): 0
Elevation (feet): 350

County Summary:

Marin

Quad Summary:

Valley Ford (3812238)

Sources:

FAW01F0001 FAWCETT, M.H. - FIELD SURVEY FORM FOR RANA DRAYTONII 2001-04-25

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 55177
EO Index: 55177
Key Quad: Two Rock (3812237)
Element Code: AAABH01022
Occurrence Number: 742
Occurrence Last Updated: 2004-04-15

Scientific Name: *Rana draytonii*
Common Name: California red-legged frog

Listing Status: **Federal:** Threatened
*** SENSITIVE *** **State:** None
CNDDB Element Ranks: **Global:** G2G3
State: S2S3

Rare Plant Rank:
Other Lists: CDFW_SSC-Species of Special Concern
IUCN_VU-Vulnerable

General Habitat:

LOWLANDS AND FOOTHILLS IN OR NEAR PERMANENT SOURCES OF DEEP WATER WITH DENSE, SHRUBBY OR EMERGENT RIPARIAN VEGETATION.

Micro Habitat:

REQUIRES 11-20 WEEKS OF PERMANENT WATER FOR LARVAL DEVELOPMENT. MUST HAVE ACCESS TO ESTIVATION HABITAT.

Last Date Observed: 2004-03-08
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2004-03-08
Occurrence Rank: Good
Owner/Manager:
Trend: Unknown
Presence: Presumed Extant

Location:

SENSITIVE LOCATION INFORMATION SUPPRESSED.

Detailed Location:

PLEASE CONTACT THE CALIFORNIA NATURAL DIVERSITY DATABASE, CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE, FOR MORE INFORMATION: (916) 322-2493

Ecological:

HABITAT CONSISTS OF CREEK BANKS LINED BY FORBS AND GRASSES; SITE IS LOCATED ADJACENT TO GRAZED PASTURE.

Threats:

POSSIBLY THREATENED BY CATTLE GRAZING.

General:

PLSS:
Accuracy: nonspecific area
Area (acres): 208
UTM:
Latitude/Longitude:
Elevation (feet): 45

County Summary:

Sonoma

Quad Summary:

Two Rock (3812237), Valley Ford (3812238)

Sources:

MIC04F0003 MICHAUD, J. (PRUNUSKE CHATHAM, INC.) - FIELD SURVEY FORM FOR RANA DRAYTONII 2004-03-08

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 55178
EO Index: 55178
Key Quad: Valley Ford (3812238)
Element Code: AAABH01022
Occurrence Number: 743
Occurrence Last Updated: 2004-04-15

Scientific Name: *Rana draytonii*
Common Name: California red-legged frog

Listing Status: **Federal:** Threatened
*** SENSITIVE *** **State:** None
CNDDB Element Ranks: **Global:** G2G3
State: S2S3

Rare Plant Rank:
Other Lists: CDFW_SSC-Species of Special Concern
IUCN_VU-Vulnerable

General Habitat:

LOWLANDS AND FOOTHILLS IN OR NEAR PERMANENT SOURCES OF DEEP WATER WITH DENSE, SHRUBBY OR EMERGENT RIPARIAN VEGETATION.

Micro Habitat:

REQUIRES 11-20 WEEKS OF PERMANENT WATER FOR LARVAL DEVELOPMENT. MUST HAVE ACCESS TO ESTIVATION HABITAT.

Last Date Observed: 2004-03-08
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2004-03-08
Occurrence Rank: Good
Owner/Manager:
Trend: Unknown
Presence: Presumed Extant

Location:

SENSITIVE LOCATION INFORMATION SUPPRESSED.

Detailed Location:

PLEASE CONTACT THE CALIFORNIA NATURAL DIVERSITY DATABASE, CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE, FOR MORE INFORMATION: (916) 322-2493

Ecological:

HABITAT CONSISTS OF CREEK BANKS LINED BY JUNCUS, GRASSES, AND MISCELLANEOUS ANNUALS; SITE IS LOCATED ADJACENT TO GRAZED PASTURE.

Threats:

POSSIBLY THREATENED BY CATTLE GRAZING.

General:

PLSS: **Accuracy:** nonspecific area **Area (acres):** 4,336
UTM: **Latitude/Longitude:** **Elevation (feet):** 80

County Summary:	Quad Summary:
Marin, Sonoma	Valley Ford (3812238)

Sources:

MIC04F0004 MICHAUD, J. (PRUNUSKE CHATHAM, INC.) - FIELD SURVEY FORM FOR RANA DRAYTONII 2004-04-08

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 62499
Key Quad: Valley Ford (3812238)
Occurrence Number: 845
EO Index: 62536
Element Code: AAABH01022
Occurrence Last Updated: 2005-09-07

Scientific Name: *Rana draytonii*
Common Name: California red-legged frog

Listing Status: **Federal:** Threatened
*** SENSITIVE *** **State:** None
CNDDB Element Ranks: **Global:** G2G3
State: S2S3

Rare Plant Rank:
Other Lists: CDFW_SSC-Species of Special Concern
IUCN_VU-Vulnerable

General Habitat:

LOWLANDS AND FOOTHILLS IN OR NEAR PERMANENT SOURCES OF DEEP WATER WITH DENSE, SHRUBBY OR EMERGENT RIPARIAN VEGETATION.

Micro Habitat:

REQUIRES 11-20 WEEKS OF PERMANENT WATER FOR LARVAL DEVELOPMENT. MUST HAVE ACCESS TO ESTIVATION HABITAT.

Last Date Observed: 2005-08-29
Last Survey Date: 2005-08-29
Owner/Manager:
Presence: Presumed Extant

Occurrence Type: Natural/Native occurrence
Occurrence Rank: Good
Trend: Unknown

Location:

SENSITIVE LOCATION INFORMATION SUPPRESSED.

Detailed Location:

PLEASE CONTACT THE CALIFORNIA NATURAL DIVERSITY DATABASE, CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE, FOR MORE INFORMATION: (916) 322-2493

Ecological:

HABITAT CONSISTS OF A SHALLOW POOL WITH MUD BANKS FOR BASKING AND EMERGENT VEGETATION FOR BREEDING. SITE IS VEGETATED BY RIPARIAN / WETLAND PLANTS AND POOL MARGINS LINED WITH JUNCUS. SURROUNDING LAND IS PASTURE.

Threats:

POTENTIAL THREAT FROM GRAZING CATTLE AND SEDIMENTATION.

General:

PLSS:
UTM:
Accuracy: 80 meters
Latitude/Longitude:
Area (acres): 0
Elevation (feet): 2

County Summary:	Quad Summary:
Marin	Valley Ford (3812238)

Sources:

MIC05F0002 MICHAUD, J. (PRUNUSKE CHATHAM, INC.) - FIELD SURVEY FORM FOR RANA DRAYTONII 2005-08-29

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 99452
EO Index: 101006
Key Quad: Valley Ford (3812238)
Element Code: AAABH01022
Occurrence Number: 1423
Occurrence Last Updated: 2016-03-21

Scientific Name: *Rana draytonii*
Common Name: California red-legged frog

Listing Status: **Federal:** Threatened
State: None
Rare Plant Rank:
Other Lists: CDFW_SSC-Species of Special Concern
IUCN_VU-Vulnerable

CNDDB Element Ranks: **Global:** G2G3
State: S2S3

General Habitat:

LOWLANDS AND FOOTHILLS IN OR NEAR PERMANENT SOURCES OF DEEP WATER WITH DENSE, SHRUBBY OR EMERGENT RIPARIAN VEGETATION.

Micro Habitat:

REQUIRES 11-20 WEEKS OF PERMANENT WATER FOR LARVAL DEVELOPMENT. MUST HAVE ACCESS TO ESTIVATION HABITAT.

Last Date Observed: 2014-06-23
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2014-06-23
Occurrence Rank: Unknown
Owner/Manager: PVT
Trend: Unknown
Presence: Presumed Extant

Location:

ALONG UNNAMED DRAINAGE ON N SIDE OF ESTERO AMERICANO, 1.2-1.6 MI SE OF HWY 1 AT BODEGA HWY & 2.0 MI W OF VALLEY FORD.

Detailed Location:

MAPPED TO PROVIDED DETECTION SITES: "POND 1" AT (38.32517, -122.96217), IN SEEP TO S, AND "IN THE CREEK BELOW" (EXACT LOCATIONS FOR THE LATTER TWO SITES NOT GIVEN).

Ecological:

PRIVATE LAND UNDER EASEMENT, USED FOR CATTLE GRAZING. BULLFROGS NOT FOUND IN THIS DRAINAGE DURING SURVEY, BUT WERE FOUND NEARBY.

Threats:

OVERGRAZING, BULLFROG COLONIZATION (2014).

General:

4 ADULTS FOUND IN POND, 1 IN ADJACENT SEEP, AND 2 IN THE CREEK BELOW ON 23 JUN 2014.

PLSS: T06N, R10W, Sec. 28, SE (M)
Accuracy: nonspecific area
Area (acres): 85
UTM: Zone-10 N4241860 E503316
Latitude/Longitude: 38.32486 / -122.96206
Elevation (feet): 50

County Summary:	Quad Summary:
Marin, Sonoma	Valley Ford (3812238)

Sources:

SON14M0001	SONOMA COUNTY - ESTERO TRAIL STUDY MAP 2014-11-XX
STA14F0002	STABLER, R. - FIELD SURVEY FORM FOR RANA DRAYTONII 2014-06-23

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: A3810
Key Quad: Valley Ford (3812238)
Occurrence Number: 1456

EO Index: 105466
Element Code: AAABH01022
Occurrence Last Updated: 2017-03-01

Scientific Name: *Rana draytonii*
Common Name: California red-legged frog

Listing Status: **Federal:** Threatened
State: None

CNDDB Element Ranks: **Global:** G2G3
State: S2S3

Rare Plant Rank:

Other Lists: CDFW_SSC-Species of Special Concern
IUCN_VU-Vulnerable

General Habitat:

LOWLANDS AND FOOTHILLS IN OR NEAR PERMANENT SOURCES OF DEEP WATER WITH DENSE, SHRUBBY OR EMERGENT RIPARIAN VEGETATION.

Micro Habitat:

REQUIRES 11-20 WEEKS OF PERMANENT WATER FOR LARVAL DEVELOPMENT. MUST HAVE ACCESS TO ESTIVATION HABITAT.

Last Date Observed: 2016-09-04
Last Survey Date: 2016-09-04
Owner/Manager: PVT
Presence: Presumed Extant

Occurrence Type: Natural/Native occurrence
Occurrence Rank: Good
Trend: Unknown

Location:

SALMON CREEK, ABOUT 0.1 MILES SE OF BODEGA HWY AT BODEGA LN IN BODEGA.

Detailed Location:

MAPPED TO PROVIDED COORDINATES.

Ecological:

INCISED STREAM ADJACENT TO 3' DEEP POOL, WITH SANDY SILT BOTTOM, MUD BANKS, & GRAVEL BAR. MUCH LWD IN & AROUND STREAM. SURROUNDING LAND USE DAIRIES, RURAL RESIDENCES. NO BULLFROGS SEEN AT THIS SITE BUT THEY HAVE BEEN OBSERVED IN THE AREA.

Threats:

BULLFROGS.

General:

1 JUVENILE OBSERVED ON 4 SEP 2016. A FROG HAD BEEN SPOTTED THE DAY BEFORE AT SAME SITE BUT NOT IDED; POSSIBLY THE SAME INDIVIDUAL.

PLSS: T06N, R10W, Sec. 21, S (M)
UTM: Zone-10 N4244203 E502635

Accuracy: 80 meters
Latitude/Longitude: 38.34597 / -122.96985

Area (acres): 5
Elevation (feet): 98

County Summary:

Sonoma

Quad Summary:

Valley Ford (3812238)

Sources:

FAW16F0008 FAWCETT, M. - FIELD SURVEY FORM FOR RANA DRAYTONII 2016-09-04

ATTACHMENT B

Qualifications of Surveyor

Statement of Qualifications

Craig Seltenrich, M.S.

Senior Aquatic Ecologist

Craig Seltenrich has 38 years of experience in the field of aquatic biology, including; amphibian ecology, aquatic toxicology, and freshwater and marine fisheries. Since 1999, he has specialized in amphibian ecology and has designed and conducted numerous studies for evaluating potential impacts on special-status amphibians throughout much of the western Sierras and in other areas of central and northern California. Mr. Seltenrich worked at Pacific Gas and Electric Company for 23 years and was the principle amphibian biologist for all Company projects. He has also written several survey protocols for native Ranids in California including the foothill yellow-legged frog, Sierra Nevada yellow-legged frog, Yosemite toad, Cascades frog, and northern leopard frog. Mr. Seltenrich currently possesses a 10(A)(1)(a) permit for both CRF and the California tiger salamander (CTS).

Mr. Seltenrich has extensive experience conducting habitat assessments and surveys for CTS throughout much of central and northern California, as well as collection and handling of larvae and adults. During these surveys Mr. Seltenrich has observed CTS breeding, eggs, larvae, juveniles, and adults; and has documented numerous new populations in the San Francisco Bay area while working for PG&E. Currently, Mr. Seltenrich is the manager and dedicated biologist for the 5-year Potrero Landfill Expansion Site CTS capture and relocation project in Suisun and for CRF and CTS capture and relocation efforts at the Altamont Landfill and Resource Recovery Facility near Livermore. Additionally, he has conducted larval surveys and drift fence surveys in several locations in the Central Valley and coastal hills. Mr. Seltenrich has participated in CTS workshops and training sessions regarding larval and upland survey techniques. Mr. Seltenrich has also prepared Biological Assessments for CTS and has designed innovative approaches for minimizing impacts and conserving this species.

Mr. Seltenrich also has extensive experience conducting habitat assessments and surveys for the California red-legged frog (CRF) throughout much of central and northern California, as well as collection and handling of larvae and adults. He has conducted extensive surveys in the Altamont Pass area, along the southern flanks of Mount Diablo, in the Monterey Bay area, in the Central Valley, and in several locations in the Sierra foothills, and has documented numerous new CRF breeding locations. During these surveys, Mr. Seltenrich has observed breeding, egg masses, larvae, juveniles, and adults; and has documented numerous new populations in the San Francisco Bay area. He also conducted several CRF population assessments/surveys at the Big Gun Conservation Bank in Michigan Bluff, which is the largest population in the Sierra foothills. In addition, he has participated in CRF workshops and training sessions and has conducted CRF training workshops at the Big Gun Conservation Bank in Michigan Bluff for the last three years. Mr. Seltenrich has also prepared Biological Assessments for CRF, and has designed innovative approaches for minimizing impacts and conserving this species.

Mr. Seltenrich also has extensive knowledge and experience with Sierra Nevada and foothill yellow-legged frogs, and has worked with both Yosemite and spadefoot toads. He is senior author of two publications (in gray literature) on survey methodologies and techniques for the foothill yellow-legged frog (Seltenrich and Pool 2002), and for Yosemite toad, mountain yellow-legged frog, northern leopard frog, and Cascades frog (PG&E 2001). He managed and lead all of the amphibian surveys at PG&E associated with the relicensing of hydroelectric facilities throughout the Sierra Nevada Mountains. Mr. Seltenrich has also been an active member of the California/Nevada Amphibian Populations Task Force since 2002.

Publications

Pacific Gas & Electric Company. 2001. "Survey Protocols for Mountain Yellow-Legged Frog, Northern Leopard Frog, Cascades Frog, and Yosemite Toad: Standard Operating Procedures and Data Sheets for Amphibian Surveys and Habitat Assessments." Prepared by C. Seltenrich and A. Pool. May 2001.

Seltenrich, C.P., and A.C. Pool. 2002. "A Standardized Approach for Habitat Assessments and Visual Encounter Surveys for the Foothill Yellow-Legged Frog (*Rana boylii*)." Pacific Gas & Electric Company.

Stitt, E.W., and C.P. Seltenrich. 2010. California Red-Legged Frog (*Rana draytonii*) Diet. *Herpetological Review* 41(2):206.

ATTACHMENT C

Copies of Field Data Sheets

California Red-Legged Frog Habitat Assessment Form[1]

General Information

Project Name / County: Estero Trail / Sonoma Co.		Observers: C Seltenrich, P Keating
Date: 7-27-17	Site Number: Pool on Drainage 1	Site Elevation:
Additional Info: Pool in drainage located ~approx. 50 m east of creek bridge.		

Aquatic Habitat

Pond Lake	Natural / Man-made	Ephemeral / Perennial	
(Stream) Pool in stream	Ephemeral / (Intermittent)	Perennial	
	(Pools) No Pools	Size: variable	Depth: mostly shallow
	% Riffles: < 5	Stream Gradient: (Low) Moderate High	
Pools (along stream)	Ephemeral / Intermittent	Size:	Depth:
Other (describe): Pools were sporadic along reach, mostly narrow, short, shallow pools. The channel was dry, except in depressions and pools.			

Aquatic Features

Water: (Present) Absent	If Present, % Inundation: variable	Turbidity: (Low (clear)) Moderate High	
Size (meters)	Width: ~ 3.5	Length: ~ 14.5	
Depth (meters) 13°C/56°F	Maximum: ~1.40	Minimum: 0.1	Average: ~0.6
Est. Flow (CuFt/sec): no surface movement or flow			
Shade on water (mid-day)	35 %	Type: (Canopy) Overhang Floating	
Emergent Vegetation	% Cover: 20	Type: Duckweed/Water plantain, water primrose	
Submerged Vegetation	% Cover: 45-50	Type: filamentous green algae, milfoil	
Basking Sites	(Present) Absent	Type: earthen banks	Abundance: L (M) H
Substrate (%)	Fines 90 Sand 10 Gravel ____ Cobble ____ Boulder ____ Bedrock ____		
Comments: Pools tended to be longer in the lower portion of the drainage			

Shoreline Features

Overhanging Vegetation	% Cover: 40	Type: willow, rushes, grasses, forbs	
Earthen Banks	(Present) Absent	Extent: at least 75% of perimeter	
Undercut Banks	(Present) Absent	Extent: < 5 %	
Rootballs	Present (Absent)	Abundance: Low Moderate High	
Bank Gradient	Range (degrees):	Low (Moderate) High small amount of low	
Evidence of Disturbance	(Yes) No	(Low) Moderate High	
Type of Disturbance	(Livestock Trampling) Erosion Mining Other:		
Comments: Minor Relatively thin riparian around pool, open area of drainage			

Terrestrial Habitat and Features

General Habitat Description:	Non-native annual grasslands		
Barriers to Movement / Dispersal	Present (Absent)	Type:	Location:
Cover (within 50 ft of site)	% Cover: 40	Type: rushes, shrubs, grasses, blackberry	
Burrows / Cover Objects:	(Present) Absent	Type: pocket gopher	Abundance: low-mod
Project Site Land Use:	Primarily grazing - cattle		
Adjacent Land Use:	Grazing to the south - sheep, to the north cattle		
Comments:			

Wildlife Observed

Amphibians: 2 CRF	Fish: mosquitofish, unid. minnow
Reptiles:	Other:
Comments: 1 adult and 1 juvenile observed in the duckweed observed on shore	

Photo #	Description	Photo #	Description

[1] Based on habitat requirements in *Revised Guidance on Site Assessments and Field Surveys for the California Red-Legged Frog* (USFWS 2005).

California Red-Legged Frog Habitat Assessment Form[1]

General Information

Project Name / County: Estero Trail / Sonoma County		Observers: CSeltenrich / PKerting
Date: 7/27/17	Site Number: Pool on drainage 2	Site Elevation:
Additional Info: Pool in drainage located approx. 60 m west of property boundary		

Aquatic Habitat

Pond Lake	Natural / Man-made	Ephemeral / Perennial	
Stream: Pool in stream	Ephemeral / Intermittent	Perennial	
No surface flow in drainage	Pools / No Pools	Size: variable	Depth: variable
	% Riffles: <5	Stream Gradient: Low Moderate High	
Pools (along stream)	Ephemeral / Intermittent	Size:	Depth:

Other (describe): Only a few pools were observed in the upper part of the drainage, dense riparian cover precluded access to channel (on property boundary)

Aquatic Features

Water: Present Absent	If Present, % Inundation:	Turbidity: Low (clear) Moderate High	
Size (meters)	Width: 1 - 4 m	Length: 20-21 m	
Depth (meters) 14.5°C/59°F	Maximum: 1.0	Minimum: 0.2	Average: 0.5
Est. Flow (CuFt/sec): no surface movement or flow			
Shade on water (mid-day)	35-40%	Type: Canopy Floating	
Emergent Vegetation	% Cover: <5	Type: water plantain	
Submerged Vegetation	% Cover: 30	Type: Milfoil, filamentous green alga	
Basking Sites	Present Absent	Type: algal matts	Abundance: L (M) H
Substrate (%)	Fines 90 Sand 10 Gravel ___ Cobble ___ Boulder ___ Bedrock ___		

Comments: No access to middle and lower middle portion of drainage (fence, dense veg.) A few pools were present in the upper part of the drainage but were very small and shallow

Shoreline Features

Overhanging Vegetation	% Cover: 90	Type: sedges, blackberry, ferns, forbs
Earthen Banks	Present Absent	Extent: low - steep
Undercut Banks	Present Absent	Extent: low
Rootballs	Present Absent	Abundance: Low Moderate High
Bank Gradient	Range (degrees):	Low Moderate High
Evidence of Disturbance	Yes No	Low Moderate High
Type of Disturbance	Livestock Trampling Erosion Mining Other:	

Comments: stream channel incised

Terrestrial Habitat and Features

General Habitat Description:	Non-native annual grassland		
Barriers to Movement / Dispersal	Present Absent	Type:	Location:
Cover (within 50 ft of site)	% Cover: 90	Type: sedges, grasses, coyote brush, blackberry	
Burrows / Cover Objects:	Present Absent	Type: pocked gopher	Abundance: low
Project Site Land Use:	Primarily grazing - cattle		
Adjacent Land Use:	Grazing to the south - sheep, to the north - cattle		

Comments:

Wildlife Observed

Amphibians: 2 CRF juveniles	Fish:
Reptiles: western pond turtle	Other:

Comments: 2 juvenile CRF, 1 adult WPT observed in algal matt, WPT approx. 6" in length

Photo #	Description	Photo #	Description

[1] Based on habitat requirements in *Revised Guidance on Site Assessments and Field Surveys for the California Red-Legged Frog* (USFWS 2005).

use this info for general drainage info.

California Red-Legged Frog Habitat Assessment Form[1]

not the CRF pool

General Information

Project Name / County:		Observers:
Date: 9/27	Site Number: stream 1	Site Elevation:
Additional Info:		

Aquatic Habitat

Pond Lake	Natural / Man-made	Ephemeral / Perennial	
(Stream)	Ephemeral / (Intermittent)	Perennial	
	(Pools) No Pools	Size: variable	Depth:
	% Riffles:	Stream Gradient: (Low) (Moderate) High	
Pools (along stream)	Ephemeral / Intermittent	Size:	Depth:
Other (describe): → stream has periodic pools - generally fairly small and linear - some longer pools in bottom of drainage			

Aquatic Features

Approx 180' east of creek crossing South of barn 56° F

Water: (Present) Absent	If Present, % Inundation:	Turbidity: Low (clear)	Moderate High
Size (meters)	Width: 10-18	Length: 50'	
Depth (meters) 1-1.25m	Maximum: 1-~~1.25~~ ~~3~~ 1'	Minimum: .2'	Average: .75
Est. Flow (CuFt/sec):	—		
Shade on water (mid-day)	35 %	Type: (Canopy) Floating	
Emergent Vegetation	% Cover: 20	Type: unk. - duckweed?	
Submerged Vegetation	% Cover: ~~50~~ 50	Type: filamentous green algae	
Basking Sites	(Present) Absent	Type: earth banks	Abundance: L (M) H
Substrate (%)	Fines 85 Sand 15 Gravel ____ Cobble ____ Boulder ____		Bedrock ____

water plantain, milfoil, primrose, pondweed?

Comments:
→ Paul has picture of aquatic plant - duckweed?

Shoreline Features

Overhanging Vegetation	% Cover: 40	Type: willow, rushes, grasses
Earthen Banks	(Present) Absent	Extent: most of perimeter
Undercut Banks	(Present) Absent	Extent: <5
Rootballs	Present (Absent)	Abundance: Low Moderate High
Bank Gradient	Range (degrees): 35-80	Low (Moderate) (High)
Evidence of Disturbance	Yes (No)	Low Moderate High
Type of Disturbance minor	(Livestock Trampling) Erosion Mining Other:	

Comments:
rushes common along channel, willow dominated with sedges in places.

Populus lombardii, scattered eucalyptus, ~~sycamore~~ cottonwood

Terrestrial Habitat and Features

General Habitat Description: ~~Stream~~ some pools 90-100% shaded others open or with very little stream with periodic pools to 1-1.5m, most have high riparian cover

Barriers to Movement / Dispersal	Present (Absent)	Type:	Location:
Cover (within 50 ft of site)	% Cover: 40	Type: shrubs, rushes, blackberry	
Burrows / Cover Objects:	(Present) Absent	Type: PG	Abundance: Low-mod
Project Site Land Use:			
Adjacent Land Use:			

Comments: blackberry present in locations along stream
Picture taken (Paul) of aquatic plant / Riparian willow mostly, (2+ species) Eucalyptus, ~~sycamore~~ cottonwood
→ get pool location from Paul

Wildlife Observed

Amphibians: 2 CRF, Juv. & adult	Fish:
Reptiles: → fish in pool	Other: Harrier
Comments: mosquito fish, minnow	

Photo #	Description	Photo #	Description

[1] Based on habitat requirements in *Revised Guidance on Site Assessments and Field Surveys for the California Red-Legged Frog* (USFWS 2005).

CRF observed in spring southwest of barn

California Red-Legged Frog Habitat Assessment Form[1]

General Information

Project Name / County:		Observers:
Date: 9/27	Site Number: Stream 2	Site Elevation:
Additional Info:	1200	

Aquatic Habitat

Pond Lake	Natural / Man-made	Ephemeral / Perennial	
(Stream)	Ephemeral / Intermittent	Perennial	
	(Pools) No Pools	Size: variable	Depth: variable
	% Riffles:	Stream Gradient: Low Moderate High	
Pools (along stream)	Ephemeral / Intermittent	Size:	Depth:
Other (describe):			

Aquatic Features

59°F

Water: (Present) Absent	If Present, % Inundation:	Turbidity: (Low (clear)) Moderate High	
Size (meters)	Width: 3 - 12'+	Length: 70'	
Depth (meters)	Maximum: 1 m	Minimum: .2	Average: .5
Est. Flow (CuFt/sec):			
Shade on water (mid-day) 35-40 %		Type: (Canopy) blackberry, ferns, sedges, forbs Floating	
Emergent Vegetation	% Cover: 0	Type:	
Submerged Vegetation	% Cover: 30	Type: water plantain, filamentous green algae, Mitella	
Basking Sites	(Present) Absent	Type: algal mats	Abundance: L (M) H
Substrate (%)	Fines 85 Sand 15 Gravel ____ Cobble ____ Boulder ____ Bedrock ____		
Comments: pools infrequent, no access to lower 2/3 of creek (fence, dense rip)			

Shoreline Features

Overhanging Vegetation	% Cover: 90	Type: sedges, blackberry, ferns, forbs	
Earthen Banks	(Present) Absent	Extent: low - steep	
Undercut Banks	(Present) Absent	Extent: low	
Rootballs	Present (Absent)	Abundance: Low Moderate High	
Bank Gradient	Range (degrees):	Low (Moderate) (High)	
Evidence of Disturbance	Yes (No)	Low Moderate High	
Type of Disturbance	Livestock Trampling Erosion Mining Other:		
Comments: stream habitat - incised, with periodic pools, areas of dense riparian at the western 2/3 - open areas in upper 1/3 - willow, coyote brush, riparian			

Terrestrial Habitat and Features

General Habitat Description:			
Barriers to Movement / Dispersal	Present (Absent)	Type:	Location:
Cover (within 50 ft of site)	% Cover: 90	Type: grasses, sedges, shrubs, blackberry	
Burrows / Cover Objects:	(Present) Absent	Type: pc	Abundance: very low
Project Site Land Use:			
Adjacent Land Use:			
Comments:			

Wildlife Observed

Amphibians: 2 CRF juveniles	Fish:
Reptiles: 1 adult WPT	Other:
Comments:	

Photo #	Description	Photo #	Description

[1] Based on habitat requirements in *Revised Guidance on Site Assessments and Field Surveys for the California Red-Legged Frog* (USFWS 2005).

California Red-Legged Frog Habitat Assessment Form[1]

General Information

Project Name / County:		Observers: CPS - PK
Date: 9-26-17	Site Number: 1	Site Elevation: 287
Additional Info:		

Aquatic Habitat

(Pond) Lake	Natural / (Man-made)	(Ephemeral) / Perennial	
Stream	Ephemeral / Intermittent	Perennial	
	Pools No Pools	Size:	Depth:
	% Riffles:	Stream Gradient: Low Moderate High	
Pools (along stream)	Ephemeral / Intermittent	Size:	Depth:
Other (describe):			

Aquatic Features

Water: (Present) Absent	If Present, % Inundation: <1%	Turbidity: (Low (clear)) Moderate High	
Size (meters)	Width: 40?	Length: 40?	
Depth (meters) 2-2.25	Maximum: 2.25	Minimum: 1'	Average: 3'+
Est. Flow (CuFt/sec):			
Shade on water (mid-day)	15 %	Type: (Canopy) Floating	
Emergent Vegetation	% Cover: spike rush	Type:	
Submerged Vegetation	% Cover: Dry	Type:	
Basking Sites	(Present) Absent	Type: earth banks	Abundance: L (M) H
Substrate (%)	Fines 90 Sand 10 Gravel ____ Cobble ____ Boulder ____ Bedrock ____		
Comments:			

Shoreline Features

Overhanging Vegetation	% Cover: 10%	Type: coyote brush	
Earthen Banks	(Present) Absent	Extent: 70% northern portion	
Undercut Banks	Present (Absent)	Extent:	
Rootballs	Present (Absent)	Abundance: Low Moderate High	
Bank Gradient	Range (degrees): 10-30+	Low (Moderate) High	
Evidence of Disturbance	(Yes) No	Low (Moderate) High	vegetation removal
Type of Disturbance	Livestock Trampling (Erosion) Mining Other:		
Comments:	coyote brush, bull rush on southern boundary redwood? Spike rush on northern margin		

Terrestrial Habitat and Features

General Habitat Description:	grassland and coyote brush - riparian area to west		
Barriers to Movement / Dispersal	Present (Absent)	Type:	Location:
Cover (within 50 ft of site)	% Cover: 15	Type: coyote brush	
Burrows / Cover Objects:	(Present) Absent	Type: pocket gopher	Abundance: Low Mod ~~High~~ (mostly downhill of pond)
Project Site Land Use:	Grazed		
Adjacent Land Use:			
Comments:			

Wildlife Observed

Amphibians: none	Fish:
Reptiles:	Other:
Comments:	

Photo #	Description	Photo #	Description

[1] Based on habitat requirements in *Revised Guidance on Site Assessments and Field Surveys for the California Red-Legged Frog* (USFWS 2005).

California Red-Legged Frog Habitat Assessment Form[1]

General Information

Project Name / County:		Observers:
Date:	Site Number: 2 (north of barn)	Site Elevation:
Additional Info:		

Aquatic Habitat

(Pond) Lake	Natural / (Man-made)	(Ephemeral) / Perennial	
Stream	Ephemeral / Intermittent	Perennial	
	Pools No Pools	Size:	Depth:
	% Riffles:	Stream Gradient: Low Moderate High	
Pools (along stream)	Ephemeral / Intermittent	Size:	Depth:
Other (describe):			

Aquatic Features

Water: Present (Absent)	If Present, % Inundation:	Turbidity: Low (clear) Moderate High	
Size (meters)	Width: 10	Length: 60	
Depth (meters)	Maximum: .5	Minimum: .1	Average: .3-.4
Est. Flow (CuFt/sec):			
Shade on water (mid-day)	0 %	Type: Canopy Floating	
Emergent Vegetation	% Cover: 10	Type: rushes	
Submerged Vegetation	% Cover: —	Type:	
Basking Sites	(Present) Absent	Type: earth	Abundance: L M (H)
Substrate (%)	Fines 90 Sand 10 Gravel ____ Cobble ____ Boulder ____ Bedrock ____		
Comments:			

Shoreline Features

Overhanging Vegetation	% Cover: 0	Type:
Earthen Banks	(Present) Absent	Extent: perimeter
Undercut Banks	Present (Absent)	Extent:
Rootballs	Present (Absent)	Abundance: Low Moderate High
Bank Gradient	Range (degrees):	Low (Moderate) (High)
Evidence of Disturbance	Yes No	Low Moderate High
Type of Disturbance	(Livestock Trampling) Erosion Mining Other:	
Comments:		

Terrestrial Habitat and Features

General Habitat Description:	Grassland – coyote brush		
Barriers to Movement / Dispersal	Present (Absent)	Type:	Location:
Cover (within 50 ft of site)	% Cover:	Type:	
Burrows / Cover Objects:	Present (Absent)	Type:	Abundance:
Project Site Land Use:			
Adjacent Land Use:			
Comments:			

Wildlife Observed

Amphibians: CRF observed in pond	Fish:
Reptiles: in 2015 – numerous frogs	Other:
Comments:	

Photo #	Description	Photo #	Description

[1] Based on habitat requirements in *Revised Guidance on Site Assessments and Field Surveys for the California Red-Legged Frog* (USFWS 2005).

California Red-Legged Frog Habitat Assessment Form[1]

General Information

Project Name / County:		Observers:
Date: 9/26	Site Number: 3 (westerly area north of estero)	Site Elevation:
Additional Info:		

Aquatic Habitat

(Pond) Lake	Natural / (Man-made)	Ephemeral / (Perennial)	
Stream	Ephemeral / Intermittent	Perennial	
	Pools No Pools	Size:	Depth:
	% Riffles:	Stream Gradient: Low Moderate High	
Pools (along stream)	Ephemeral / Intermittent	Size:	Depth:
Other (describe):			

Aquatic Features

Water: (Present) Absent	If Present, % Inundation: ~75 % ~100%	Turbidity: Low (clear) Moderate High	
Size (meters)	Width: 38'	Length: 80'	
Depth (meters)	Maximum: unknown	Minimum: unknown	Average: unk
Est. Flow (CuFt/sec):			
Shade on water (mid-day)	5-10 %	Type: (Canopy) (Floating) azola covered pond surface	
Emergent Vegetation	% Cover:	Type:	
Submerged Vegetation	% Cover:	Type: vegetal algal	
Basking Sites	(Present) Absent	Type: wood plank - mats	Abundance: (L) M H
Substrate (%)	Fines ____ Sand ____ Gravel ____ Cobble ____ Boulder ____ Bedrock ____		
Comments: The surface of the pond was entirely covered with azola.			

Shoreline Features

Overhanging Vegetation	% Cover: 10	Type: willow / shrubs	
Earthen Banks	(Present) Absent	Extent: low	
Undercut Banks	Present (Absent)	Extent:	
Rootballs	Present (Absent) ?	Abundance: Low Moderate High	
Bank Gradient	Range (degrees):	(Low) Moderate High	
Evidence of Disturbance	Yes (No)	Low Moderate High	
Type of Disturbance	Livestock Trampling Erosion Mining Other:		
Comments:			

Terrestrial Habitat and Features

General Habitat Description:			
Barriers to Movement / Dispersal	Present Absent	Type:	Location:
Cover (within 50 ft of site)	% Cover:	Type:	
Burrows / Cover Objects:	(Present) Absent	Type: GS	Abundance: sparse
Project Site Land Use:			
Adjacent Land Use:			
Comments:			

Wildlife Observed

Amphibians:	Fish:
Reptiles:	Other:
Comments:	

Photo #	Description	Photo #	Description

[1] Based on habitat requirements in *Revised Guidance on Site Assessments and Field Surveys for the California Red-Legged Frog* (USFWS 2005).

California Red-Legged Frog Habitat Assessment Form[1]

General Information

Project Name / County: Estero Trail Sonoma		Observers: CSeltenrich / P Keating
Date: 7/27/17	Site Number: 4	Site Elevation: 50
Additional Info:		

Aquatic Habitat

(Pond) Lake	Natural / (Man-made)	(Ephemeral) / Perennial	
Stream	Ephemeral / Intermittent	Perennial	
	Pools No Pools	Size:	Depth:
	% Riffles:	Stream Gradient: Low Moderate High	
Pools (along stream)	Ephemeral / Intermittent	Size:	Depth:
Other (describe):			

Aquatic Features

Water: (Present) Absent	If Present, % Inundation: <5	Turbidity: (Low (clear) Moderate High	
Size (meters)	Width: ~39	Length: ~68'	
Depth (meters) unk.	Maximum:	Minimum:	Average:
Est. Flow (CuFt/sec): —			
Shade on water (mid-day)	95 %	Type: (Canopy) bullrush Floating	
Emergent Vegetation	% Cover: 95	Type: bullrush	
Submerged Vegetation	% Cover: unk.	Type:	
Basking Sites	Present (Absent)	Type:	Abundance: L M H
Substrate (%)	Fines 85 Sand 15 Gravel ____ Cobble ____ Boulder ____ Bedrock ____		

Comments: Pond completely choked with bullrush - could not get to water - Depth ~~unknown~~ less than 6". Coffee berry along southwestern end of pond

Shoreline Features

Overhanging Vegetation	% Cover: 15%	Type: blackberry, grasses, sedges, ferns
Earthen Banks	(Present) Absent	Extent: highly limited
Undercut Banks	Present (Absent)	Extent:
Rootballs	Present (Absent)	Abundance: Low Moderate High
Bank Gradient	Range (degrees):	Low (Moderate) (High)
Evidence of Disturbance	Yes (No)	Low Moderate High
Type of Disturbance	Livestock Trampling Erosion Mining Other:	

Comments:

Terrestrial Habitat and Features

General Habitat Description:			
Barriers to Movement / Dispersal	Present (Absent)	Type:	Location:
Cover (within 50 ft of site)	% Cover: 80	Type: vegetation primarily	
Burrows / Cover Objects:	(Present) Absent	Type: Pocket gopher	Abundance: low
Project Site Land Use:	Grazing, but no access for cattle to this drainage		
Adjacent Land Use:			

Comments:

Wildlife Observed

Amphibians: ~~2 juvenile~~	Fish:
Reptiles:	Other:

Comments:

Photo #	Description	Photo #	Description

[1] Based on habitat requirements in *Revised Guidance on Site Assessments and Field Surveys for the California Red-Legged Frog* (USFWS 2005).

ATTACHMENT D

Photographs of Aquatic and Upland Habitats

ATTACHMENT D
Photographs of Aquatic and Upland Habitats



1. Pool in Drainage 1 where CRF was observed.



2. Pool in Drainage 2 where CRF was observed.



3. Representative photograph of dense riparian areas along both drainages



4. Representative photograph of open areas along both drainages



5. Pond 1



6. Pond 2



7. Pond 3



8. Pond 4

PRELIMINARY JURISDICTIONAL DELINEATION
ESTERO TRAIL PROJECT
SONOMA COUNTY, CALIFORNIA

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ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
ACOE	U.S. Army Corps of Engineers
CCC	California Coastal Commission
CDFW	California Department of Fish and Wildlife
CWA	Clean Water Act
County	Sonoma County
ED-	Ephemeral Drainage
N/A	not applicable
OHWM	ordinary high water mark
ID-	Intermittent Drainage
Porter-Cologne Act	Porter-Cologne Water Quality Control Act
RWQCB	Regional Water Quality Control Board
SW-	Seasonal Wetland
TNW	traditional navigable waters
WM-	Wet Meadow

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1 INTRODUCTION

This report documents the results of a preliminary jurisdictional delineation of wetland and other waters of the United States (U.S.) conducted for the ±180.9-acre Estero Americano Trail Project (project) located at 17000 Valley Ford Cutoff (Highway 1) in unincorporated Sonoma County, California (Figure 1). The results of this delineation are preliminary until verified by the San Francisco District of the U.S. Army Corps of Engineers (ACOE).

1.1 Project Location

The project site is located on the south side of US Highway 1, approximately 2 miles west of the town of Valley Ford, California (Figures 1 and 2). The site consists of approximately 495 acres of land primarily used for grazing. The project site is located in the "Valley Ford, CA" U.S. Geological Survey 7.5 minute quadrangle, in sections 27, 28, 33, and 34 of Township 6 north, Range 10 west of the Mt. Diablo Meridian. The central point of the project site corresponds to the following decimal degree coordinates: 38.3205 degrees north latitude and 122.9577 degrees west longitude (Figure 1).

For the purposes of this report, the Study Area is ± 130.9 acres that includes the following project components: the proposed trail alignments and an approximate 100-foot buffer to either side of the proposed trails, staging areas, drainage overcrossings, and potential parking areas (Figure 3). Project components analyzed herein are further described in Section 2 – Project Description.

1.2 Directions to the Study Area

The Study Area can be accessed via California Highway 1. From San Francisco, travel north on U.S. Highway 101 for approximately 41 miles. Take exit 479 onto Railroad Avenue and turn left. Turn right onto Stony Point Road in 1.7 miles. In 6.5 miles, turn left onto Roblar Road. Travel approximately five miles and turn right onto Valley Ford Road/ California State Highway 1. The Study Area is on the left, approximately 2.3 miles west of the town of Valley Ford.

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2 PROJECT DESCRIPTION

In 2012, the Sonoma County Agricultural Preservation and Open Space District (District) purchased a conservation easement (Conservation Easement) and trail easement (Trail Easement) over property owned by Alfred and Joseph Bordessa (Bordessa Ranch). The purpose of the Conservation Easement is to preserve and protect the conservation values of the property, including natural resources, habitat connectivity, open space and scenic views, agricultural resources, and recreation and education. The purpose of the Trail Easement is to ensure that trail corridors and associated staging areas are established and made available to the public in perpetuity for low-intensity public outdoor recreational and educational purposes consistent with the Conservation Easement. The goals of the Conservation Easement take precedence over the Trail Easement.

The District is proposing to designate trail corridors and associated staging areas pursuant to the Trail Easement and consistent with the Conservation Easement. Under the terms of the Trail Easement, the District must designate and survey the precise locations of two 50-foot-wide pedestrian-only trail corridors, cumulatively not to exceed 5 miles in length, and two staging areas, not to exceed 1.5 acres in total combined area. The District will subsequently transfer the Trail Easement to the County, who is developing the Estero Trail Plan.

The proposed project would include the selection of a general location for two public access trails over a portion of the approximately 495-acre Bordessa Ranch. The trail easement would be 50 feet wide and approximately 5 miles in length. The proposed trail system would be the principal means for providing comprehensive public access to the property. The trails would be constructed for pedestrian use and hand-carried non-motorized boats, kayaks, and canoes. The trail would be 5 feet wide, with a surface of compacted native material or other permeable surface, including wet crossings made of rock, within the easement. Trail marker posts and benches would be placed along the trail. The existing main access road and gate, or improved replacements, are expected to remain in similar locations. Two staging areas not to exceed 1.5 acres in size would be added to accommodate parking for trail users. Each staging area would be suitable for use by pedestrians, bicyclists, and drivers of motor vehicles. Staging areas may include one or more of the following: restroom facilities, accessible parking, bicycle parking, picnic tables, benches, trash and recycling containers, and operations signage. Likely improvements would consist of entry road improvements and road extension to provide operations, maintenance, emergency vehicle access, and public access to the larger southern staging area (Figure 3).

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3 REGULATORY BACKGROUND

3.1 Federal Statutes and Regulations – U.S. Army Corps of Engineers

Any person or public agency proposing to discharge dredged or fill material into waters of the United States, including jurisdictional wetlands, must obtain a permit from the ACOE.

As defined in Title 33 of the Code of Federal Regulations, Section 328.3, waters of the United States include all waters subject to interstate or foreign commerce, including tidal waters, interstate waters and wetlands, many intrastate waters, impoundments, tributaries, the territorial seas, and adjacent wetlands. Specifically, Section 328.3 of Title 33 of the Code of Federal Regulations defines waters of the United States as follows:

a. For purposes of the Clean Water Act, 33 U.S.C. 1251 et seq. and its implementing regulations, subject to the exclusions in paragraph (b) of this section, the term "waters of the United States" means:

   1) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

   2) All interstate waters, including interstate wetlands;

   3) The territorial seas;

   4) All impoundments of waters otherwise identified as waters of the United States under this section;

   5) All tributaries, as defined in paragraph (c)(3) of this section, of waters identified in paragraphs (a)(1) through (3) of this section;

   6) All waters adjacent to a water identified in paragraphs (a)(1) through (5) of this section, including wetlands, ponds, lakes, oxbows, impoundments, and similar waters.

b. The following are not "waters of the United States" even where they otherwise meet the terms of paragraphs (a)(4) through (8) of this section.

   1) Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the Clean Water Act.

   2) Prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other Federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

For non-tidal waters of the United States, the lateral limits of ACOE jurisdiction extend to the ordinary high water mark (OHWM) when no adjacent wetlands are present. Defined in the Code of Federal Regulations, Title 33, Section 328.3(e), the OHWM is "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas." If adjacent wetlands are present, the jurisdiction extends to the limit of wetlands.

Wetlands are "those areas that are inundated or saturated by surface or groundwater 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 CFR 328.3). Wetlands are jurisdictional if they meet this definition and the definition of waters of the United States. ACOE predominantly uses the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (ACOE 2010) methodology to determine the presence of wetlands. According to the manual (ACOE 2008), the following three criteria must be satisfied to classify an area as a wetland: (1) a predominance of plant life that is adapted to life in wet conditions (hydrophytic vegetation); (2) soils that saturate, flood, or pond long enough during the growing season to develop anaerobic conditions in the upper part (hydric soils); and (3) permanent or periodic inundation or soils saturation, at least seasonally (wetland hydrology). Further guidance for determining jurisdictional limits in ephemeral riverine systems in the Western Mountains, Valleys, and Coast region is detailed in *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the A Guide to Ordinary High Water Mark (OHWM) Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Region of the United States* (ACOE 2014).

In the last two decades, two major court cases have affected the jurisdictional reach of Section 404 of the Clean Water Act (CWA): (1) *Solid Waste Agency of Northern Cook County v. United States Corps of Engineers*, and (2) *Rapanos v. United States* and *Carabell v. United States Army Corps of Engineers.*

Solid Waste Agency of Northern Cook County v. United States Corps of Engineers

In 1986, in an attempt to clarify the reach of its jurisdiction, ACOE stated that Section 404(a) of the CWA extends to intrastate waters (51 FR 41217):

a. Which are or would be used as habitat by birds protected by Migratory Bird Treaties; or

b. Which are or would be used as habitat by other migratory birds which cross state lines; or

c. Which are or would be used as habitat for endangered species; or

d. Used to irrigate crops sold in interstate commerce.

In 2001, the U.S. Supreme Court, in its judgment on the *Solid Waste Agency of Northern Cook County* case, held that Code of Federal Regulations, Title 33, Section 328.3(a)(3), as clarified and applied to the *Solid Waste Agency of Northern Cook County* site pursuant to the Migratory Bird Rule (51 FR 41217), exceeded the authority granted to ACOE under Section 404(a) of the CWA. Therefore, ACOE may not rely on the Migratory Bird Rule to establish a "significant nexus" to interstate or foreign commerce. In additional language, the U.S. Supreme Court majority opinion reasoned that these types of waters required some nexus to navigable waters. Although no formal guidance was issued by ACOE interpreting the extent to which the *Solid Waste Agency of Northern Cook County* decision would limit jurisdictional determinations, in practice, ACOE considers intrastate waters as waters of the United States where there is an appropriate connection to navigable water or other clear interstate commerce connection (*Solid Waste Agency of Northern Cook County v. United States Corps of Engineers* 2001).

Rapanos v. United States and Carabell v. United States Army Corps of Engineers

In 2006, the U.S. Supreme Court again issued an opinion on the extent ACOE had jurisdiction over certain waters under Section 404 of the CWA. The *Rapanos-Carabell* consolidated decisions addressed the question of jurisdiction over attenuated tributaries to waters of the United States, as well as wetlands adjacent to those tributaries (*Rapanos v. United States* 2006).

ACOE and the U.S. Environmental Protection Agency issued guidance related to the *Rapanos* decision on June 5, 2007. The guidance identifies the waters the agencies (i.e., ACOE and the U.S. Environmental Protection Agency) will assert jurisdiction over categorically and on a case-by-case basis based on the reasoning of the *Rapanos* opinions. In summary, ACOE will continue to assert jurisdiction over the following:

- Traditional navigable waters (TNWs) and their adjacent wetlands.
- Non-navigable tributaries of TNWs that are relatively permanent (e.g., tributaries that typically flow year-round or have a continuous flow at least seasonally) and wetlands that directly abut such tributaries (e.g., not separated by uplands, berm, dike, or similar feature).

  Note: Relatively permanent waters do not include ephemeral tributaries, which flow only in response to precipitation, and intermittent streams, which do not typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months).
- Non-relatively permanent waters, if determined (on a fact-specific analysis) to have a significant nexus with a TNW, including non-navigable tributaries that do not typically

flow year-round or have continuous flow at least seasonally, wetlands adjacent to such tributaries, and wetlands adjacent to but that do not directly abut a relatively permanent, are non-navigable tributary. Absent a significant nexus, jurisdiction is lacking.

A significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or an insubstantial effect on the chemical, physical, and/or biological integrity of a TNW. Principal considerations when evaluating significant nexus include volume, duration, and frequency of the flow of water in the tributary and the proximity of the tributary to a TNW, including hydrologic, ecologic, and other functions performed by the tributary and all of its adjacent wetlands. Certain ephemeral waters in the Arid West are distinguishable from the geographic features described previously, where such ephemeral waters are tributaries and have a significant nexus to downstream TNWs. For example, these ephemeral tributaries may serve as a transitional area between the upland environment and the TNW. These ephemeral tributaries may provide habitat for wildlife and aquatic organisms in downstream TNWs and support nutrient cycling, sediment retention and transport, pollutant trapping and filtration, and improvement of water quality.

Swales or erosional features (e.g., gullies and small washes characterized by low-volume, infrequent, or short-duration flow) are generally not considered waters of the United States because they are not tributaries or they do not have a significant nexus to downstream TNWs. In addition, ditches (including roadside ditches) excavated wholly in and draining only uplands, and that do not carry a relatively permanent flow of water, are generally not considered waters of the United States because they are not tributaries or they do not have a significant nexus to downstream TNWs. Even when not jurisdictional under Section 404 of the CWA, these features may still be jurisdictional at state or local levels, such as under Section 401 of the CWA, the Porter-Cologne Water Quality Control Act (Porter-Cologne Act), and Section 1602 of the California Fish and Game Code.

Prior to the *Rapanos* guidance, ACOE required its regional districts to request concurrence for only those jurisdictional determinations where the district was planning to assert jurisdiction over a non-navigable, intrastate, isolated water and/or wetland. The agencies now require that all determinations for non-navigable, intrastate, isolated waters be submitted for ACOE and U.S. Environmental Protection Agency review prior to the district making a final decision on the jurisdictional determination.

U.S. Army Corps of Engineers–Regulated Activities

Under Section 404 of the CWA, ACOE regulates activities that involve a discharge of dredged or fill material, including but not limited to grading, placing riprap for erosion control, pouring

concrete, laying sod, and stockpiling excavated material into waters of the United States. Activities that generally do not involve a regulated discharge (if performed specifically in a manner to avoid discharges) include driving pilings, providing some drainage channel maintenance activities, and excavating without stockpiling.

3.2 State of California

California Department of Fish and Wildlife

Pursuant to Section 1602 of the California Fish and Game Code, the California Department of Fish and Wildlife (CDFW) regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or wildlife.

In Title 14 of the California Code of Regulations, Section 1.72, the CDFW defines a "stream" (including creeks and rivers) as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation."

In Title 14 of the California Code of Regulations, Section 1.56, the CDFW's definition of "lake" includes "natural lakes or man-made reservoirs." Diversion, obstruction, or change to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or wildlife requires authorization from the CDFW by entering into an agreement pursuant to Section 1602 of the Fish and Game Code.

California Regional Water Quality Control Board

Pursuant to Section 401 of the federal CWA, the Regional Water Quality Control Board regulates discharging waste, or proposing to discharge waste, within any region that could affect a water of the state (California Water Code, Section 13260(a)), pursuant to provisions of the Porter-Cologne Act. Waters of the state are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (California Water Code, Section 13050(e)). Before ACOE will issue a CWA Section 404 permit, applicants must receive a CWA Section 401 Water Quality Certification from the Regional Water Quality Control Board. If a CWA Section 404 permit is not required for the project, the Regional Water Quality Control Board may still require a permit (i.e., Waste Discharge Requirement) for impacts to waters of the state under the Porter-Cologne Act.

California Coastal Commission

Pursuant to Sections 30231 and 30233 of the California Coastal Act, the California Coastal Commission (CCC) requires that most development avoid and buffer wetland resources. Policies require the maintenance and restoration of the biological productivity and quality of wetlands, as well as limit the filling of wetlands. The filling of wetlands is generally limited to high priority uses, and must be avoided unless there "is no feasible less environmentally damaging alternative, and authorized fill must be fully mitigated."

The 1976 Coastal Act Section 30121 defines the term "wetland" as: "[L]ands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens." Further, The Coastal Commission's Wetlands Briefing Background Information Handout 3 regulations (California Code of Regulations Title 14 (14 CCR)) establish a "one parameter definition" that only requires evidence of a single parameter to establish wetland conditions:

> Wetland shall be defined as land where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include those types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent and drastic fluctuations of surface water levels, wave action, water flow, turbidity or high concentrations of salts or other substances in the substrate. Such wetlands can be recognized by the presence of surface water or saturated substrate at some time during each year and their location within, or adjacent to, vegetated wetlands or deep-water habitats (14 CCR Section 13577).

The CCC's one parameter definition states that wetlands must have one or more of the following three attributes: "(1) at least periodically the land supports predominantly hydrophytes; (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is nonsoil and is saturated with water or covered by shallow water at some time during the growing season of each year."

The CCC provides further guidance on analyzing wetlands and wetland impacts in the Procedural Guidance for the Review of Wetland Projects in California's Coastal Zone (CCC 1994).

4 METHODOLOGY

4.1 Literature Review

Prior to conducting fieldwork, the following available resources were reviewed to assess the potential for jurisdictional features:

- 1:200-scale aerial photograph (Bing Maps 2016; Google Earth 2017)
- U.S. Geological Survey "Valley Ford, California" 7.5-minute topographic quadrangle (USGS 2017)
- U.S. Department of Agriculture, Natural Resources Conservation Service, Web Soil Survey (USDA 2017)
- National Wetland Inventory (USFWS 2017)
- Rare Plant/Wetland Habitat Assessment – Estero Trail Site (County of Sonoma 2014)

4.2 Jurisdictional Delineation

Potential wetland waters of the United States were delineated based on methodology described in the 1987 *Corps of Engineers Wetlands Delineation Manual* (ACOE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (ACOE 2010). Non-wetland waters of the United States are delineated based on the presence of an OHWM determined using the methodology in *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the A Guide to Ordinary High Water Mark (OHWM) Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Region of the United States* (ACOE 2014).

In addition to the three-parameter wetlands, as defined by the ACOE, 1-parameter wetlands were also identified based on the CCC definition of wetlands.

Dudek biologists collected photographic records that represent the on-site habitats and wetlands (Appendix A).

4.3 Flora

All plant species encountered during the field surveys were identified and recorded. Those species that could not be identified immediately were brought into the laboratory for further investigation. Latin names follow the *Jepson Interchange List of Currently Accepted Names of Native and Naturalized Plants of California* (Jepson Flora Project 2016), and common names follow the U.S. Department of

Agriculture, Natural Resources Conservation Service, Plants Database (USDA 2017). Wetland plant indicator status for each observed species was determined using the 2016 National Wetland Plant List (NWPL) regional plant list for the Mountains, Valley, and Coast Region (Lichvar et. al. 2016). Wetland plant indicator status is ranked as follows:

- Obligate (OBL): plants that always occur in standing water or in saturated soils;
- Facultative Wet (FACW): plants that nearly always occur in areas of prolonged flooding or require standing water or saturated soils but may, on rare occasions, occur in non-wetlands;
- Facultative (FAC): plants that occur in a variety of habitats, including wetland and mesic to xeric non-wetland habitats but commonly occur in standing water or saturated soils;
- Facultative Upland (FACU): plants that typically occur in xeric or mesic non-wetland habitats but may frequently occur in standing water or saturated soils; and
- Upland (UPL): plants that rarely occur in water or saturated soils.

A rating of Not Listed (NL) indicates the plant has no wetland plant indicator status and is not considered a wetland plant in any region. Appendix B contains a complete list of plant species observed during the surveys and their wetland plant indicator status.

4.4 Field Visit

Dudek biologists Laura Burris, John Spranza, Callie Amoaku, and Paul Keating, surveyed the Study Area on April 13 and 14, 2017, May 25 and 26, 2017, and August 2 and 3, 2017 to document current site conditions and assess potential wetlands and other waters of the United States (refer to Table 1). Dudek biologists conducted the wetland delineation fieldwork in conjunction with botanical surveys performed for the same project.

Table 1
Schedule of Surveys

Date	Hours	Personnel*	Conditions
04/13/17	0800–1640	LB/JS	55–62ºF, 20–60% cloud cover (cc), 1–5 miles per hour (mph) winds, sporadic rain showers in the morning
04/14/17	0725 – 1630	LB/JS	50 – 62 ºF, 5 - 10% cc, 2-5 mph winds
05/25/17	0805 – 1645	LB/CA	56 – 65 ºF, 10 – 15% cc, 0-5 mph winds
05/26/17	0750 – 1715	LB/CA	56-68 ºF, 0 - 5% cc, 2-5 mph winds
08/02/17	0750–1620	LB/PK	54 – 89 ºF, 0 – 5% cc, 0-5 mph winds
08/03/17	0730 – 1625	LB/PK	56 – 85 ºF, 0% cc, 0-5 mph winds

Note:

* LB: Laura Burris, Dudek; JS: John Spranza, Dudek; CA: Callie Amoaku, Dudek; PK: Paul Keating, Dudek.

Sample points were taken when necessary to assess the potential for hydric soils, hydrophytic vegetation, and hydrology. The results are presented in Section 6, Results of Survey, and data sheets are in Appendix C. In addition to the sample points to assess wetlands, data at seven stream transects were collected to assess stream hydrology. Evidence of an OHWM was present in the form of shelving, undercut banks, wracking, and changes in sediment and vegetation. Data sheets for stream transects are included in Appendix C. All data points, wetland boundaries, and OHWM data were delineated using a hand-held global positioning system (GPS) unit capable of sub-meter accuracy (Trimble Geo XT). These data were then downloaded and overlain on aerial imagery by Dudek geographic information system (GIS) staff using ArcMaps software.

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5 PHYSICAL CHARACTERISITICS

5.1 Land Uses

The Study Area is located within the greater 495-acre Bordessa property, which is privately owned. The County in proposing a trail easement and a conservation easement on the property that would allow for people to utilize the trail for recreational use, as well as access the Estero Americano for kayaking. The Study Area is bound by State Highway 1 to the north, on the south by the Estero Americano, and on the east and west by private property used primarily for grazing range land and hay production (Figure 2).

5.2 Topography and Soils

The Study Area consists of rolling hills with a central valley created by a drainage that drains into the Estero Americano at the southern end of the Study Area. The elevations on site range from approximately 0 to 350 feet above mean sea level.

According to the Natural Resources Conservation Service (USDA 2017), 10 soil types are mapped within the Study Area (Figure 4). Blucher fine sandy loam (overwash), 0 to 2% slopes, is a somewhat poorly drained, non-saline to very slightly saline soil derived from sedimentary rock. Kneeland sandy loam (sandy variant), 2 to 15% and 15 to 30% slopes, are well-drained residuum weathered from sedimentary rock. Kneeland rocky sandy loam (sandy variant), 9-30% slopes, is a well-drained residuum weathered from sedimentary rock found on back and side slopes on marine terraces. Los Osos clay loam (thin solum), 30 to 50% slopes, is a well-drained residuum weathered from sedimentary rock found on hillsides. The remaining soil types are Steinbeck loam occurring on 2 to 9% slopes, 9 to 15% slopes, 9 to 15% slopes (eroded), 15 to 30% slopes (eroded), and 30 to 50% slopes (eroded). These are moderately well-drained residuum weathered from sandstone found on back and side slopes of terraces.

The U.S. Department of Agriculture, Natural Resources Conservation Service considers Blucher fine sandy loam and the various Steinbeck loams to be hydric soils (USDA 2016).

During the site survey, soils in the Study Area were similar to the loams described above; however, the loams onsite were less sandy, with more clay content than a typical sandy loam. Soils were friable, dark, and contained high organic content throughout the Study Area.

5.3 Watershed and Hydrology

The Study Area is part of the Estero Americano subwatershed (Hydrologic Unit Code 180500050302), within the Bodega Bay hydrologic unit (Hydrologic Unit Code 18010111). The unnamed intermittent

drainage in the central portion of the Study Area drains rainwater runoff south into the Estero Americano, which then feeds directly to the Pacific Ocean west of the Study Area. Several ephemeral drainages channel water from the hills in the western portion of the Study Area into the central intermittent drainage. A constructed roadside ditch parallels the access road through the center of the Study Area before also draining into the central intermittent drainage. The construction of the roadway and the subsequent channelization into the roadside ditch has somewhat altered hydrology of the western hillslope down to the unnamed intermittent drainage, although none of the Study Area appears to be significantly altered as a result of anthropogenic influences. Section 6 – Results of Survey includes further discussion of these features.

5.4 Regional and Local Climate

The Study Area is located within the North Coast Ranges sub region of the California Floristic Province (Baldwin ed. 2012). This region is characterized by sloping hills near the central California coast from which cold air drains within the fog belt (Baldwin ed. 2012). Average annual temperatures in the Valley Ford, CA area range from approximately 47 degrees to 66.7 degrees, and the average precipitation is 54.29 inches (WRCC 2017). On average, the months with the highest rainfall are December and January, and July has the least precipitation.

Rainfall for the survey year (2017) was average following a number of years of drought. Site conditions during surveys were typical for the times of year and region in which they occurred.

6 RESULTS OF SURVEY

6.1 Jurisdictional Delineation

The land cover within the Study Area consists of a combination of terrestrial non-vegetative land covers and natural vegetation communities, as well as aquatic land cover types. The vegetation communities and land covers have been adapted from A Manual of California Vegetation, Second Edition (Sawyer, et.al 2009), and the California Wildlife Habitat Relationship System (originally published by Mayer and Laudenslayer in 1988). The following vegetation communities and land cover types have been documented on site and are described in further detail, below: California annual grassland, common velvet grass – sweet vernal grass meadows, perennial ryegrass fields, slough sedge swards, purple needlegrass grassland, coyote brush scrub, arroyo willow thickets, eucalyptus groves, baltic and mexican rush marshes, ruderal roadways, developed, seasonal wetland and seep, wet meadow, pond, intermittent drainage, ephemeral drainage, and vegetated roadside swale.

6.1.1 Terrestrial Habitat Types

Annual Grasslands

California Annual Grassland. The dominant habitat type in the Study Area, the California annual grassland is dominated by non-native grasses such as slender wild oats (*Avena barbata*), velvet grass (*Holcus lanatus*), rattlesnake grass (*Briza maxima*), little quaking grass (*Briza minor*), hedgehog dogtail grass (*Cynosurus echinatus*). Also present in this habitat are non-native forbs such as bull thistle (*Cirsium vulgare*), Italian thistle (*Carduus pycnocephalus*), birdsfoot trefoil (*Lotus corniculatus*), cat's ears (*Hypochaeris glabra*; *H. radicata*), pale flax (*Linum bienne*), and sheep sorrel (*Rumex acetosella*). Native grasses and forbs were present in less density than the non-natives and include: purple needlegrass (*Stipa pulchra*), meadow barley (*Hordeum brachyantherum*), yarrow (*Achillea millefolium*), dwarf brodiaea (*Brodiaea terrestris*), California poppy (*Eschscholzia californica*), annual lupine (*Lupinus bicolor*), blue-eyed grass (*Sisyrinchium bellum*), and western bracken fern (*Pteridium aquilinum*). Congested-headed hayfield tarplant (*Hemizonia congesta* ssp. *congesta*), a California Rare Plant Rank (CRPR) 1B.2 species, was present in large numbers in the grassland onsite.

Common Velvet Grass – Sweet Vernal Grass Grassland (*Holcus lanatus – Anthoxanthum oderatum* Herbaceous Semi-Natural Alliance). Common velvet grass – sweet vernal grass grasslands onsite is co-dominated by these two non-native grass species. This vegetation community generally occurs in more mesic areas of the California annual grassland in the western

hills of the Study Area. Non-native sweet briar rose (*Rosa rubiginosa*) also occurs sporadically in this vegetation community.

Perennial Grasslands

Perennial Ryegrass Fields (*Lolium perennis* (*Festuca perenne*) Herbaceous Semi-Natural Alliance). Perennial ryegrass fields onsite contain nearly 100 percent cover of perennial ryegrass (*Festuca perennis*). This vegetation community occurs directly adjacent to the barn onsite and is typically associated with moist soils.

Purple Needlegrass Grasslands (*Nassella* (*Stipa*) *pulchra* Herbaceous Alliance). Purple needlegrass grassland occurs sporadically throughout the grassland in the southern and western portions of the Study Area. This vegetation community is characterized by at least 10 percent total cover of purple needlegrass. Other species commonly found in this vegetation community include native forbs such as Douglas iris (*Iris douglasiana*), mule's ears (*Wyethia angustifolia*), coyote mint (*Monardella villosa*), and purple sanicle (*Sanicula binnifida*).

Wet Meadows

Slough Sedge Swards (*Carex obnupta* Herbaceous Alliance). Slough sedge swards occur in the grassland throughout the Study area where moisture appears to be maintained in the soil due to the site's microtopography. This vegetation community is dominated by slough sedge (*Carex obnupta*), with some velvet grass, sweet vernal grass, poison hemlock (*Conium maculatum*), and California blackberry (*Rubus ursinus*) interspersed.

Baltic and Mexican rush marshes (*Juncus (balticus, mexicanus*) Herbaceous Alliance). This vegetation community consisted of a mix of *Juncus* species including *Juncus balticus, J. mexicanus, J. patens, and J. effuses*. The rush marshes occurred along the drainages and adjacent to the Estero Americano where they mixed with pickleweed (*Salicornia* spp.).

Scrubs/Shrub

Coyote Brush Scrub (*Baccharis pilularis* Shrubland Alliance). Coyote brush (*Baccharis pilularis*) is the dominant shrub in this vegetation community. Coyote brush scrub occurs intermittently in the western portion of the Study Area, primarily on north- and east-facing hill slopes. Other shrub species observed in this vegetation community include sweet briar rose, coffeeberry (*Frangula californica*), hawthorn (*Craetagus* spp.), and gorse (*Ulex europaeus*). Scattered Monterey pine trees (*Pinus radiata*) are also present in low numbers in this vegetation community on the northwestern slopes of the Study Area. The herbaceous understory of this

vegetation community contains grass and herb species consistent with those found in the California Annual Grassland, described above, with the addition of a high concentration of bracken fern.

Woodlands and Forests

Arroyo Willow Thickets (*Salix lasiolepis* Shrubland Alliance). Arroyo willow (*Salix lasiolepis*) is the dominant tree cover along the two intermittent drainages onsite. Other tree species observed with the arroyo willow along the central drainage include Lombardy poplar (*Populus nigra*) and blue gum (*Eucalyptus globulus*). The understory of this vegetation community primarily consisted of rushes (*Juncus patens* and *J. effusus*), and western bracken fern.

Eucalyptus Groves (*Eucalyptus* (*globulus, camaldulensis*) Woodland Semi-Natural Alliance). Several eucalyptus (also known as blue gum; *Eucalyptus globulus*) groves occur onsite, one along an ephemeral drainage in the western portion of the Study Area and the other along the main, central intermittent drainage. This vegetation community is dominated by blue gum in the overstory, with sporadic shrub and small tree species in the understory including arroyo willow, hawthorn, poison oak (*Toxicodendron diversilobum*), and California blackberry. Western bracken fern and grasses typical of the California annual grassland described above were common in the herbaceous layer.

Other Land Cover Types

Ruderal Roadways/Developed. This land cover type includes the developed dirt and gravel access roads leading from Highway 1 to the barn onsite, as well as the barn and associated anthropogenic influences associated with cattle ranching. Vegetation is generally absent from the access road, and Himalayan blackberry (*Rubus armeniacus*) was common adjacent to the barn.

6.1.2 Aquatic Habitat Types

Other Waters of the United States

There are three types of drainages within the Study Area: intermittent drainage, ephemeral drainage, and vegetated swale.

Intermittent Drainages. There are two intermittent drainages (ID) within or directly adjacent to the Study Area. The central drainage (ID-01) has an average width of 3.5 feet, has an ordinary high water mark, flows from north to south through the center portion of the Study Area, and the proposed trail alignment crosses it twice. A second drainage borders the proposed trail alignment at the eastern edge of the project site but is outside of the Study Area discussed herein. Both channels are characterized by defined bed and bank created by the flow of water through the

systems. Common plant species associated with the intermittent drainage include rushes (*Juncus effuses*, *J. patens*, *J. mexicanus*), arroyo willow (*Salix lasiolepis*), velvet grass, and sweet vernal grass. Water was present in these drainages during the August surveys and is assumed to be present in deeper pools year-round; however, these features appear to flow only during the rainy season. Where water was ponded, species such as duckweed (*Lemna* spp.) and lanceleaf water plantain (*Alissma lanceolatum*).

Ephemeral Drainages. Two ephemeral drainages (ED) occur within the western portion of the Study Area, draining water runoff from the western hills east to ID-01. Both ED-01 and ED-02 contain defined bed and banks but appear to maintain water flow only during the rainy season (refer to Appendix C for data sheets). ID-01 is approximately 1.5 feet wide on average and ED-02 is approximately 2 feet wide on average. Neither of these drainages held water during any of the surveys conducted. The southernmost drainage contains a mature overstory of blue gum while the other does not have a tree canopy. Common species observed in these drainages include Himalayan blackberry, bracken fern, sword fern, and hawthorn.

Vegetated Roadside Swale. One roadside swale (S-01) occurs parallel to the access roadway. It appears to drain water from the two ephemeral drainages south along the road to where it crosses under the roadway via culvert and into the central intermittent drainage. This swale is vegetated with grasses such as velvet grass and sweet vernal grass. Congested-headed hayfield tarplant was also present sporadically along this feature.

Wetlands

Three types of wetlands occur within the Study Area: freshwater emergent marsh, and seasonal wetland and seeps, and wet meadows. Freshwater emergent wetlands are typically associated with ID-01 and the seeps and seasonal wetlands are associated with groundwater seepage primarily in the western portion of the Study Area. These features are discussed in the following text.

Freshwater Emergent Wetland. Freshwater emergent wetland is primarily associated with the central drainage in the Study Area. This wetland type is characterized by a high cover of rushes (*Juncus mexicanus, J. patens, J. effusus*), which prefer higher amounts of water throughout the year than surrounding vegetation.

Seasonal Wetlands. Seasonal wetlands in the Study Area appear to have some groundwater influence; however, they do not appear to maintain saturation to the extent of the seeps, as described below. These wetlands are located primarily in the western portion of the Study Area on hills and many were associated with microtopography and small depressions in the hillslopes.

Seasonal wetlands (SW) 01 through SW-21 are primarily located in the western hills of the Study Area, on west- and south-facing slopes. These features were delineated based on the three parameters for wetlands (refer to Appendix C for data sheets). The dominance of slough sedge and poison hemlock shows the presence of hydrophytic vegetation. Hydric soils are present as indicated by redox features in a dark surface layer (Redox Dark Surface – Hydric Soil Indicator F6). The presence of oxidized rhizospheres along living roots (Wetland Hydrology Indicator C3) provides evidence of hydrology.

Seeps. Several of the seasonal wetlands appear to hold water on an annual basis due to increased groundwater influences. These seeps are areas where groundwater seeps through the top layers of soil, creating hydric conditions in an otherwise xeric area of grassland. Several seeps occur along the intermittent drainages and appear to contribute to the water flow of these systems. Vegetation observed within the seeps includes slough sedge, rushes, and poison hemlock.

Wet Meadow. Wet meadows are areas on site similar to seasonal wetlands and seeps; however, they are generally dominated by wetland grasses and span larger areas than seasonal wetlands and seeps. Similar to seasonal wetlands and as described above in terrestrial habitat types, wet meadows tend to remain wet during the rainy season and dry out during the dry months of the year. There are two wet meadows (WM) onsite: WM-01 and WM-02. WM-01 is a large area dominated by Italian ryegrass just south and east of the barn. WM-02 is an area where water appears to settle between two hill slopes and is dominated by velvet grass and rushes.

6.1.3 Results of Data Stations

Results from the 20 representative data stations document potentially jurisdictional wetlands within the Study Area based on observable field indicators (refer to Table 2, below, and Appendix C). The data collected at each data station are included in Appendix C, on the ACOE's Wetland Determination Data Forms for the Western Mountains, Valleys and Coast Region.

Table 2
Data Station Point Summary

Data Station	Wetland Determination Field Indicators			Stream Association	Determination	Jurisdiction
	Vegetation	*Hydric Soils*	*Hydrology*			
1a	✓	✓	✓	No	Seasonal Wetland	ACOE, RWQCB, CCC
1b	None	✓	None	No	Coastal Wetland	CCC
2a	✓	None	None	No	Coastal Wetland	CCC
2b	✓	None	None	No	Coastal Wetland	CCC
2c	None	None	None	No	Upland	None
3a	✓	✓	✓	No	Wet Meadow	ACOE, RWQCB, CCC
3b	None	None	None	No	Upland	None

Table 2
Data Station Point Summary

Data Station	Wetland Determination Field Indicators			Stream Association	Determination	Jurisdiction
	Vegetation	*Hydric Soils*	*Hydrology*			
4a	✓	✓	None	No	Coastal Wetland	CCC
4b	✓	✓	✓	No	Seasonal Wetland	ACOE, RWQCB, CCC
4c	None	None	None	No	Upland	None
5a	✓	✓	✓	No	Seasonal Wetland	ACOE, RWQCB, CCC
5b	None	✓	✓	No	Coastal Wetland	CCC
5c	None	None	None	No	Upland	None
6a	✓	None	None	No	Coastal Wetland	CCC
6b	None	None	None	No	Upland	None
7a	✓	✓	✓	No	Seasonal Wetland	ACOE, RWQCB, CCC
7b	None	None	None	No	Upland	None
8	None	None	None	No	Upland	None
9a	✓	✓	✓	No	Wet Meadow	ACOE, RWQCB, CCC
9b	None	None	None	No	Upland	None

Notes: ACOE = U.S. Army Corps of Engineers; CCC = California Coastal Commission; CDFW = California Department of Fish and Wildlife; RWQCB = Regional Water Quality Control Board.

7 CONCLUSIONS

The Study Area supports 3.705 acres of wetlands and 2,971.814 linear feet of other waters that are anticipated to meet the criteria for jurisdictional waters of the United States, including wetlands based on an analysis of the three parameters for wetlands (soils, hydrology, and vegetation) and connectivity/proximity to known waters of the United States. An additional 1.078 acres of seasonally mesic areas do not meet the three-parameter test for wetlands under the ACOE definition, but do meet one-parameter requirements to be considered sensitive wetland habitat under the CCC definitions.

The Study Area does not support TNWs, interstate waters, or waters that support interstate commerce (33 CFR 328.3(a)(1–4)); therefore, potential ACOE jurisdiction was determined based on connectivity or adjacency to off-site waters of the United States (CFR 328.3(a)(5)).

Figure 5 depicts the geographic extent of wetland features within the Study Area, and Table 3 includes the total acreage of wetland features and other waters of the United States. An aquatic resources table in accordance with the ACOE format is in Appendix D.

Table 3
Wetlands and Waters in the Study Area

Feature	Cowardin Code	Potential Jurisdiction	Acres	Linear Feet
Wetlands				
SW-01	U	CCC	0.081	N/A
SW-02	PEM2	ACOE, RWQCB, CCC	0.010	N/A
SW-03	PEM2	ACOE, RWQCB, CCC	0.008	N/A
SW-04	PEM2	ACOE, RWQCB, CCC	0.116	N/A
SW-05	PEM2	ACOE, RWQCB, CCC	0.007	N/A
SW-06	PEM2	ACOE, RWQCB, CCC	0.006	N/A
SW-07	PEM2	ACOE, RWQCB, CCC	0.006	N/A
SW-08	PEM2	ACOE, RWQCB, CCC	0.029	N/A
SW-09	U	CCC	0.588	N/A
SW-10	PEM2	ACOE, RWQCB, CCC	0.319	N/A
SW-11	U	CCC	0.009	N/A
SW-12	PEM2	ACOE, RWQCB, CCC	0.187	N/A
SW-13	U	CCC	0.011	N/A
SW-14	PEM2	ACOE, RWQCB, CCC	0.049	N/A
SW-15	PEM2	ACOE, RWQCB, CCC	0.324	N/A
SW-16	U	CCC	0.021	N/A
SW-17	PEM2	ACOE, RWQCB, CCC	0.615	N/A
SW-18	PEM 2	ACOE, RWQCB, CCC	0.143	N/A
SW-20	PEM2	ACOE, RWQCB, CCC	0.073	N/A

Table 3
Wetlands and Waters in the Study Area

Feature	Cowardin Code	Potential Jurisdiction	Acres	Linear Feet
Wetlands				
SW-21	PEM2	ACOE, RWQCB, CCC	0.114	N/A
WM-01	PEM2	ACOE, RWQCB, CCC	1.714	N/A
WM-02	PEM2	ACOE, RWQCB, CCC	0.521	N/A
		Total ACOE/RWQCB/CCC	**3.705**	**N/A**
		Total CCC	**1.078**	**N/A**
Other Waters				
ID-01	R4	ACOE/RWQCB/CDFW/CCC	0.050	653.298
S-01	R6	ACOE/RWQCB/CCC	0.060	1,320.759
ED-01	R6	ACOE/RWQCB/CDFW/CCC	0.020	670.312
ED-02	R6	ACOE/RWQCB/CDFW/CCC	0.020	327.444
		Total	**0.15**	**2,971.814**

Note: ACOE = Army Corps of Engineers; CCC = California Coastal Commission; CDFW = California Department of Fish and Wildlife; ED = Ephemeral Drainage; ID = Intermittent Drainage; N/A = not applicable; PEM2 = Palustrine, emergent, nonpersistent; R4 = Riverine, intermittent; R6 = Riverine, ephemeral; RWQCB; Regional Water Quality Control Board; SW = Seasonal Wetland; U = Upland

All features identified as potential ACOE jurisdiction are potentially jurisdictional wetlands or waters of the U.S. These findings are considered preliminary until verified by the San Francisco District of the ACOE.

7.1 Discussion of Potential Jurisdiction

7.1.1 U.S. Army Corps of Engineers

As described earlier in Section 3.1 of this report, ACOE has jurisdiction over waters of the United States, including wetlands, as outlined in Section 404 of the Clean Water Act. This includes up to the OHWM of drainages and adjacent wetlands. Estero Americano is a permanent water tributary to the Pacific Ocean, and thus is considered a water of the United States under the jurisdiction of ACOE. Thus, tributaries to the Estero can be considered potentially jurisdictional due to connectivity and all drainages and adjacent wetlands within the study area are potentially jurisdictional. If the project results in any fill or dredge within these features, prior authorization from the ACOE would be required.

7.1.2 Regional Water Quality Control Board

RWQCB's jurisdiction corresponds with the wetland and non-wetland waters of the United States as described in the discussion of ACOE jurisdiction, with the addition of jurisdiction between the OHWM and the top of bank of any watercourses. The intermittent and ephemeral drainages would

all fall within the jurisdiction of RWQCB under Section 401 of the Clean Water Act. Any work below the top of bank of any linear feature on site would require authorization from RWQCB in the form of a Water Quality Certification.

7.1.3 California Department of Fish and Wildlife

CDFW jurisdiction includes ephemeral, intermittent, and perennial watercourses and lakes characterized by the presence of definable bed and banks and existing fish or wildlife resources. CDFW also takes jurisdiction along watercourses to the limits of associated riparian vegetation. ID-01 and the associated riparian corridor are likely under CDFW jurisdiction. In addition, the channel and riparian cover associated with ED-01 and ED-02 are also likely under CDFW jurisdiction. Any work within the bed or bank of these features, or within the associated riparian corridors, would require authorization from CDFW under a California Fish and Game Code Section 1600 Streambed Alteration Agreement. Trimming or removal of riparian vegetation may also require compensatory mitigation.

7.1.4 California Coastal Commission

All 3-parameter wetlands, as well as 1-parameter wetlands identified in the Study Area are considered ESHA under the 1976 Coastal Commission Act and regulated by the Local Coastal Program, which specifies avoidance, minimization, and mitigation for potential impacts to wetlands and waterways. Riparian corridors are also considered ESHA under the definitions of the Coastal Act and are also regulated by the Local Coastal Program.

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8 REFERENCES CITED

33 CFR 328.1–328.5. Definition of Waters of the United States.

51 FR 41217. Final rule: "Migratory Bird Rule." November 13, 1986.

ACOE (U.S. Army Corps of Engineers). 1987. *Corps of Engineers Wetlands Delineation Manual.* Online ed. Environmental Laboratory, Wetlands Research Program Technical Report Y-87-1. Vicksburg, Mississippi: U.S. Army Engineer Waterways Experiment Station. January 1987. Accessed December 2016. http://www.fedcenter.gov/Bookmarks/index.cfm?id=6403&pge_id=1606.

ACOE. 2010a. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast (Version 2.0).* Environmental Laboratory, ERDC/EL TR-10-3. Vicksburg, Mississippi: U.S. Army Engineer Research and Development Center. May 2010. Accessed March 2017. https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1046494.pdf

ACOE. 2014. *A Guide to Ordinary High Water Mark (OHWM) Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Region of the United States.* Cold Regions Research and Engineering Laboratory, ERDC/CRREL TR-14-13. Hanover, New Hampshire: U.S. Army Engineer Research and Development Center. August 2014. Accessed March 2017. http://www.usace.army.mil/Portals/2/docs/civilworks/regulatory/reg_supp/west_mt_finalsupp_aug2014.pdf

Bing Maps. 2016. [aerial photograph]. 1:200 scale.

California Water Code, Section 13000–16104. Porter-Cologne Water Quality Control Act, as amended. Prepared by the State Water Resources Control Board, with additions and amendments (shown as tracked changes) effective January 1, 2011. Accessed January 17, 2011. http://www.swrcb.ca.gov/laws_regulations/.

Google Earth. 2017. [aerial photograph]. 1:200 scale.

Jepson Flora Project. 2017. *Jepson eFlora*. Berkeley, California: University of California. Accessed April 2017. http://ucjeps.berkeley.edu/cgi-bin/get_JM_name_data.pl.

Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. *The National Wetland Plant List*: 2016 wetland ratings. Phytoneuron 2016-30: 1-17. Published 28 April 2016. ISSN 2153 733X. Accessed August 2017. http://wetland-plants.usace.army.mil.html

Rapanos et ux., et al. v. United States. 547 U.S. 715 (2006); no. 04-1034. Supreme Court decision on *Rapanos v. United States* and *Carabell v. U.S. Army Corps of Engineers*. Accessed January 9, 2012. http://www.epa.gov/owow/wetlands/pdf/Rapanos_SupremeCourt.pdf.

Sawyer, J.O., T. Keeler-Wolf, and J. Evens. 2009. *A Manual of California Vegetation.* 2nd ed. Sacramento, California: California Native Plant Society.

Solid Waste Agency of Northern Cook County v. United States Corps of Engineers et al., 531 U.S. 159 (2001), no. 99–1178.

USDA (U.S. Department of Agriculture). 2017. Web Soil Survey. USDA Natural Resources Conservation Service, Soil Survey Staff. Accessed March 2017. http://websoilsurvey.nrcs.usda.gov/.

USDA. 2017. PLANTS database. USDA Natural Resources Conservation Service. Last updated February 13, 2017. Accessed February 2017. http://plants.usda.gov/java/.

USFWS (U.S. Fish and Wildlife Service). 2016. "The National Wetlands Inventory." Accessed August 2017. fws.gov/wetlands/NWI/index.html.

USGS (U.S. Geological Survey). 2017. "Valley Ford, CA" [map]. 7.5-Minute Series (Topographic). Accessed March 2017. http://store.usgs.gov/b2c_usgs/b2c/usgs/netfile?file=//igskahcigssap05/MOD/StoreFiles/DenverPDFs/24K/CA/CA_Valley Ford_1981.pdf.

Western Regional Climate Center (WRCC). 2017. Monthly Climate Summary for Occidental, California (046370). Available online at https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca6370. Accessed February 2018.



SOURCE: ArcGIS Online Basemap

FIGURE 1

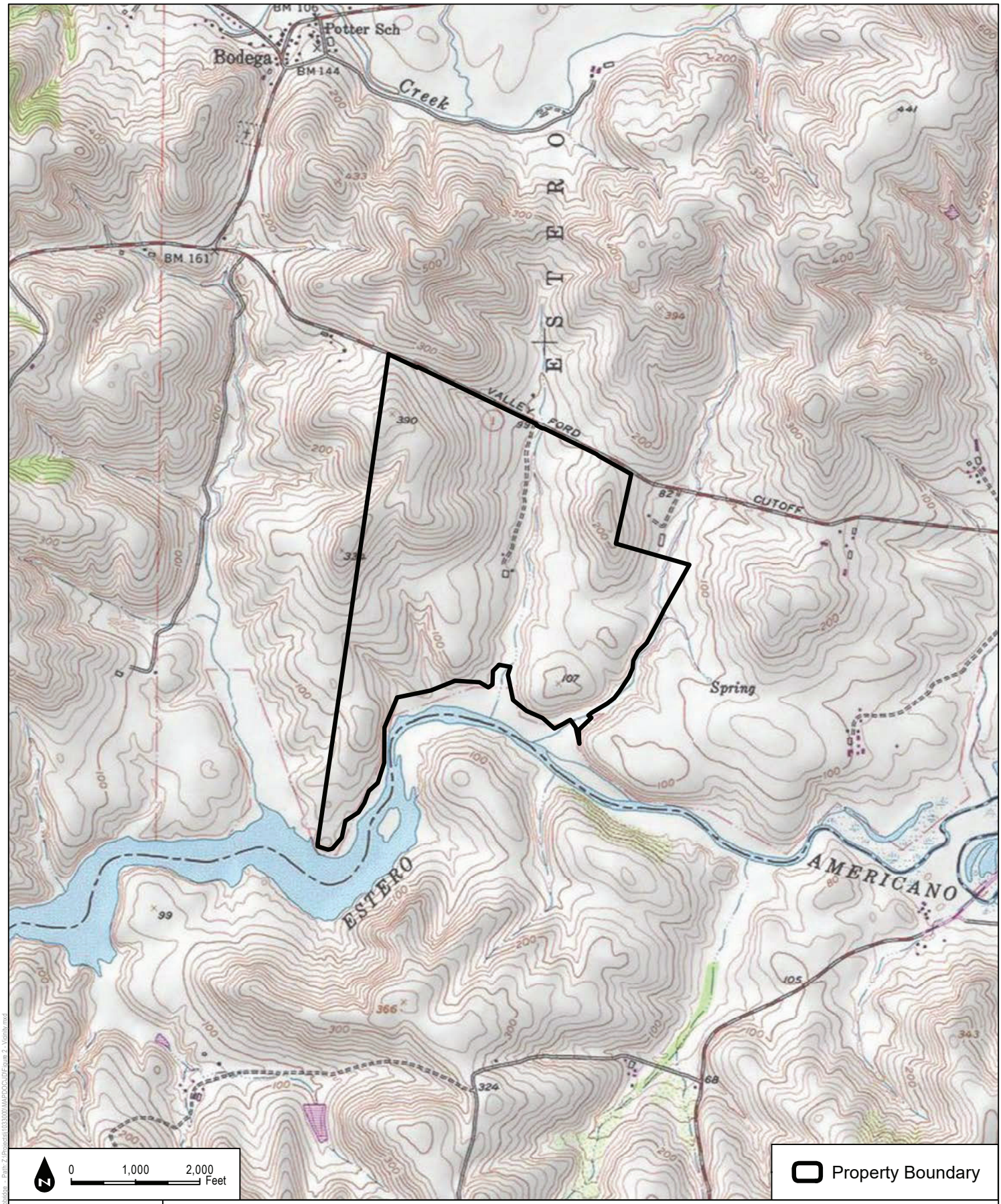
Regional Map

DUDEK

Bordessa Ranch - Estero Trail

Delineation of Wetlands and Waters of the U.S.

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SOURCE: USGS 7.5-Minute Series Valley Ford Quadrangle
Township 6N; Range 10W; Sections 27, 28, 33, 34

DUDEK

FIGURE 2

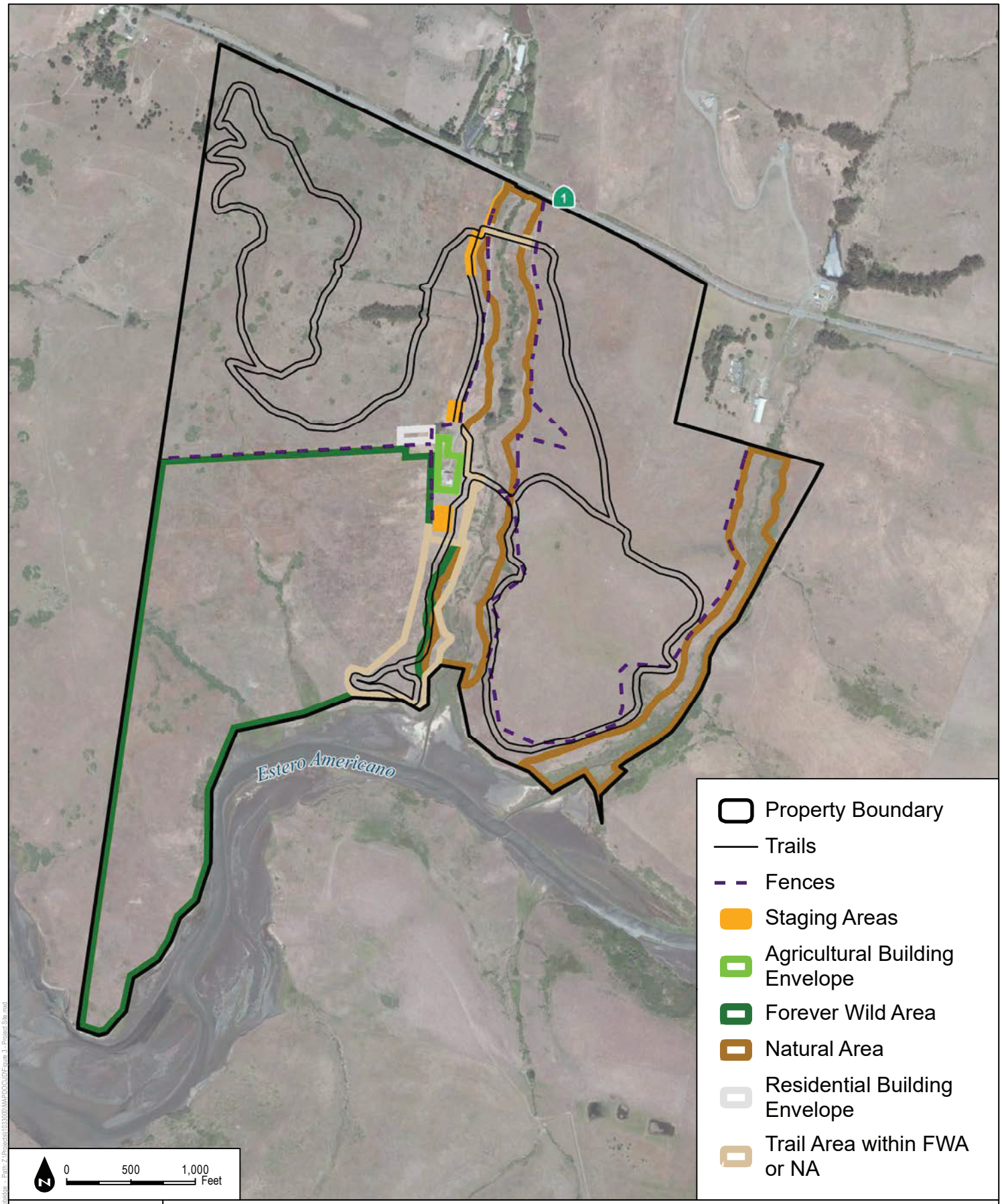
Vicinity Map

Bordessa Ranch - Estero Trail

Delineation of Wetlands and Waters of the U.S.

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SOURCE: Bing Maps (Accessed 2017)

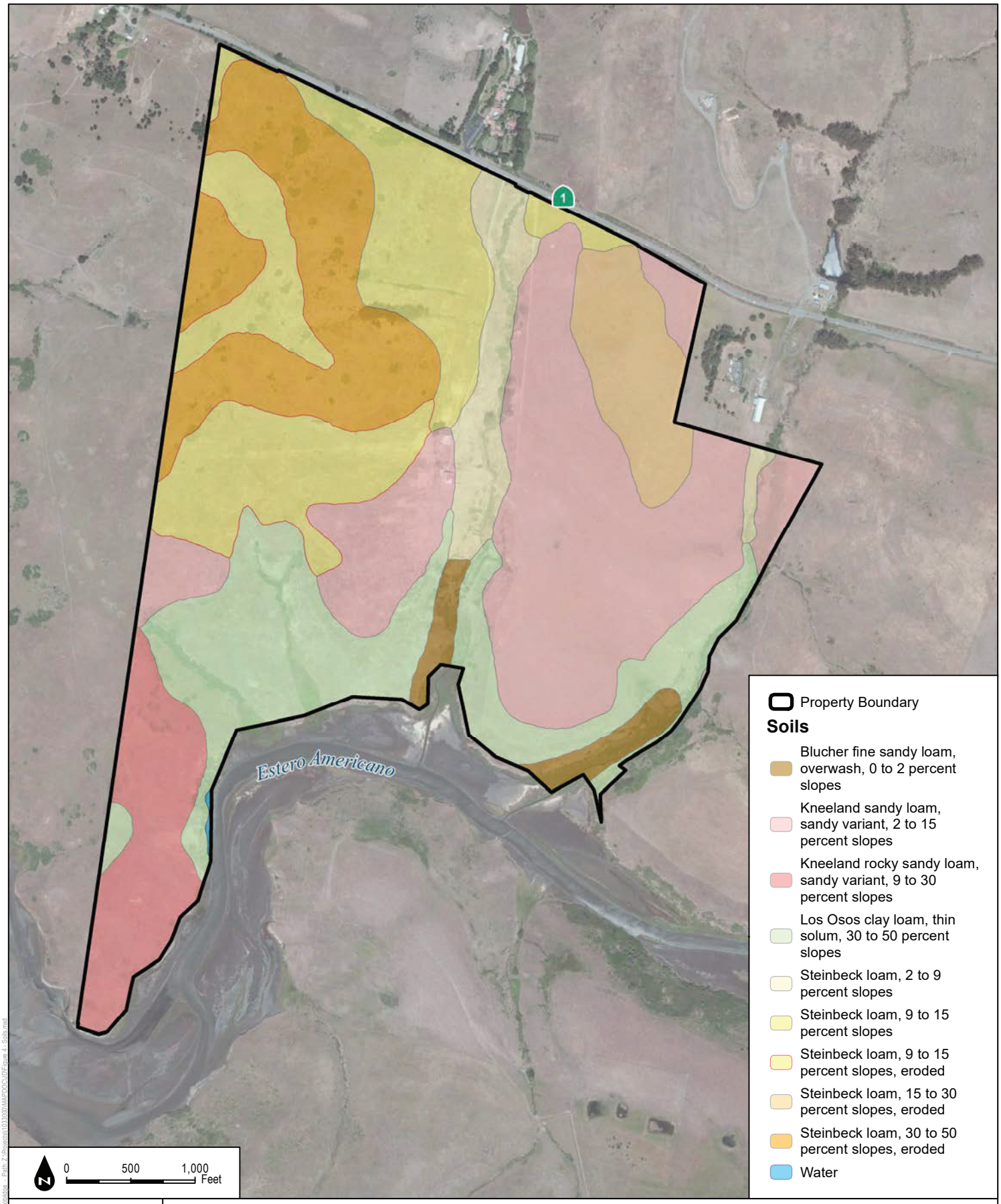
FIGURE 3

Project Site

DUDEK

Bordessa Ranch - Estero Trail

Delineation of Wetlands and Waters of the U.S.



DUDEK

SOURCE: Bing Maps (Accessed 2017); USDA NRCS Soils

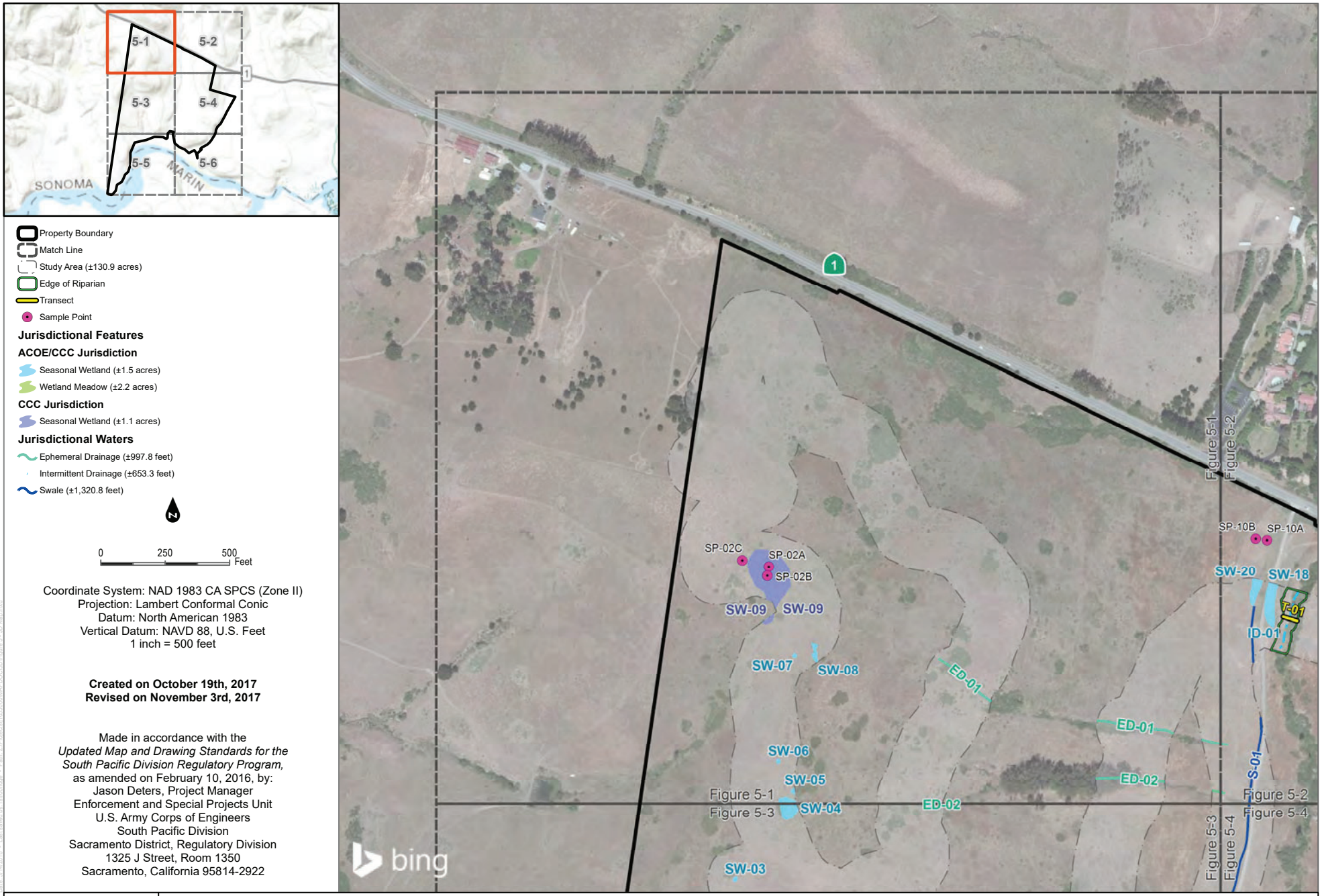
FIGURE 4

Soils Map

Bordessa Ranch - Estero Trail

Delineation of Wetlands and Waters of the U.S.

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SOURCE: Bing Maps (Accessed 2017)

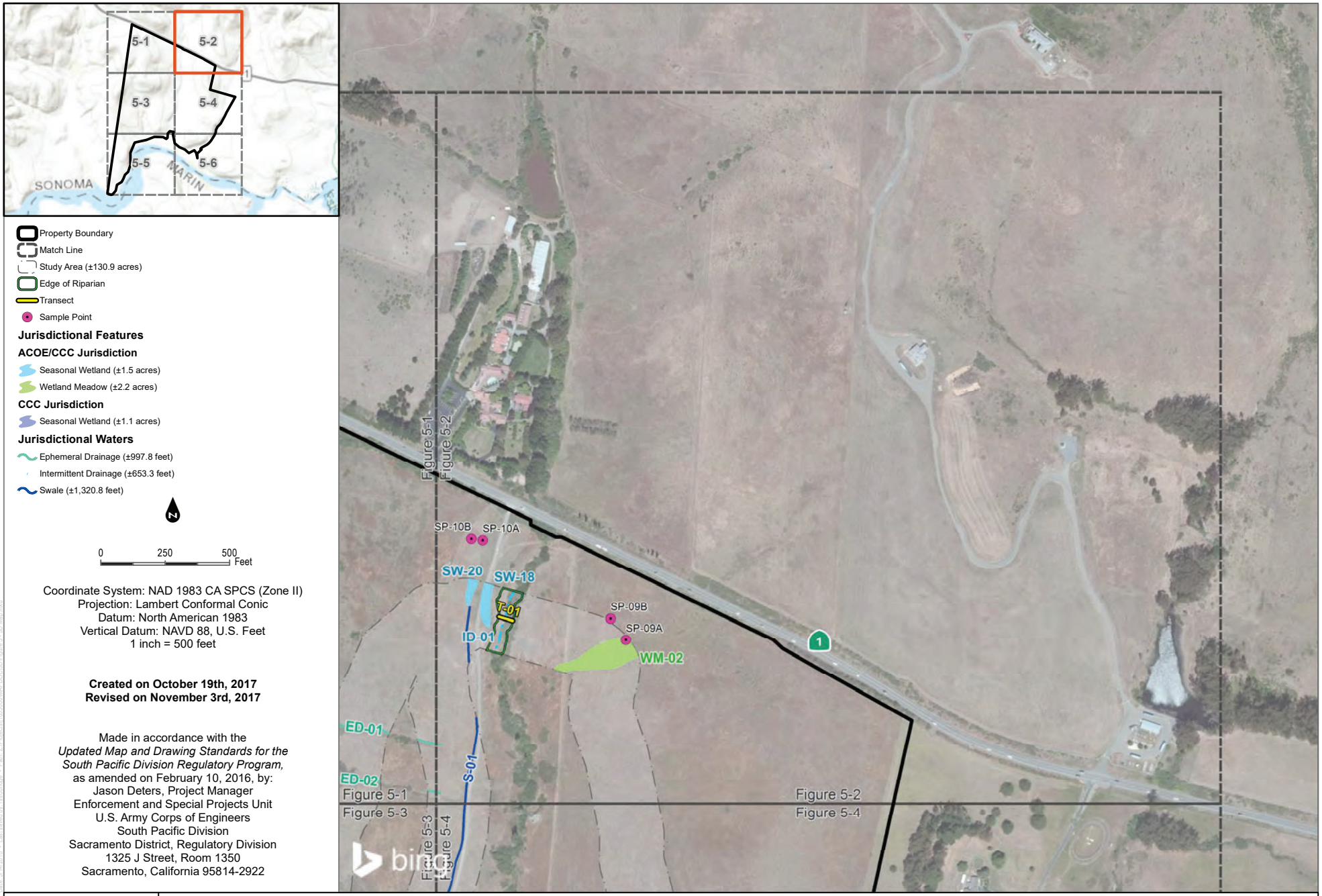
FIGURE 5-1

Delineation of Wetlands and Other Waters of the U.S.

DUDEK

Bordessa Ranch - Estero Trail

Delineation of Wetlands and Waters of the U.S.



Coordinate System: NAD 1983 CA SPCS (Zone II)
Projection: Lambert Conformal Conic
Datum: North American 1983
Vertical Datum: NAVD 88, U.S. Feet
1 inch = 500 feet

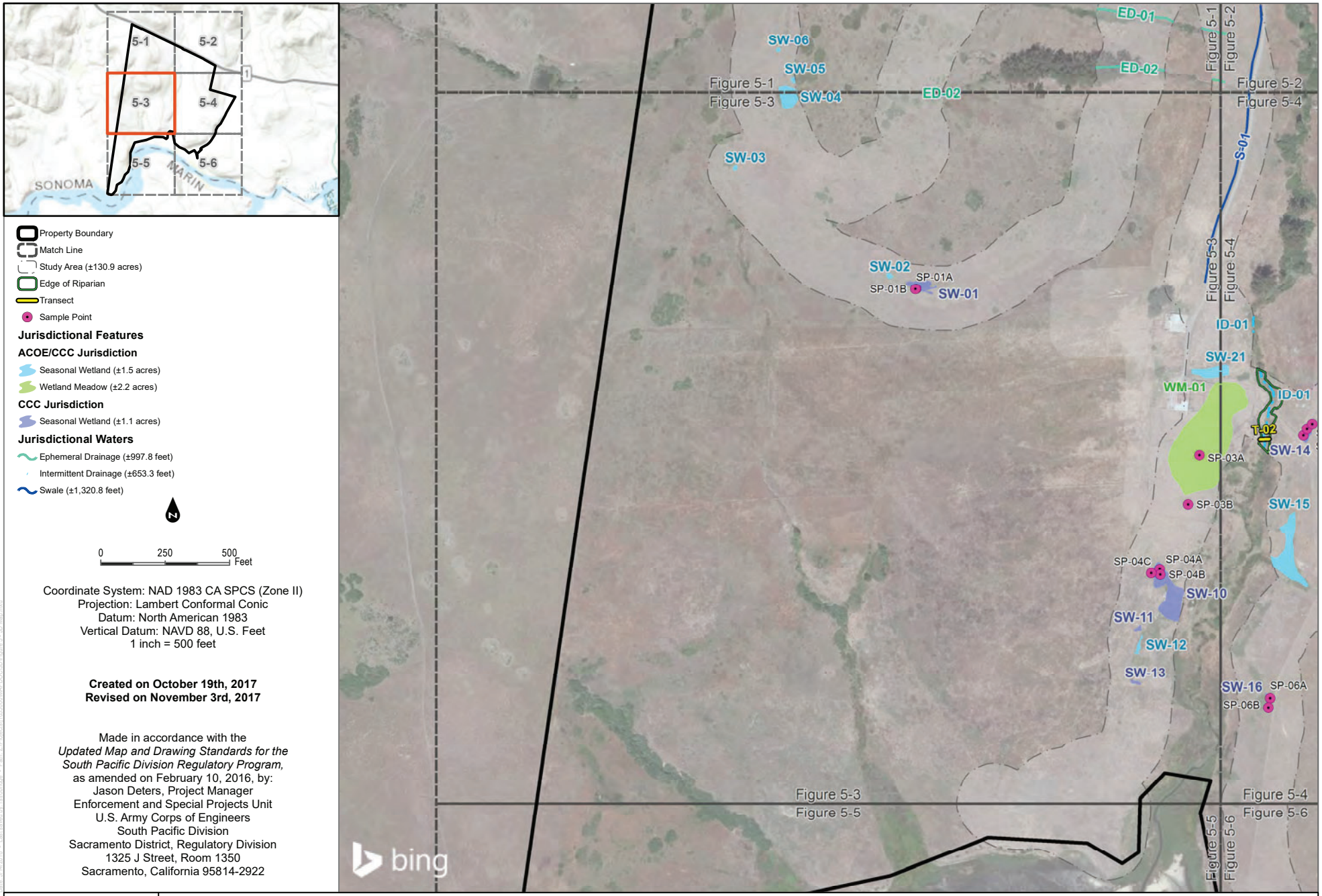
Created on October 19th, 2017
Revised on November 3rd, 2017

Made in accordance with the
Updated Map and Drawing Standards for the South Pacific Division Regulatory Program,
as amended on February 10, 2016, by:
Jason Deters, Project Manager
Enforcement and Special Projects Unit
U.S. Army Corps of Engineers
South Pacific Division
Sacramento District, Regulatory Division
1325 J Street, Room 1350
Sacramento, California 95814-2922

DUDEK

SOURCE: Bing Maps (Accessed 2017)

FIGURE 5-2
Delineation of Wetlands and Other Waters of the U.S.



Coordinate System: NAD 1983 CA SPCS (Zone II)
Projection: Lambert Conformal Conic
Datum: North American 1983
Vertical Datum: NAVD 88, U.S. Feet
1 inch = 500 feet

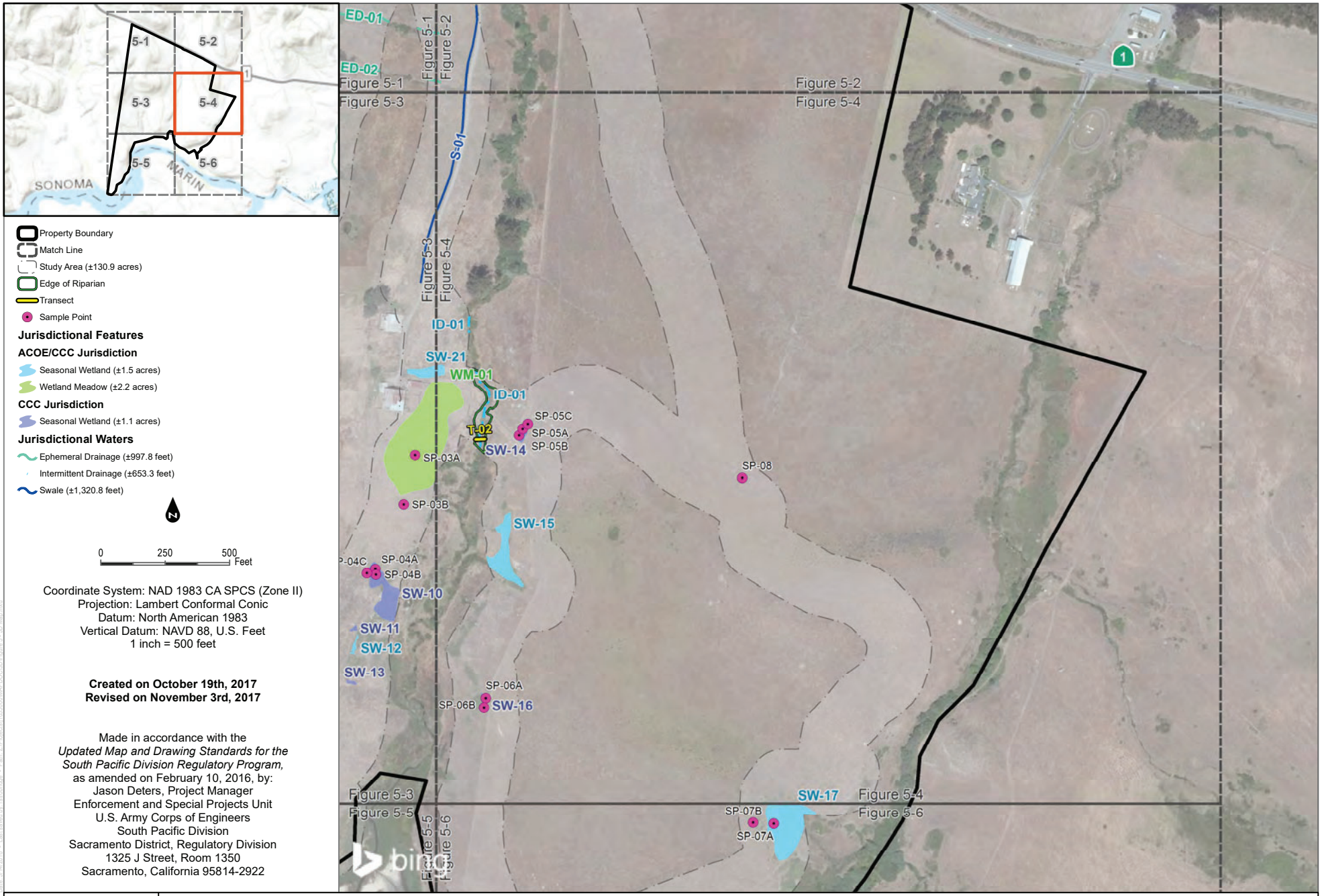
Created on October 19th, 2017
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1325 J Street, Room 1350
Sacramento, California 95814-2922

DUDEK

SOURCE: Bing Maps (Accessed 2017)

FIGURE 5-3
Delineation of Wetlands and Other Waters of the U.S.



SOURCE: Bing Maps (Accessed 2017)

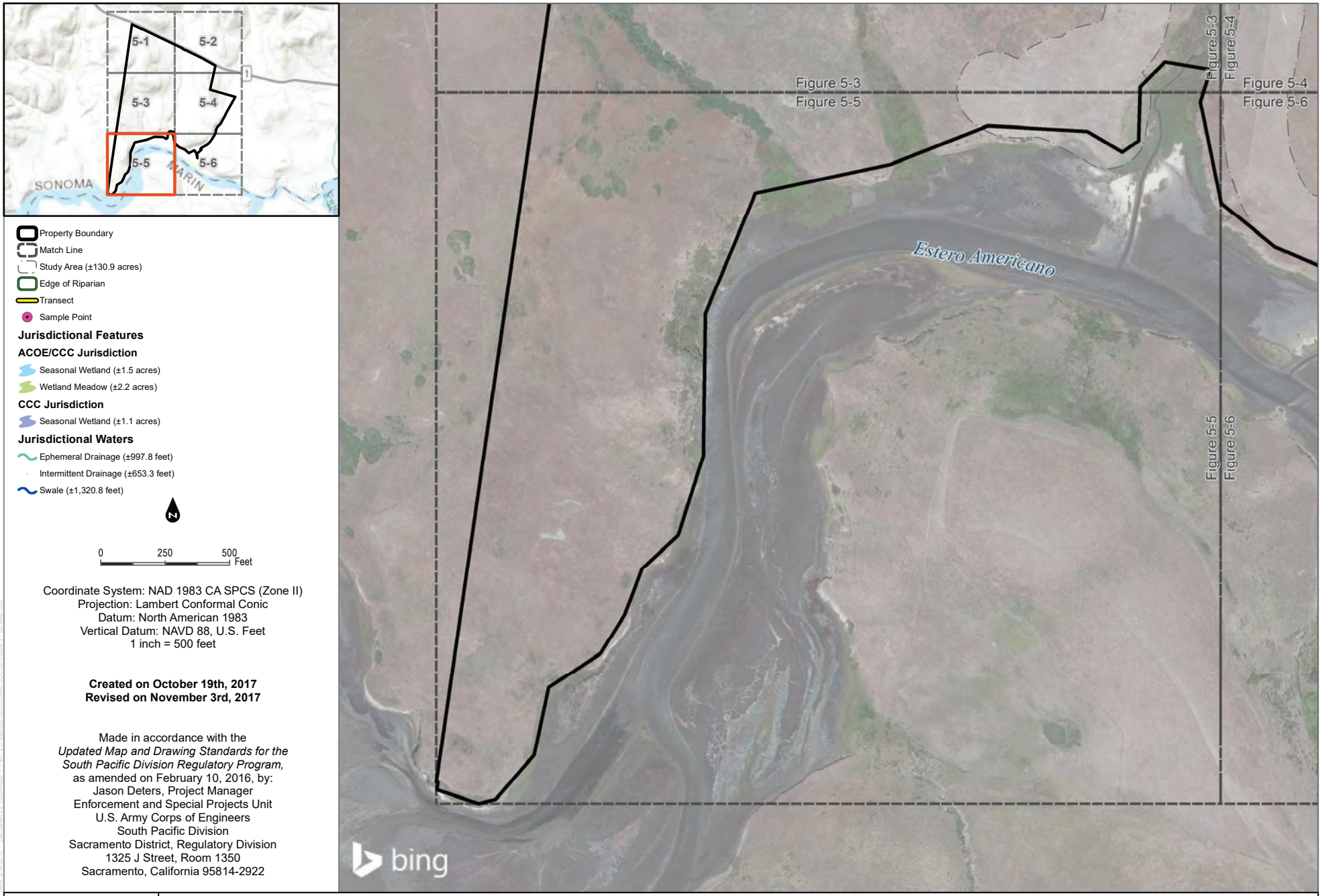
FIGURE 5-4

Delineation of Wetlands and Other Waters of the U.S.

DUDEK

Bordessa Ranch - Estero Trail

Delineation of Wetlands and Waters of the U.S.



Property Boundary
Match Line
Study Area (±130.9 acres)
Edge of Riparian
Transect
Sample Point

Jurisdictional Features

ACOE/CCC Jurisdiction

Seasonal Wetland (±1.5 acres)
Wetland Meadow (±2.2 acres)

CCC Jurisdiction

Seasonal Wetland (±1.1 acres)

Jurisdictional Waters

Ephemeral Drainage (±997.8 feet)
Intermittent Drainage (±653.3 feet)
Swale (±1,320.8 feet)

N

0 250 500 Feet

Coordinate System: NAD 1983 CA SPCS (Zone II)
Projection: Lambert Conformal Conic
Datum: North American 1983
Vertical Datum: NAVD 88, U.S. Feet
1 inch = 500 feet

Created on October 19th, 2017
Revised on November 3rd, 2017

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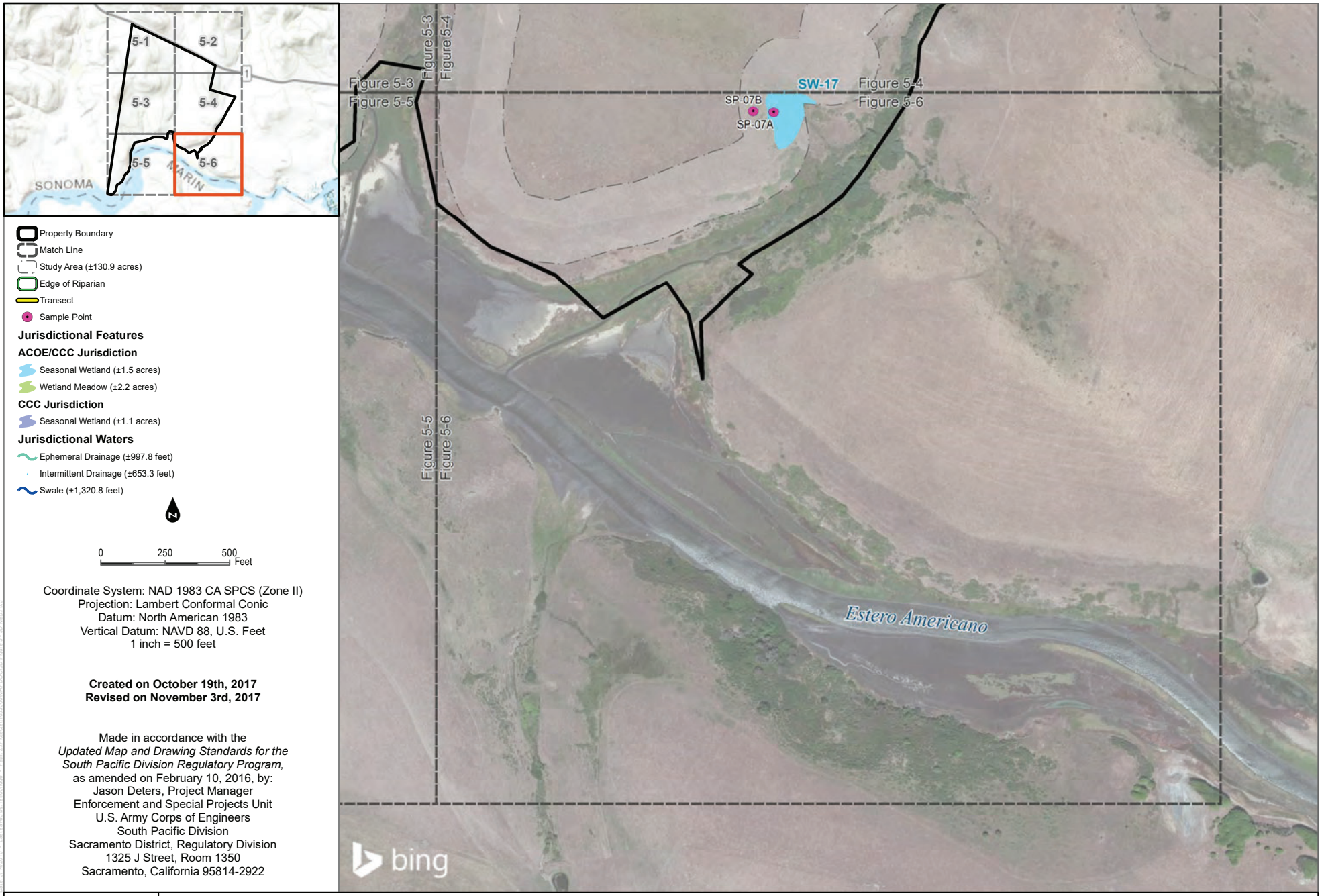
DUDEK

SOURCE: Bing Maps (Accessed 2017)

FIGURE 5-5
Delineation of Wetlands and Other Waters of the U.S.

Bordessa Ranch - Estero Trail

Delineation of Wetlands and Waters of the U.S.



Property Boundary
Match Line
Study Area (±130.9 acres)
Edge of Riparian
Transect
Sample Point

Jurisdictional Features

ACOE/CCC Jurisdiction

Seasonal Wetland (±1.5 acres)
Wetland Meadow (±2.2 acres)

CCC Jurisdiction

Seasonal Wetland (±1.1 acres)

Jurisdictional Waters

Ephemeral Drainage (±997.8 feet)
Intermittent Drainage (±653.3 feet)
Swale (±1,320.8 feet)

N

0 250 500 Feet

Coordinate System: NAD 1983 CA SPCS (Zone II)
Projection: Lambert Conformal Conic
Datum: North American 1983
Vertical Datum: NAVD 88, U.S. Feet
1 inch = 500 feet

Created on October 19th, 2017
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South Pacific Division
Sacramento District, Regulatory Division
1325 J Street, Room 1350
Sacramento, California 95814-2922

DUDEK

SOURCE: Bing Maps (Accessed 2017)

FIGURE 5-6
Delineation of Wetlands and Other Waters of the U.S.

Bordessa Ranch - Estero Trail

Delineation of Wetlands and Waters of the U.S.

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APPENDIX A

Representative Photos

APPENDIX A
Representative Photos



Photo 1: View of typical seasonal wetland (SW-02) dominated by slough sedge (*Carex obnupta*), facing west. May 25, 2017.



Photo 2: View of CCC wetland (SW-10) dominated by velvet grass (*Holcus lanatus*), facing west. May 25, 2017.



Photo 3: View of roadside swale (S-01), facing south. August 2, 2017.



Photo 4: View of seasonal wetland (SW-20), facing north. August 2, 2017.



Photo 5: View of the ephemeral drainage (ED-02), facing south. August 3, 2017.



Photo 6: View of wet meadow (WM-01) dominated by Italian ryegrass (*Festuca perennis*), facing southeast. May 25, 2017.



Photo 7: View of the ephemeral drainage (ED-01), facing west. April 14, 2017.



Photo 8: View of intermittent drainage (ID-01), facing south. April 14, 2017.

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APPENDIX B

Plant Species Observed

Appendix B
Plant Species Observed within the Project Area

VASCULAR SPECIES

FERNS AND FERN ALLIES

DENNSTAEDTIACEAE – BRACKEN FAMILY

Pteridium aquilinum – western brackenfern (FACU)

DRYOPTERIDACEAE – WOOD FERN FAMILY

Polystichum munitum – western swordfern (FACU)

EQUISETACEAE – HORSETAIL FAMILY

Equisetum hyemale – scouringrush horsetail (FACW)

GYMNOSPERMS AND GNETOPHYTES

PINACEAE – PINE FAMILY

Pinus radiata – Monterey pine (NL)

MONOCOTS

AGAVACEAE – AGAVE FAMILY

Chlorogalum pomeridianum var. *pomeridianum* – wavyleaf soap plant (NL)

ALISMATACEAE – WATER-PLANTAIN FAMILY

Alisma triviale – northern water plantain (OBL)

ARACEAE – ARUM FAMILY

Lemna minor – duckweed (OBL)

CYPERACEAE – SEDGE FAMILY

Carex bolanderi – Bolander's sedge (FAC)
Carex densa – dense sedge(OBL)
Isolepis carinata – keeled bulrush (OBL)
Isolepis cernua – low bulrush (OBL)
Carex obnupta – slough sedge swards (OBL)
Carex barbarae – white-root beds (FAC)

IRIDACEAE – IRIS FAMILY

Iris douglasiana – Douglas iris (NL)
Sisyrinchium bellum – western blue-eyed grass (FACW)
* *Romulea rosea* var. *australis* – rosy sandcrocus (NL)

JUNCACEAE – RUSH FAMILY

Juncus bolanderi – Bolander's rush (OBL)
Juncus bufonius var. *bufonius* – toad rush (NL)
Juncus effusus ssp. *pacificus* – Pacific rush (NL)
Juncus phaeocephalus var. *phaeocephalus* – brownhead rush (NL)
Luzula comosa – Pacific woodrush (FAC)
Juncus balticus – no common name (FACW)

JUNCAGINACEAE – ARROW-GRASS FAMILY

Triglochin scilloides – awl-leaf lilaea (OBL)

LILIACEAE – LILY FAMILY

Calochortus luteus – yellow mariposa lily (NL)

ORCHIDACEAE – ORCHID FAMILY

Spiranthes romanzoffiana – hooded lady's tresses (FACW)

POACEAE – GRASS FAMILY

* *Avena barbata* – slender oat (NL)
Bromus carinatus var. *carinatus* – California brome (NL)
Bromus carinatus – California brome(NL)
Festuca rubra – red fescue (FAC)
Glyceria leptostachya – davy mannagrass (OBL)
Pleuropogon californicus var. *californicus* – annual semaphoregrass (NL)
Poa secunda ssp. *secunda* – Sandberg bluegrass (NL)
* *Aira caryophyllea* – silver hairgrass (FACU)
* *Briza maxima* – big quakinggrass (NL)
* *Briza minor* – little quakinggrass (FAC)
* *Bromus diandrus* – ripgut brome (NL)
* *Bromus hordeaceus* – soft brome (FACU)
* *Bromus madritensis* ssp. *rubens* – red brome (NL)
* *Hordeum marinum* – seaside barley (FAC)
* *Hordeum murinum* – mouse barley (FAC)
* *Cynosurus echinatus* – annual dogtails (NL)
Danthonia californica – California oat grass (FAC)
* *Holcus lanatus* – common velvet grass (FAC)
* *Poa pratensis* – Kentucky blue grass (FAC)
* *Festuca perennis* – perennial rye grass (FAC)
Stipa pulchra – purple needle grass (NL)

Festuca microstachys – six-weeks fescue (NL)
* *Anthoxanthum odoratum* – sweet vernal grass (FACU)

THEMIDACEAE – BRODIAEA FAMILY
Brodiaea terrestris ssp. *terrestris* – dwarf brodiaea (NL)
Dichelostemma capitatum – bluedicks (FACU)
Triteleia ixioides – prettyface (FAC)
Triteleia laxa – Ithuriel's spear (NL)

EUDICOTS

ANACARDIACEAE – SUMAC OR CASHEW FAMILY
Toxicodendron diversilobum – poison oak (FAC)

APIACEAE – CARROT FAMILY
Eryngium armatum – coastal eryngo (FACW)
Lomatium utriculatum – common lomatium (NL)
Sanicula bipinnatifida – purple sanicle (NL)
Sanicula laciniata – coastal blacksnakeroot (NL)

ASTERACEAE – SUNFLOWER FAMILY
* *Sonchus oleraceus* – common sowthistle (UPL)
Achillea millefolium – common yarrow (FACU)
Corethrogyne filaginifolia – common sandaster (NL)
Grindelia hirsutula – hairy gumweed (FACW)
Heterotheca sessiliflora ssp. *bolanderi* – sessileflower false goldenaster (NL)
Lasthenia californica ssp. *californica* – California goldfields (NL)
Madia exigua – small tarweed (NL)
Madia gracilis – grassy tarweed (NL)
Pseudognaphalium stramineum – cottonbatting plant (FAC)
Psilocarphus tenellus – slender woollyheads (OBL)
Symphyotrichum chilense – Pacific aster (FAC)
Wyethia angustifolia – California compassplant (FACU)
* *Carduus pycnocephalus* – Italian plumeless thistle (NL)
* *Helminthotheca echioides* – bristly oxtongue (FAC)
* *Hypochaeris glabra* – smooth cat's ear (NL)
* *Lactuca serriola* – prickly lettuce (FACU)
* *Logfia gallica* – narrowleaf cottonrose (NL)
* *Matricaria discoidea* – disc mayweed (FACU)
* *Senecio vulgaris* – old-man-in-the-spring (FACU)

Hemizonia congesta ssp. *congesta* – congested-headed hayfield tarplant (NL)
Baccharis pilularis – coyote brush (NL)

BORAGINACEAE – BORAGE FAMILY

* *Myosotis discolor* – changing forget-me-not (FAC)

BRASSICACEAE – MUSTARD FAMILY

Cardamine oligosperma – little western bittercress (FAC)
Nasturtium officinale – watercress (OBL)
* *Brassica nigra* – black mustard (NL)
* *Raphanus raphanistrum* – wild radish (NL)
* *Raphanus sativus* – cultivated radish (NL)

CARYOPHYLLACEAE – PINK FAMILY

* *Cerastium glomeratum* – sticky chickweed (FACU)
* *Spergularia media* – no common name (FAC)

CONVOLVULACEAE – MORNING-GLORY FAMILY

Calystegia collina ssp. *collina* – coast range false bindweed (NL)
Dichondra donelliana – California ponysfoot (NL)

CRASSULACEAE – STONECROP FAMILY

Crassula connata – sand pygmyweed (FAC)

CUCURBITACEAE – GOURD FAMILY

Marah fabacea – California man-root (NL)

FABACEAE – LEGUME FAMILY

Acmispon brachycarpus – foothill deervetch (NL)
Acmispon wrangelianus – Chilean bird's-foot trefoil (NL)
Lupinus bicolor – miniature lupine (NL)
Lupinus formosus – summer lupine (NL)
Lupinus microcarpus var. *microcarpus* – valley lupine (NL)
Lupinus nanus – sky lupine (NL)
Trifolium barbigerum – bearded clover (FACW)
Trifolium ciliolatum – foothill clover (NL)
Trifolium depauperatum var. *depauperatum* – cowbag clover (NL)
Trifolium dichotomum – branched Indian clover (NL)
Trifolium gracilentum – pinpoint clover (NL)
Trifolium willdenovii – tomcat clover (NL)
Hosackia gracilis – harlequin lotus (FACW)

* *Lotus corniculatus* – bird's-foot trefoil (FAC)
* *Medicago polymorpha* – burclover (FACU)
* *Trifolium campestre* – field clover (NL)
* *Trifolium dubium* – suckling clover (FACU)
* *Trifolium glomeratum* – clustered clover (NL)
* *Trifolium subterraneum* – subterranean clover (NL)
* *Ulex europaeus* – common gorse (FACU)
Astragalus breweri – Brewer's milk-vetch (NL)
Acmispon americanus – Spanish clover (FACU)

GENTIANACEAE – GENTIAN FAMILY
Cicendia quadrangularis – Oregon timwort (FACW)
Zeltnera muehlenbergii – Muhlenberg's centaury (FACW)

GERANIACEAE – GERANIUM FAMILY
* *Erodium cicutarium* – redstem stork's bill (NL)
* *Erodium botrys* – longbeak stork's bill (FACU)
* *Geranium dissectum* – cutleaf geranium (NL)
* *Geranium molle* – dovefoot geranium (NL)

LAMIACEAE – MINT FAMILY
* *Mentha pulegium* – pennyroyal (OBL)
Monardella villosa ssp. *villosa* – coyote mint (NL)
Stachys ajugoides – bugle hedgenettle (OBL)
* *Lamium amplexicaule* – henbit deadnettle (NL)
* *Lamium purpureum* – purple deadnettle (NL)

LYTHRACEAE – LOOSESTRIFE FAMILY
* *Lythrum hyssopifolia* – hyssop loosestrife (OBL)

MALVACEAE – MALLOW FAMILY
Sidalcea malviflora ssp. *rostrata* – dwarf checkerbloom (NL)

MONTIACEAE – MONTIA FAMILY
Calandrinia menziesii – red maids (FACU)

MYRSINACEAE – MYRSINE FAMILY
* *Lysimachia arvensis* – scarlet pimpernel (FAC)

ONAGRACEAE – EVENING PRIMROSE FAMILY
Taraxia ovata – goldeneggs (NL)

OROBANCHACEAE – BROOM-RAPE FAMILY

Triphysaria eriantha ssp. *eriantha* – Johnny-tuck (NL)
Triphysaria eriantha ssp. *rosea* – Johnny-tuck (NL)
Triphysaria versicolor ssp. *faucibarbata* – yellowbeak owl's-clover (NL)
Triphysaria versicolor ssp. *versicolor* – yellowbeak owl's-clover (NL)
Castilleja affinis ssp. *litoralis* – coast Indian paintbrush (NL)
Castilleja ambigua var. *ambigua* – Johnny-nip (NL)
* *Parentucellia viscosa* – yellow glandweed (FAC)

PAPAVERACEAE – POPPY FAMILY

Eschscholzia californica – California poppy (NL)

PLANTAGINACEAE – PLANTAIN FAMILY

Callitriche marginata – winged water-starwort (OBL)
* *Plantago lanceolata* – narrowleaf plantain (FACU)
Plantago erecta – dwarf plantain (NL)

POLYGONACEAE – BUCKWHEAT FAMILY

Eriogonum nudum – naked buckwheat (NL)
Rumex salicifolius – willow dock (FACW)
* *Rumex acetosella* – common sheep sorrel (FACU)
* *Rumex pulcher* – fiddle dock (FAC)

RANUNCULACEAE – BUTTERCUP FAMILY

Ranunculus californicus – California buttercup (FAC)
* *Ranunculus muricatus* – spinyfruit buttercup (FACW)

RHAMNACEAE – BUCKTHORN FAMILY

Frangula californica ssp. *californica* – California buckthorn (NL)

ROSACEAE – ROSE FAMILY

Crataegus douglasii – black hawthorn (FAC)
Potentilla anserina – silverweed cinquefoil (OBL)
Acaena pinnatifida var. *californica* – California biddy-biddy (NL)
* *Cotoneaster franchetii* – orange cotoneaster (NL)
* *Rosa rubiginosa* – sweetbriar rose (UPL)
* *Rubus armeniacus* – Himalayan black berry (FAC)

SALICACEAE – WILLOW FAMILY

Salix lasiolepis – arroyo willow (FACW)

SAXIFRAGACEAE – SAXIFRAGE FAMILY

Lithophragma affine – San Francisco woodland-star (NL)

SCROPHULARIACEAE – FIGWORT FAMILY

Scrophularia californica – California figwort (FAC)

VIOLACEAE – VIOLET FAMILY

Viola pedunculata – Johnny-jump-up (NL)

Viola adunca – hookedspur violet (FAC)

* signifies introduced (non-native) species

APPENDIX C

Data Sheets

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Estero Americano City/County: Sonoma County/ Sampling Date: 2017-5-25
Applicant/Owner: Sonoma County State: CA Sampling Point: SP01a
Investigator(s): L. Burris, C. Amoaku Section, Township, Range: ____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): concave Slope (%): 3
Subregion (LRR): Med Lat: ____ Long: ____ Datum: UTM Zone 10
Soil Map Unit Name: Steinbeck Loam NWI classification: ____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks: Area dominated by Juncus sp in grassland.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
50% = ____, 20% = ____		= Total Cover	
Sapling/Shrub Stratum (Plot size: ____)			
1. *Rosa rubiginosa*	10	yes	UPL
2.			
3.			
4.			
5.			
50% = ____, 20% = ____	10	= Total Cover	
Herb Stratum (Plot size: ____)			
1. *Juncus effusus*	20	yes	FACW
2. *J. mexicanus*	10	no	FACW
3. *Carex barbarae*	5	no	FAC
4. *Briza maxima*	2	no	NL (UPL)
5. *B. minor*	2	no	FAC
6. *Juncus xiphoides*	10	no	OBL
7. *Mentha pulegium*	5	no	OBL
8. *Holcus lanatus*	20	yes	FAC
9. *Rumex crispus*	5	no	FAC
10. *Bromus hordeaceus*	2	no	FACW
11. *Carex obnupta*	15	yes	OBL
50% = ____, 20% = ____		= Total Cover	
Woody Vine Stratum (Plot size: ____)			
1. *N/A*			
2.			
50% = ____, 20% = ____		= Total Cover	
% Bare Ground in Herb Stratum ____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	75	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	x1 =	____
FACW species	____	x2 =	____
FAC species	____	x3 =	____
FACU species	____	x4 =	____
UPL species	____	x5 =	____
Column Totals:	____ (A)		____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

☒ 1 – Rapid Test for Hydrophytic Vegetation
☐ 2 - Dominance Test is >50%
☐ 3 - Prevalence Index is ≤3.0[1]
☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☐ 5 - Wetland Non-Vascular Plants[1]
☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: Estero Americano

SOIL

Sampling Point: SP01a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/1	85	10YR 4/4	15	C	M	Silty	clay loam

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: none

Depth (inches): N/A

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: Very dark soils

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	14

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Estero Americano City/County: Sonoma County/ Sampling Date: 2017-5-25
Applicant/Owner: Sonoma County State: CA Sampling Point: SP01b
Investigator(s): L. Burris, C. Amoaku Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 3
Subregion (LRR): Med Lat: _____ Long: _____ Datum: UTM Zone 10
Soil Map Unit Name: Steinbeck Loam NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes** ☐	**No** ☒
Hydric Soil Present?	Yes ☒	No ☐			
Wetland Hydrology Present?	Yes ☐	No ☒			

Remarks: South of SP01a. Vegetation change.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. *N/A*			
2.			
3.			
4.			
5.			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: _____)			
1. *Briza maxima*	5	no	NL (UPL)
2. *Bromus hordeaceus*	40	yes	FACU
3. *Festuca myuros*	15	yes	FACU
4. *B. minor*	10	no	FAC
5. *Juncus mexicanus*	5	no	FAC
6. *Geranium dissectum*	10	no	NL (UPL)
7. *Holcus lanatus*	5	no	FAC
8. *Carex praticola*	5	no	FACW
9.			
10.			
11.			
50% = _____, 20% = _____		= Total Cover	
Woody Vine Stratum (Plot size: 1 m)			
1. *N/A*			
2.			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum _____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x1 =	0
FACW species	5	x2 =	10
FAC species	20	x3 =	60
FACU species	55	x4 =	220
UPL species	15	x5 =	75
Column Totals:	95 (A)		465 (B)

Prevalence Index = B/A = 4.89

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

Project Site: Estero Americano

SOIL

Sampling Point: SP01b

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 3/1	90	7.5YR 5/8	10	C	M	Silty	clay loam

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): N/A

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: ~ 2% oxidized rhizospheres- borderline

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Estero Americano City/County: Sonoma County/ Sampling Date: 2017-5-25
Applicant/Owner: Sonoma County State: CA Sampling Point: SP02a
Investigator(s): L. Burris, C. Amoaku Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): Med Lat: _____ Long: _____ Datum: UTM Zone 10
Soil Map Unit Name: Steinbeck Loam NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☐	No	☒	**Is the Sampled Area within a Wetland?** **Yes** ☐ **No** ☒
Wetland Hydrology Present?	Yes	☐	No	☒	

Remarks: Area below water tank (seep?).

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: 1 m)			
1. *Rosa rubigosa*	35	yes	UPL
2.			
3.			
4.			
5.			
50% = 17.5, 20% = 7	35	= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. *Carex obnupta*	20	yes	OBL
2. *Bromus hordeaceus*	15	yes	FACU
3. *Conium maculatum*	10	no	FAC
4. *Rumex acetosella*	15	yes	FACU
5. *Festuca myuros*	10	no	FACU
6. *Mentha pulegium*	5	no	OBL
7. *Holcus lanatus*	25	yes	FAC
8.			
9.			
10.			
11.			
50% = 50, 20% = 20	100	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum _____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50	(A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	25	x1 =	25
FACW species	0	x2 =	0
FAC species	35	x3 =	105
FACU species	40	x4 =	160
UPL species	0	x5 =	0
Column Totals:	100 (A)		290 (B)

Prevalence Index = B/A = 2.9

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☒ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: Estero Americano

SOIL

Sampling Point: SP02a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 2/1	100					Clay loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): N/A

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): ____

Water Table Present? Yes ☐ No ☒ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): ____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Estero Americano City/County: Sonoma County/ Sampling Date: 2017-5-25
Applicant/Owner: Sonoma County State: CA Sampling Point: SP02b
Investigator(s): L. Burris, C. Amoaku Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 2
Subregion (LRR): Med Lat: _____ Long: _____ Datum: UTM Zone 10
Soil Map Unit Name: Steinbeck Loam NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☐	No	☒	**Is the Sampled Area within a Wetland?** **Yes** ☐ **No** ☒
Wetland Hydrology Present?	Yes	☐	No	☒	

Remarks: Downslope from SP02a

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. *N/A*			
2.			
3.			
4.			
5.			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. *Juncus xiphioides*	55	yes	OBL
2. *Briza minor*	10	no	FAC
3. *Lotus corniculatus*	10	no	FAC
4. *Persicaria persicaria*	5	no	FAC
5. *Anthoxanthum odoratum*	10	no	FACU
6. *Festuca myuros*	5	no	FACU
7. *Carex densa*	5	no	OBL
8.			
9.			
10.			
11.			
50% = 50, 20% = 20	100	= Total Cover	
Woody Vine Stratum (Plot size: 1 m)			
1. *Rubus ursinus*	5	yes	FACU
2.			
50% = 2.5, 20% = 1	5	= Total Cover	

% Bare Ground in Herb Stratum _____

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	60	x1 =	60
FACW species	0	x2 =	0
FAC species	25	x3 =	75
FACU species	20	x4 =	80
UPL species	0	x5 =	0
Column Totals:	105 (A)		215 (B)

Prevalence Index = B/A = 2.04

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☒ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: Estero Americano

SOIL

Sampling Point: SP02b

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]		
0-12	10YR 2/1	100					Clayloam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): N/A

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: < 2% oxidized rhizospheres

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Estero Americano City/County: Sonoma County/ Sampling Date: 2017-5-25
Applicant/Owner: Sonoma County State: CA Sampling Point: SP02c
Investigator(s): L. Burris, C. Amoaku Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): Med Lat: _____ Long: _____ Datum: UTM Zone 10
Soil Map Unit Name: Steinbeck Loam NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Hydric Soil Present?	Yes ☐	No ☒		
Wetland Hydrology Present?	Yes ☐	No ☒		

Remarks: West of SP02a and b - upland point.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. *N/A*			
2.			
3.			
4.			
5.			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 1 m2)			
1. *Avena fatua*	10	yes	NL (UPL)
2. *Festuca myuros*	55	yes	FACU
3. *Bromus diandrus*	10	yes	NL (UPL)
4. *Briza maxima*	5	no	NL (UPL)
5. *B. minor*	5	no	FAC
6. *Rumex acetosella*	2	no	FACU
7. *Linum bienne*	3	no	NL (UPL)
8. *Holcus lanatus*	5	no	FAC
9. *Plantago lanceolata*	5	no	FACU
10.			
11.			
50% = 50, 20% = 20	100	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum _____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0	(A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x1 =	0
FACW species	0	x2 =	0
FAC species	10	x3 =	30
FACU species	62	x4 =	248
UPL species	28	x5 =	140
Column Totals:	100 (A)		418 (B)

Prevalence Index = B/A = 4.18

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks:

Project Site: Estero Americano

SOIL

Sampling Point: SP02c

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/1	100					Clayloam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): N/A

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): ____

Water Table Present? Yes ☐ No ☒ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): ____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Estero Americano City/County: Sonoma County/ Sampling Date: 2017-5-25
Applicant/Owner: Sonoma County State: CA Sampling Point: SP03a
Investigator(s): L. Burris, C. Amoaku Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): Med Lat: _____ Long: _____ Datum: UTM Zone 10
Soil Map Unit Name: Steinbeck Loam NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks: Grassland south of barn

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. *N/A*			
2.			
3.			
4.			
5.			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. *Festuca perennis*	98	yes	FAC
2. *Rumex pulcher*	10	no	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 54, 20% = 21.6	108	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
50% = _____, 20% = _____		= Total Cover	

% Bare Ground in Herb Stratum _____

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: Estero Americano

SOIL

Sampling Point: SP03a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5YR 2.5/1	90	2.5YR 4/8	5	c	PL	Loam	
				5	c	M		

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Clay

Depth (inches): 6

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Estero Americano City/County: Sonoma County/ Sampling Date: 2017-5-25
Applicant/Owner: Sonoma County State: CA Sampling Point: SP03b
Investigator(s): L. Burris, C. Amoaku Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): Med Lat: _____ Long: _____ Datum: UTM Zone 10
Soil Map Unit Name: Steinbeck Loam NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes** ☐	**No** ☒
Hydric Soil Present?	Yes ☐	No ☒			
Wetland Hydrology Present?	Yes ☐	No ☒			

Remarks: South of SP03a. Change in vegetation.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. *Avena fatua*	5	no	NL (UPL)
2. *Hordeum murinum*	15	yes	FACU
3. *Bromus hordeaceus*	15	yes	FACU
4. *Plantago lanceolata*	20	yes	FACU
5. *Rumex pulcher*	10	no	FACW
6. *Trifolium campestre*	10	no	NL (UPL)
7. *Leontodon taraxicoides*	15	yes	NL (UPL)
8. *Festuca myuros*	10	no	FACU
9. *Medicago polymorpha*	5	no	FACU
10. _____			
11. _____			
50% = 52.5, 20% = 21	105	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum _____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0	(A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x1 =	0
FACW species	10	x2 =	20
FAC species	0	x3 =	0
FACU species	65	x4 =	260
UPL species	30	x5 =	150
Column Totals:	105 (A)		430 (B)

Prevalence Index = B/A = 4.1

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

Project Site: Estero Americano

SOIL

Sampling Point: SP03b

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/1	100					Loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): N/A

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Estero Americano City/County: Sonoma County/ Sampling Date: 2017-5-25
Applicant/Owner: Sonoma County State: CA Sampling Point: SP04a
Investigator(s): L. Burris, C. Amoaku Section, Township, Range: ____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): Med Lat: ____ Long: ____ Datum: UTM Zone 10
Soil Map Unit Name: Steinbeck Loam NWI classification: ____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?** **Yes** ☐ **No** ☒
Wetland Hydrology Present?	Yes	☐	No	☒	

Remarks: Wet area draining down to creek.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1. ____			
2. ____			
3. ____			
4. ____			
50% = ____, 20% = ____		= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A)			
1. ____			
2. ____			
3. ____			
4. ____			
5. ____			
50% = ____, 20% = ____		= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. *Juncus effusus*	25	yes	FACW
2. *Holcus lanatus*	35	yes	FAC
3. *Rumex acetosella*	5	no	FACU
4. *Cynosurus echinatus*	10	no	NL (UPL)
5. *Lotus corniculatus*	2	no	FAC
6. *Vicia villosa*	10	no	NL (UPL)
7. *Rumex pulcher*	10	no	FAC
8. *Stachys rigida*	5	no	FACW
9. *Geranium dissectum*	5	no	NL (UPL)
10. ____			
11. ____			
50% = 53.5, 20% = 21.2	107	= Total Cover	
Woody Vine Stratum (Plot size: ____)			
1. ____			
2. ____			
50% = ____, 20% = ____		= Total Cover	
% Bare Ground in Herb Stratum ____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	x1 =	____
FACW species	____	x2 =	____
FAC species	____	x3 =	____
FACU species	____	x4 =	____
UPL species	____	x5 =	____
Column Totals:	____ (A)		____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: Estero Americano

SOIL

Sampling Point: SP04a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/1	9.5	5YR 4/6	< 2	C	PL	Loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☒ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): N/A

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: < 2% oxidized rhysospheres.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Estero Americano City/County: Sonoma County/ Sampling Date: 2017-5-25
Applicant/Owner: Sonoma County State: CA Sampling Point: SP04b
Investigator(s): L. Burris, C. Amoaku Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): Med Lat: _____ Long: _____ Datum: UTM Zone 10
Soil Map Unit Name: Steinbeck Loam NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks: South of SP04a. In juncus patch.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: N/A)			
1. *Juncus effusus*	65	yes	FACW
2. *Holcus lanatus*	15	no	FAC
3. *Geranium dissectum*	10	no	NL (UPL)
4. *Bromus diandrus*	5	no	NL (UPL)
5. *Myosotis discolor*	2	no	FAC
6. *Anthoxanthum odoratum*	2	no	FACU
7. *Festuca perennis*	5	no	NL (UPL)
8. _____			
9. _____			
10. _____			
11. _____			
50% = 52, 20% = 20.8	104	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum _____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: Estero Americano

SOIL

Sampling Point: SP04b

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5YR 2.5/1	96	5YR 5/8	2	C	PL	Loam	
			5YR 5/8	2	C	M		

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): N/A

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Estero Americano City/County: Sonoma County/ Sampling Date: 2017-5-25
Applicant/Owner: Sonoma County State: CA Sampling Point: SP04c
Investigator(s): L. Burris, C. Amoaku Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): Med Lat: _____ Long: _____ Datum: UTM Zone 10
Soil Map Unit Name: Steinbeck Loam NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes** ☐	**No** ☒
Hydric Soil Present?	Yes ☐	No ☒			
Wetland Hydrology Present?	Yes ☐	No ☒			

Remarks: NW of SP04b. Upland vegetation.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. *Acmispon americanus*	25	yes	FACU
2. *Convulvulus arvensis*	10	no	NL (UPL)
3. *Hypochaeris radicata*	10	no	FACU
4. *Avena fatua*	5	no	NL (UPL)
5. *Linum bienne*	5	no	NL (UPL)
6. *Bromus hordeaceus*	20	yes	FACU
7. *Danthonia californica*	10	no	FAC
8. *Trifolium hirtum*	10	no	NL (UPL)
9. *Holcus lanatus*	5	no	FAC
10. _____			
11. _____			
50% = _____, 20% = _____	100	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum _____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0	(A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x1 =	0
FACW species	0	x2 =	0
FAC species	15	x3 =	45
FACU species	55	x4 =	220
UPL species	30	x5 =	150
Column Totals:	100 (A)		415 (B)

Prevalence Index = B/A = 4.15

Hydrophytic Vegetation Indicators:

☐ 1 – Rapid Test for Hydrophytic Vegetation
☐ 2 - Dominance Test is >50%
☐ 3 - Prevalence Index is ≤3.0[1]
☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☐ 5 - Wetland Non-Vascular Plants[1]
☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

Project Site: Estero Americano

SOIL

Sampling Point: SP04c

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	100					Loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Hard layer

Depth (inches): 4

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): ____

Water Table Present? Yes ☐ No ☒ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): ____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Estero Americano City/County: Sonoma County/ Sampling Date: 2017-5-25
Applicant/Owner: Sonoma County State: CA Sampling Point: SP05a
Investigator(s): L. Burris, C. Amoaku Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): concave Slope (%): 2
Subregion (LRR): Med Lat: _____ Long: _____ Datum: UTM Zone 10
Soil Map Unit Name: Steinbeck Loam NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks: Just NE of gate - some errosion present.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. *Festuca perennis*	35	yes	FAC
2. *Rumex acetosella*	20	yes	FACU
3. *Hypochaeris glabra*	15	no	FACU
4. *Acmispon americanus*	15	no	FACU
5. *Juncus mexicanus*	10	no	FACW
6. *Hemizonia congesta spp. congesta*	5	no	NL (UPL)
7. _____			
8. _____			
9. _____			
10. _____			
11. _____			
50% = _____, 20% = _____	100	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum _____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50	(A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x1 =	0
FACW species	10	x2 =	20
FAC species	35	x3 =	105
FACU species	50	x4 =	200
UPL species	5	x5 =	25
Column Totals:	100 (A)		350 (B)

Prevalence Index = B/A = 3.5

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

Project Site: Estero Americano

SOIL

Sampling Point: SP05a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/1	98	7.5YR 5/8	2	C	PL	Loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Hard packed

Depth (inches): 6

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Estero Americano City/County: Sonoma County/ Sampling Date: 2017-5-25
Applicant/Owner: Sonoma County State: CA Sampling Point: SP05b
Investigator(s): L. Burris, C. Amoaku Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 2
Subregion (LRR): Med Lat: _____ Long: _____ Datum: UTM Zone 10
Soil Map Unit Name: Steinbeck Loam NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes** ☐	**No** ☒
Hydric Soil Present?	Yes ☒	No ☐			
Wetland Hydrology Present?	Yes ☒	No ☐			

Remarks: Upslope of SP05b- change in vegetation.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. *Danthonia californica*	5	no	FAC
2. *Festuca perennis*	5	no	FACU
3. *Hypochaeris radicata*	25	yes	FACU
4. *Trifolium hirtum*	10	yes	NL (UPL)
5. *Acmispon americanus*	15	yes	FACU
6. *Hemizonia congesta ssp. congesta*	10	yes	NL (UPL)
7. *Anthoxanthum odoratum*	10	yes	FACU
8. *Ranunculus occidentalis*	10	yes	FACU
9. *Lotus corniculatus*	5	no	FAC
10. *Juncus balticus*	5	no	FACW
11. _____			
50% = _____, 20% = _____	100	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum _____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0	(A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x1 =	0
FACW species	5	x2 =	10
FAC species	10	x3 =	30
FACU species	65	x4 =	260
UPL species	20	x5 =	100
Column Totals:	100 (A)		400 (B)

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

Project Site: Estero Americano

SOIL

Sampling Point: SP05b

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
1-6	7.5YR 2/1	98	7.5YR 5/8	2	C	PL	Loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): N/A

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Estero Americano City/County: Sonoma County/ Sampling Date: 2017-5-25
Applicant/Owner: Sonoma County State: CA Sampling Point: SP05c
Investigator(s): L. Burris, C. Amoaku Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 2
Subregion (LRR): Med Lat: _____ Long: _____ Datum: UTM Zone 10
Soil Map Unit Name: Steinbeck Loam NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Hydric Soil Present?	Yes ☐	No ☒		
Wetland Hydrology Present?	Yes ☐	No ☒		

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. *Avena fatua*	25	yes	NL (UPL)
2. *Hemitomes congestum*	25	yes	NL (UPL)
3. *Bromus diandrus*	10	no	NL (UPL)
4. *Festuca perennis*	5	no	FAC
5. *Bromus hordeaceus*	5	no	FACU
6. *Trifolium campestre*	5	no	NL (UPL)
7. *Hypochaeris radicata*	15	yes	FACU
8. *Cynosurus echinatus*	15	yes	NL (UPL)
9. *Danthonia californica*	5	no	FAC
10. _____			
11. _____			
50% = _____, 20% = _____	110	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum _____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0	(A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x1 =	0
FACW species	0	x2 =	0
FAC species	10	x3 =	30
FACU species	20	x4 =	80
UPL species	80	x5 =	400
Column Totals:	110 (A)		510 (B)

Prevalence Index = B/A = 4.63

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks:

Project Site: Estero Americano

SOIL

Sampling Point: SP05c

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5YR 2.5/1	100					Loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): N/A

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): ____

Water Table Present? Yes ☐ No ☒ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): ____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No oxidized rhizospeheres

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Estero Americano City/County: Sonoma County/ Sampling Date: 2017-5-25
Applicant/Owner: Sonoma County State: CA Sampling Point: SP06a
Investigator(s): L. Burris, C. Amoaku Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 2
Subregion (LRR): Med Lat: _____ Long: _____ Datum: UTM Zone 10
Soil Map Unit Name: Steinbeck Loam NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☐	No	☒	**Is the Sampled Area within a Wetland?** **Yes** ☐ **No** ☒
Wetland Hydrology Present?	Yes	☐	No	☒	

Remarks: East of creek where hill slopes down to drainage system.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. *N/A*			
2.			
3.			
4.			
5.			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. *Juncus effusus*	95	yes	FACW
2. *Holcus lanatus*	5	no	FAC
3. *Briza maxima*	1	no	NL (UPL)
4. *Avena fatua*	1	no	NL (UPL)
5. *Bromus diandrus*	2	no	NL (UPL)
6. *Conium maculatum*	1	no	FAC
7. *Bromus hordeaceus*	2	no	FACU
8.			
9.			
10.			
11.			
50% = _____, 20% = _____	107	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
50% = _____, 20% = _____		= Total Cover	

% Bare Ground in Herb Stratum N/A

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: Estero Americano

SOIL

Sampling Point: SP06a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5YR 2.5/1	100					Loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Root masses

Depth (inches): 6

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Estero Americano City/County: Sonoma County/ Sampling Date: 2017-5-25
Applicant/Owner: Sonoma County State: CA Sampling Point: SP06b
Investigator(s): L. Burris, C. Amoaku Section, Township, Range: ____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 2
Subregion (LRR): Med Lat: ____ Long: ____ Datum: UTM Zone 10
Soil Map Unit Name: Steinbeck Loam NWI classification: ____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes** ☐	**No** ☒
Hydric Soil Present?	Yes ☐	No ☒			
Wetland Hydrology Present?	Yes ☐	No ☒			

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
50% = ____, 20% = ____		= Total Cover	
Sapling/Shrub Stratum (Plot size: ____)			
1. *N/A*			
2.			
3.			
4.			
5.			
50% = ____, 20% = ____		= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. *Bromus diandrus*	25	yes	NL (UPL)
2. *Stipa pulchra*	20	yes	NL (UPL)
3. *Avena fatua*	5	no	NL (UPL)
4. *Cynosurus echinatus*	20	yes	NL (UPL)
5. *Holcus lanatus*	5	no	FAC
6. *Hypochaeris glabra*	10	no	NL (UPL)
7. *Plantago lanceolata*	5	no	FACU
8. *Rumex acetosella*	5	no	FACU
9. *Juncus bufonius*	5	no	FACW
10.			
11.			
50% = ____, 20% = ____	100	= Total Cover	
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
50% = ____, 20% = ____		= Total Cover	
% Bare Ground in Herb Stratum ____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0	(A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x1 =	0
FACW species	5	x2 =	10
FAC species	5	x3 =	15
FACU species	10	x4 =	40
UPL species	80	x5 =	400
Column Totals:	100 (A)		465 (B)

Prevalence Index = B/A = 4.65

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

Project Site: Estero Americano

SOIL

Sampling Point: SP06b

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5YR 2.5/1	100					Loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): N/A

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): ____

Water Table Present? Yes ☐ No ☒ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): ____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Estero Americano City/County: Sonoma County/ Sampling Date: 2017-8-3
Applicant/Owner: Sonoma County State: CA Sampling Point: SP07a
Investigator(s): L. Burris, P. Keating Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): Med Lat: _____ Long: _____ Datum: UTM Zone 10
Soil Map Unit Name: Steinbeck Loam NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks: Wet area draining down to intermittent drainage to the west of Study Area

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. *Juncus effusus*	25	yes	FACW
2. *Holcus lanatus*	35	yes	FAC
3. *Rumex acetosella*	5	no	FACU
4. *Cynosurus echinatus*	10	no	NL (UPL)
5. *Lotus corniculatus*	2	no	FAC
6. *Vicia villosa*	10	no	NL (UPL)
7. *Rumex pulcher*	10	no	FAC
8. *Stachys rigida*	5	no	FACW
9. _____			
10. _____			
11. _____			
50% = 53.5, 20% = 21.2	107	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum _____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: Estero Americano

SOIL

Sampling Point: SP07a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/1	9.5	5YR 4/6	< 2	C	PL	Loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☒ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): N/A

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: < 2% oxidized rhysospheres.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Estero Americano City/County: Sonoma County/ Sampling Date: 2017-5-25
Applicant/Owner: Sonoma County State: CA Sampling Point: SP07b
Investigator(s): L. Burris, C. Amoaku Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): Med Lat: _____ Long: _____ Datum: UTM Zone 10
Soil Map Unit Name: Steinbeck Loam NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes** ☐	**No** ☒
Hydric Soil Present?	Yes ☐	No ☒			
Wetland Hydrology Present?	Yes ☐	No ☒			

Remarks: West of SP07a. Upland vegetation.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. *Acmispon americanus*	25	yes	FACU
2. *Convulvulus arvensis*	10	no	NL (UPL)
3. *Hypochaeris radicata*	10	no	FACU
4. *Avena fatua*	10	no	NL (UPL)
5. *Linum bienne*	5	no	NL (UPL)
6. *Bromus hordeaceus*	20	yes	FACU
7. *Danthonia californica*	10	no	FAC
8. *Trifolium hirtum*	10	no	NL (UPL)
9. *s*			
10. _____			
11. _____			
50% = _____, 20% = _____	100	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum _____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0	(A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x1 =	0
FACW species	0	x2 =	0
FAC species	15	x3 =	45
FACU species	55	x4 =	220
UPL species	30	x5 =	150
Column Totals:	100 (A)		415 (B)

Prevalence Index = B/A = 4.15

Hydrophytic Vegetation Indicators:

☐ 1 – Rapid Test for Hydrophytic Vegetation
☐ 2 - Dominance Test is >50%
☐ 3 - Prevalence Index is ≤3.0[1]
☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☐ 5 - Wetland Non-Vascular Plants[1]
☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

Project Site: Estero Americano

SOIL

Sampling Point: SP07b

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	100					Loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Hard layer

Depth (inches): 4

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Estero Americano City/County: Sonoma County/ Sampling Date: 2017-5-25
Applicant/Owner: Sonoma County State: CA Sampling Point: SP08
Investigator(s): L. Burris, C. Amoaku Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 2
Subregion (LRR): Med Lat: _____ Long: _____ Datum: UTM Zone 10
Soil Map Unit Name: Steinbeck Loam NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Hydric Soil Present?	Yes ☐	No ☒		
Wetland Hydrology Present?	Yes ☐	No ☒		

Remarks: Sample point for potential wet meadow area.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. *Avena fatua*	25	yes	NL (UPL)
2. *Hemizonia congesta ssp. congesta*	25	yes	NL (UPL)
3. *Bromus diandrus*	10	no	NL (UPL)
4. *Festuca perennis*	5	no	FAC
5. *Bromus hordeaceus*	5	no	FACU
6. *Trifolium campestre*	5	no	NL (UPL)
7. *Hypochaeris radicata*	15	yes	FACU
8. *Cynosurus echinatus*	15	yes	NL (UPL)
9. *Danthonia californica*	5	no	FAC
10. _____			
11. _____			
50% = _____, 20% = _____	110	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum _____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0	(A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x1 =	0
FACW species	0	x2 =	0
FAC species	10	x3 =	30
FACU species	20	x4 =	80
UPL species	80	x5 =	400
Column Totals:	110 (A)		510 (B)

Prevalence Index = B/A = 4.63

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks:

Project Site: Estero Americano

SOIL

Sampling Point: SP08

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	7.5YR 2.5/1	100					Loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): N/A

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): ____

Water Table Present? Yes ☐ No ☒ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): ____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No oxidized rhizospeheres

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Estero Americano | City/County: Sonoma County/ | Sampling Date: 2017-5-25
Applicant/Owner: Sonoma County | State: CA | Sampling Point: SP09a
Investigator(s): L. Burris, C. Amoaku | Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): none | Slope (%): 2
Subregion (LRR): Med | Lat: _____ | Long: _____ | Datum: UTM Zone 10
Soil Map Unit Name: Steinbeck Loam | NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks: East of creek where hill slopes create shallow 'v' .

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. *N/A*			
2.			
3.			
4.			
5.			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. *Juncus effusus*	75	yes	FACW
2. *Holcus lanatus*	25	yes	FAC
3. *Briza maxima*	1	no	NL (UPL)
4. *Avena fatua*	1	no	NL (UPL)
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = _____, 20% = _____	107	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
50% = _____, 20% = _____		= Total Cover	

% Bare Ground in Herb Stratum N/A

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: Estero Americano

SOIL

Sampling Point: SP09a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5YR 2.5/1	95	5YR 5/8	5	C	PL	Loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Root masses

Depth (inches): 6

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Estero Americano City/County: Sonoma County/ Sampling Date: 2017-5-25
Applicant/Owner: Sonoma County State: CA Sampling Point: SP09b
Investigator(s): L. Burris, C. Amoaku Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 2
Subregion (LRR): Med Lat: _____ Long: _____ Datum: UTM Zone 10
Soil Map Unit Name: Steinbeck Loam NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes** ☐	**No** ☒
Hydric Soil Present?	Yes ☐	No ☒			
Wetland Hydrology Present?	Yes ☐	No ☒			

Remarks: **N**orthwest of SP09a.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*			
2.			
3.			
4.			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. *N/A*			
2.			
3.			
4.			
5.			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. *Bromus diandrus*	25	yes	NL (UPL)
2. *Stipa pulchra*	20	yes	NL (UPL)
3. *Avena fatua*	5	no	NL (UPL)
4. *Cynosurus echinatus*	20	yes	NL (UPL)
5. *Holcus lanatus*	5	no	FAC
6. *Hypochaeris glabra*	10	no	NL (UPL)
7. *Plantago lanceolata*	5	no	FACU
8. *Rumex acetosella*	5	no	FACU
9. *Juncus bufonius*	5	no	FACW
10.			
11.			
50% = _____, 20% = _____	100	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum _____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0	(A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x1 =	0
FACW species	5	x2 =	10
FAC species	5	x3 =	15
FACU species	10	x4 =	40
UPL species	80	x5 =	400
Column Totals:	100 (A)		465 (B)

Prevalence Index = B/A = 4.65

Hydrophytic Vegetation Indicators:

☐ 1 – Rapid Test for Hydrophytic Vegetation
☐ 2 - Dominance Test is >50%
☐ 3 - Prevalence Index is ≤3.0[1]
☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☐ 5 - Wetland Non-Vascular Plants[1]
☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

Project Site: Estero Americano

SOIL

Sampling Point: SP09b

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5YR 2.5/1	100					Loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): N/A

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): ____

Water Table Present? Yes ☐ No ☒ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): ____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

OHWM Delineation Cover Sheet

Project: Estero Trail Project **Date:** 8/2/17

Location: Valley Ford, Sonoma Co., CA **Investigator(s):** L. Burris, P. Keating

Project Description:

Trail project w/ approximately 5-miles of trail.

Describe the river or stream's condition (disturbances, in-stream structures, etc.):

Cattle grazing in and adjacent to stream channels.
Some vegetation clearing adjacent to channel- area appears to have undergone invasive weed (Giorse) eradication.

Off-site Information

Remotely sensed image(s) acquired? ☒ **Yes** ☐ **No** [If yes, attach image(s) to datasheet(s) and indicate approx. locations of transects, OHWM, and any other features of interest on the image(s); describe below] Description:

Aerial and topographic map signatures apparent.

Hydrologic/hydraulic information acquired? ☐ **Yes** ☒ **No** [If yes, attach information to datasheet(s) and describe below.] Description:

List and describe any other supporting information received/acquired:

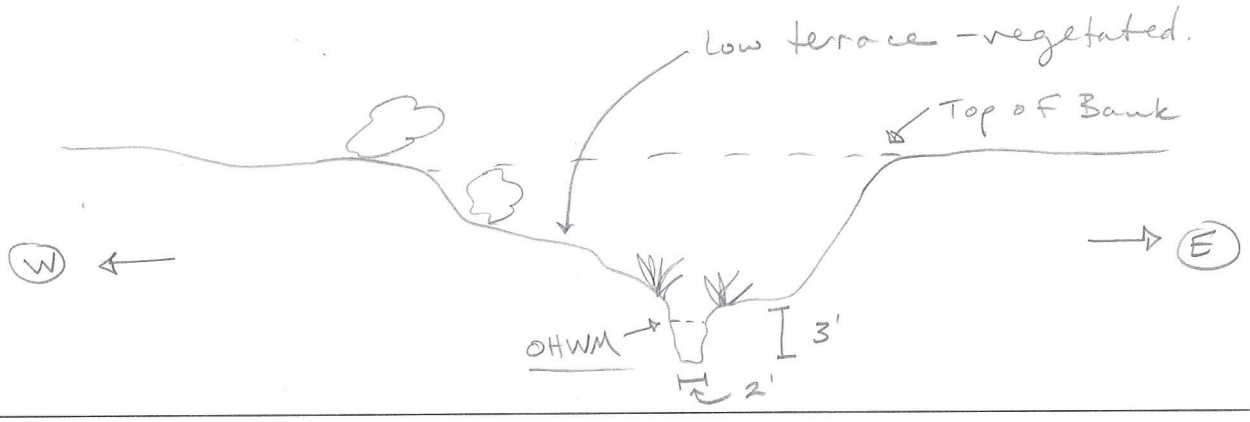
Soils map

Instructions: Complete one cover sheet and one or more datasheets for each project site. Each datasheet should capture the dominant characteristics of the OHWM along some length of a given stream. Complete enough datasheets to adequately document up- and/or downstream variability in OHWM indicators, stream conditions, etc. Transect locations can be marked on a recent aerial image or their GPS coordinates noted on the datasheet.

ID-01, Transect 1

Datasheet # 1 **OHWM Delineation Datasheet** Page 2 of 4

Transect (cross-section) drawing: (choose a location that is representative of the dominant stream characteristics over some distance; label the OHWM and other features of interest along the transect; include an estimate of transect length)



Break in Slope at OHWM: ☒ Sharp (> 60°) | ☐ Moderate (30–60°) | ☐ Gentle (< 30°) | ☐ None

Notes/Description:

Channel was very incised at transect location, but widens just downstream of transect (~100' downstream).

Sediment Texture: Estimate percentages to describe the general sediment texture above and below the OHWM

	Clay/Silt <0.05mm	Sand 0.05 – 2mm	Gravel 2mm – 1cm	Cobbles 1 – 10cm	Boulders >10cm	Developed Soil Horizons (Y/N)
Above OHWM	100%					
Below OHWM	95%	3%	2%			

Notes/Description:

Vegetation: Estimate absolute percent cover to describe general vegetation characteristics above and below the OHWM

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM		1%	99%	
Below OHWM			2%	98%

← Low terrace

Notes/Description:

Channel predominantly unvegetated.

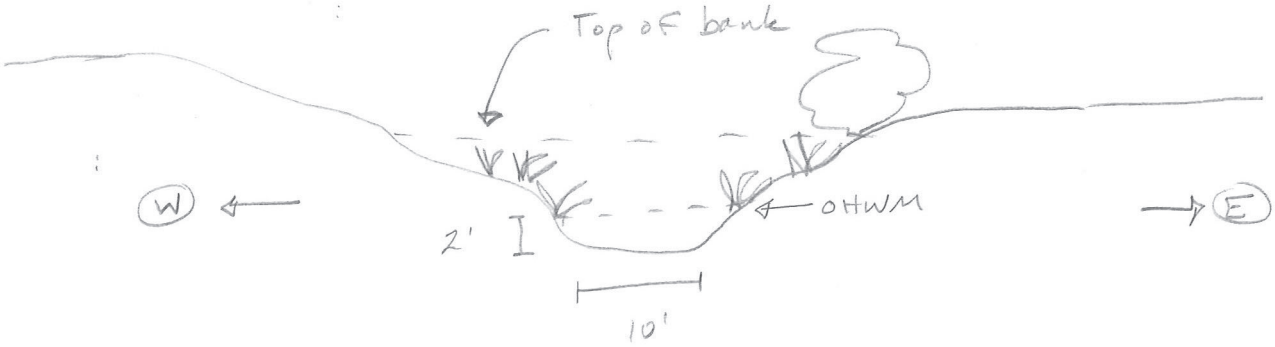
Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation

Change in veg, exposed roots below OHWM, some undercut along the bank @ OHWM.

ID-01, Transect 2

Datasheet # 2 **OHWM Delineation Datasheet** Page 3 of 4

Transect (cross-section) drawing: (choose a location that is representative of the dominant stream characteristics over some distance; label the OHWM and other features of interest along the transect; include an estimate of transect length)



Break in Slope at OHWM: ☐ Sharp (> 60°) | ☒ Moderate (30–60°) | ☐ Gentle (< 30°) | ☐ None
Notes/Description:

Sediment Texture: Estimate percentages to describe the general sediment texture above and below the OHWM

	Clay/Silt <0.05mm	Sand 0.05 – 2mm	Gravel 2mm – 1cm	Cobbles 1 – 10cm	Boulders >10cm	Developed Soil Horizons (Y/N)
Above OHWM	100%					
Below OHWM	5%	90%				

Notes/Description:
Channel inundated at time of survey.

Vegetation: Estimate absolute percent cover to describe general vegetation characteristics above and below the OHWM

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM		25%	75%	
Below OHWM			15%	85%

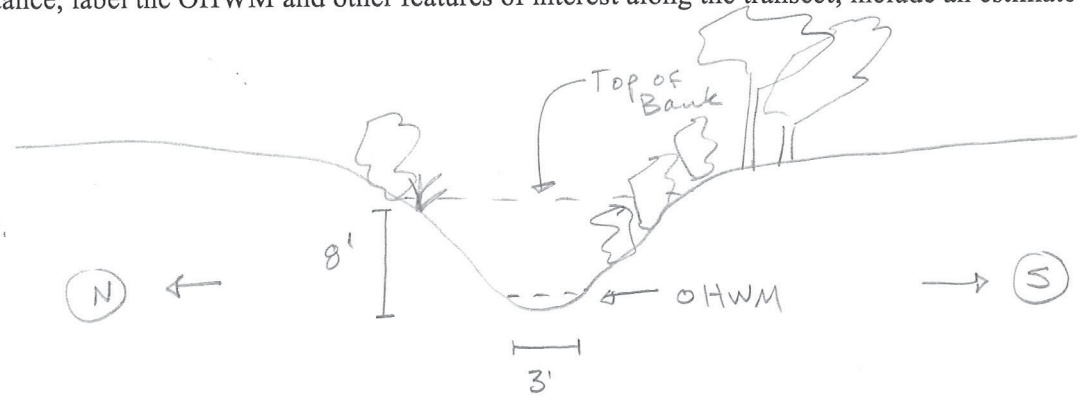
Notes/Description:
Water present @ time of survey - some emergent vegetation such as Juncus spp. present below OHWM.

Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation
Change in vegetation cover @ OHWM.

ED-02, Transect 1

Datasheet # 3 **OHWM Delineation Datasheet** Page 4 of 4

Transect (cross-section) drawing: (choose a location that is representative of the dominant stream characteristics over some distance; label the OHWM and other features of interest along the transect; include an estimate of transect length)



Break in Slope at OHWM: ☐ Sharp (> 60°) | ☒ Moderate (30–60°) | ☐ Gentle (< 30°) | ☐ None
Notes/Description:

Sediment Texture: Estimate percentages to describe the general sediment texture above and below the OHWM

	Clay/Silt <0.05mm	Sand 0.05 – 2mm	Gravel 2mm – 1cm	Cobbles 1 – 10cm	Boulders >10cm	Developed Soil Horizons (Y/N)
Above OHWM	100%					
Below OHWM	90%	10%				

Notes/Description:

Vegetation: Estimate absolute percent cover to describe general vegetation characteristics above and below the OHWM

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	30%	40%	30%	
Below OHWM			40%	60%

Notes/Description:
Shrubs overhanging channel @ transect location.

Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation

Change in veg @ OHWM, some evidence of wracking indicates seasonal flow.

APPENDIX D

Aquatic Resources Spreadsheet

Waters_Name	State	Cowardin_Code	HGM_Code	Meas_Type	Amount	Units	Waters_Type	Latitude	Longitude	Local_Waterway
SW-01	California	U		Area	0.081	ACRE	UPLAND	38.32452401	-122.9650298	Estero Americano
SW-02	California	PEM2		Area	0.01	ACRE	RPWWN	38.32463329	-122.9654574	Estero Americano
SW-03	California	PEM2		Area	0.008	ACRE	RPWWN	38.3257663	-122.9675574	Estero Americano
SW-04	California	PEM2		Area	0.12	ACRE	RPWWN	38.32652859	-122.9668525	Estero Americano
SW-05	California	PEM2		Area	0.007	ACRE	RPWWN	38.32670595	-122.9667863	Estero Americano
SW-06	California	PEM2		Area	0.01	ACRE	RPWWN	38.32702327	-122.9669917	Estero Americano
SW-07	California	PEM2		Area	0.006	ACRE	RPWWN	38.32815093	-122.9667866	Estero Americano
SW-08	California	PEM2		Area	0.029	ACRE	RPWWN	38.32819002	-122.9665131	Estero Americano
SW-09	California	U		Area	0.588	ACRE	UPLAND	38.32899731	-122.9671355	Estero Americano
SW-10	California	PEM2		Area	0.319	ACRE	RPWWN	38.32127131	-122.9616419	Estero Americano
SW-11	California	U		Area	0.009	ACRE	UPLAND	38.32090274	-122.9620431	Estero Americano
SW-12	California	PEM2		Area	0.187	ACRE	RPWWN	38.32071574	-122.9620344	Estero Americano
SW-13	California	U		Area	0.011	ACRE	UPLAND	38.32032473	-122.9620738	Estero Americano
SW-14	California	PEM2		Area	0.049	ACRE	RPWWN	38.32300365	-122.9598054	Estero Americano
SW-15	California	PEM2		Area	0.324	ACRE	RPWWD	38.32171263	-122.9600262	Estero Americano
SW-16	California	U		Area	0.021	ACRE	UPLAND	38.32017183	-122.9602636	Estero Americano
SW-17	California	PEM2		Area	0.615	ACRE	RPWWN	38.31884288	-122.9561801	Estero Americano
SW-18	California	PEM2		Area	0.143	ACRE	RPWWN	38.32875489	-122.9603649	Estero Americano
SW-20	California	PEM2		Area	0.073	ACRE	RPWWN	38.32889721	-122.9605765	Estero Americano
SW-21	California	PEM2		Area	0.114	ACRE	RPWWN	38.3236463	-122.9610781	Estero Americano
WM-01	California	PEM2		Area	1.714	ACRE	RPWWN	38.32292627	-122.9611512	Estero Americano
WM-02	California	PEM2		Area	0.521	ACRE	RPWWN	38.32820816	-122.9587825	Estero Americano
ID-01	California	R4		Linear	653.298	FOOT	RPW	38.3236601	-122.9604318	Estero Americano
ED-01	California	R6		Linear	670.312	FOOT	RPW	38.32741355	-122.9619274	Estero Americano
ED-02	California	R6		Linear	327.444	FOOT	RPW	38.32688725	-122.962341	Estero Americano
S-01	California	U		Linear	1320.759	FOOT	UPLAND	38.3263316	-122.960644	Estero Americano

Californian Environmental Services, Inc.
1904 Franklin Street, Suite 202
Oakland, CA 94612
Phone: (925) 789-7459

TO

Christine Kronenberg, Project Manager
DUDEK
1102 R Street
Sacramento, CA 95811

June 27, 2018

SUBJECT: Estero Trails at the Bordessa Property, Bodega, California: Habitat Assessment for Ridgway's Rail and Salt Marsh Harvest Mouse

Dear Ms. Kronenberg

Per your request, CES Biologist, Ryan Witthaus, conducted a habitat assessment for Ridgway's Rail (*Rallus obsoletus*) and Salt Marsh Harvest Mouse (*Reithrodontomys raviventris*) on Tuesday, June 19, 2018, at the Bordessa property located west of the town of Valley Ford in unincorporated Sonoma County, California, for the Estero Easement: Designation of Trail Corridors and Associated Staging Areas project (Figure 1). This report summarizes the results of the habitat assessment for the Property.

PROPERTY DESCRIPTION

The Property consists of approximately 500-acres and is located south of State Route-1 (SR-1) east of Bodega Highway in unincorporated Sonoma County, California. The Property is adjacent to the Estero Americano, a tidal estuary that connects to Bodega Bay.The Property has been used historically and is currently used for cattle ranching; some cows were present on the western portion during the survey. The Property is dominated by non-native annual grassland, with a small riparian corridor running along an unnamed drainage down the center of the Property. The Property's southern border ends at the Estero Americano, which is classified as Riverine and Freshwater Emergent Wetland in the National Wetland Inventory (Figure 2).

SPECIES OF INTEREST

Salt Marsh Harvest Mouse (*Reithrodontomys raviventris*)



Salt Marsh Harvest Mouse (SMHM) is a federal- and state-listed endangered species endemic to the salt and brackish marshes of the San Francisco Bay and the Napa, Petaluma, San Pablo, and Suisun Bay salt marshes. Current literature suggests that SMHM evolved in the San Francisco Bay Area from parental stock of harvest mice approximately 25,000 years ago (Nelson *et al*. 1984).

Harvest mice (*Reithrodontomys* spp.) in general, are small, delicate mice with nearly nude tails and the genus is easily identified by the distinctive pronounced groove on the upper incisors (Jameson and Peters 1986), which other small rodent genera [e.g. house mouse (*Mus musculus*)] do not exhibit. SMHM measure approximately 118 to 175 mm in total (adult) length and display a venter that varies from white to red throughout the range of the species (Fisler 1965). The average lifespan in the wild is approximately one year, although SMHM have been known to live for up to three years under laboratory conditions (Fisler 1965).

The federal and state listing of *Reithrodontomys raviventris* includes two subspecies: *Reithrodontomys raviventris raviventris* (the southern subspecies) and *Reithrodontomys raviventris halicoetes* (the northern subspecies). *R. r. halicoetes* is found in Marin County, and throughout the Petaluma, Napa, and Suisun Bay marshes. The North Bay marshes inhabited by this subspecies

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experience a higher variation in salinity levels, but have a lower average salinity than that found in the South San Francisco Bay. The North Bay has experienced an increase in salinity with a corresponding increase in halophytic vegetation [e.g. pickleweed (*Salicornia* [= *Sarcocornia*] *virginica*) over the last 150 years, due to diking and filling of the marshes and reduced river flows into the Delta from upstream dams and water diversions of the San Joaquin and Sacramento Rivers.

Evolving under slightly different environmental conditions than its southern counterpart, *R*. *r*. *halicoetes* exhibits slightly different characteristics and is genetically distinct from the disjunct southern subspecies (Fisler 1965). Two important behavioral and physiological differences between the two subspecies are that *R*. *r*. *halicoetes* has the ability to drink seawater, but does not have the ability to become torpid. In addition to these behavioral and physiological differences, *R*. *r*. *halicoetes* does not have the red belly that gave the southern subspecies its name. The northern subspecies generally has a white-gray/white venter, with some clinal variation and is therefore much more challenging to differentiate from the sympatric western harvest mouse (*R*. *megalotis*). In general, the North Bay subspecies has a tail-to-body ratio that is greater than 100 percent, although there is a certain amount of variation in this particular trait. The Collinsville population of SMHM is the most extreme case, exhibiting a tail-to-body ratio in the 115 to 130 percent range in one study conducted in the area (G. Padgett-Flohr, unpub. data).

In contrast, the South Bay, where the southern subspecies (*R*. *r*. *raviventris*) is found, has little variation in salinity, but the average salinity level is much higher than that in the North Bay. *R*. *r*. *raviventris* does not drink sea water, but it does possess the ability to enter a state of torpor (Fisler 1965). The southern subspecies was named for its distinctive red belly, although this characteristic can show variation and is consistent only in the Alviso area of the southernmost part of the Bay. Tail-to-body ratios of the southern subspecies tend to fall under 100 percent, although this measurement can have large variation and is not considered to be a diagnostic characteristic.

Past studies have shown that optimal habitat for SMHM is a thick cover of pickleweed complexly interwoven with other halophytic plants such as fat hen (*Atriplex patula*), and alkali heath (*Frankenia grandifolia*) (Shellhammer et al. 1982; Shellhammer 1984; and Johnson et al. 1984). In diked marshes particularly, SMHM are highly dependent on plant cover. In addition to vegetation density, the salinity level in pickleweed is also an important component of the microhabitat and mid-range levels of salinity in pickleweed has been shown to be correlated with the presence of SMHM in diked marshes (Padgett-Flohr and Isakson 2003). SMHM were found to be absent from sites with low salinities, and infrequent in areas where pickleweed was high in salinity (Padgett-Flohr and Isakson 2003). Pickleweed height was formerly considered to be a key habitat requirement of SMHM; however, during her study conducted at New Chicago Marsh in 1996, Dr. Padgett-Flohr tested this variable using a random sampling scheme and found that this correlation was not supported (Padgett-Flohr SJSU Senior Thesis 1996). There was no significant association between SMHM and pickleweed height. Geissel et al. (1988) found that the height of a pickleweed plant is inversely correlated to the salinity level within the plant, meaning that the more saline the plant the shorter the plant. As Padgett-Flohr and Isakson demonstrated (2003), SMHM presence is statistically correlated with pickleweed containing a mid-range level of salinity (500 to 699 mmol/kg Cl^-). Mid-range levels of salinity can typically only be achieved by regular tidal influence. Diked marshes lacking tidal influence become either freshwater or hypersaline (Zedler and Adam 2002; Gedan et al. 2009) and do not provide the salinity levels that SMHM need or can tolerate.

SMHM therefore, require habitat that is dominated by dense, contiguous stands of halophytic vegetation that retains a mid-range level of salinity. Recurrent, but shallow flooding by saline water is likely needed to maintain habitat conditions that favor SMHM (Padgett-Flohr and Isakson 2003; USFWS 2013).

Ridgway's Rail (*Rallus obsoletus*)



Ridgway's rail is a marsh specialist found around the northern San Francisco Bay, San Pablo Bay and South San Francisco Bay. Historically, Ridgway's rail may have occurred along the coast from Humboldt Bay to Morro Bay and all around the San Francisco Bay estuary, including in salt and brackish marshes from Suisun Marsh in Solano County west. It is now entirely confined to the San Francisco Bay estuary, with the possible exception of Tomales Bay in Marin County, where it may still occur. Small populations exist along the Petaluma and Napa rivers and are expanding in Suisun Marsh and northern Contra Costa County. No migration is known, but juveniles are known to disperse into agricultural areas east of San Francisco Bay and out to the coast. It occurs almost exclusively in tidal salt and brackish marshes with unrestricted daily tidal flows, adequate invertebrate prey food supply, well developed tidal channel networks, and suitable nesting.

High marsh habitat is important to this species as shelter during high or storm tides. Nest sites are generally in association with such marsh plant species as marsh gumplant (*Grindelia stricta* var. *angustifolia*), pickleweed (*Salicornia pacifica*), cordgrass (*Spartina foliosa*), saltgrass (*Distichlis spicata*), and bulrushes (*Schoenoplectus* spp., *Bolboschoenus* spp.). Feeding is similar to other subspecies with a diet comprised of a wide variety of opportunistically taken food items, mostly animal prey. Prey items recorded for this species include spiders (*Lycosidae* spp.), clams (*Macoma balthica*), yellow shore crabs (*Hemigrapsus oregonensis*), amphipods (shrimp-like crustaceans), a polychaete worm (*Nereis vexillosa*), striped shore crab (*Pachygrapsus crassipes*) and the introduced ribbed horse mussel (*Ischadium demissum*). Foraging is conducted by gleaning and probing during somewhat erratic movements as the individual is prompted by sighting or smelling prey.

METHODS

Background and Research

The California Natural Diversity Database (CNDDB) was queried to identify all documented occurrences of SMHM and Ridgway's rail within 5 miles of the Property over the last 35 years.

Field Visit

CES Biologist Ryan Witthaus conducted a site visit and habitat assessment of the Property on June 19, 2018. The entire site was surveyed on foot and assessed for potential suitability for SMHM and Ridgway's rail.

RESULTS

Background and Research

No geographic occurrences of SMHM or Ridgway's rail are documented on the CNDDB within 5 miles of the Property (Figure 3).

Field Visit Results

The majority of the Property is unsuitable upland habitat dominated by non-native grasses (Attachment A, Photograph 3). An unnamed drainage (Attachment A, Photograph 2) runs approximately north to south through the center of the property. There is a small area of tidally influenced marsh extending approximately 500 feet upstream along the drainage from the center of the Estero Americano (Attachment A, Photograph 6).The planned trail easements, as currently mapped, are all within upland habitat and away from the tidal marsh. There is very little topographical change within this marsh area (Attachment A, Photograph 5), and no channelization aside from the drainage and the Estero. Both channels are open and fairly wide; the drainage channel is approximately 6 to 8 feet wide and the Estero channel is 30 feet or more. Pickleweed is present along the edge of the Estero; mixed with open, barren mudflats for approximately 150 feet along the bank of the Estero (Attachment A, Photograph 4). Patches of saltgrass are present along the unnamed drainage upstream from the extent of the pickleweed and the border of the mudflats. All the vegetation in the marsh area is very low and fairly patchy, almost entirely less than six inches in height.

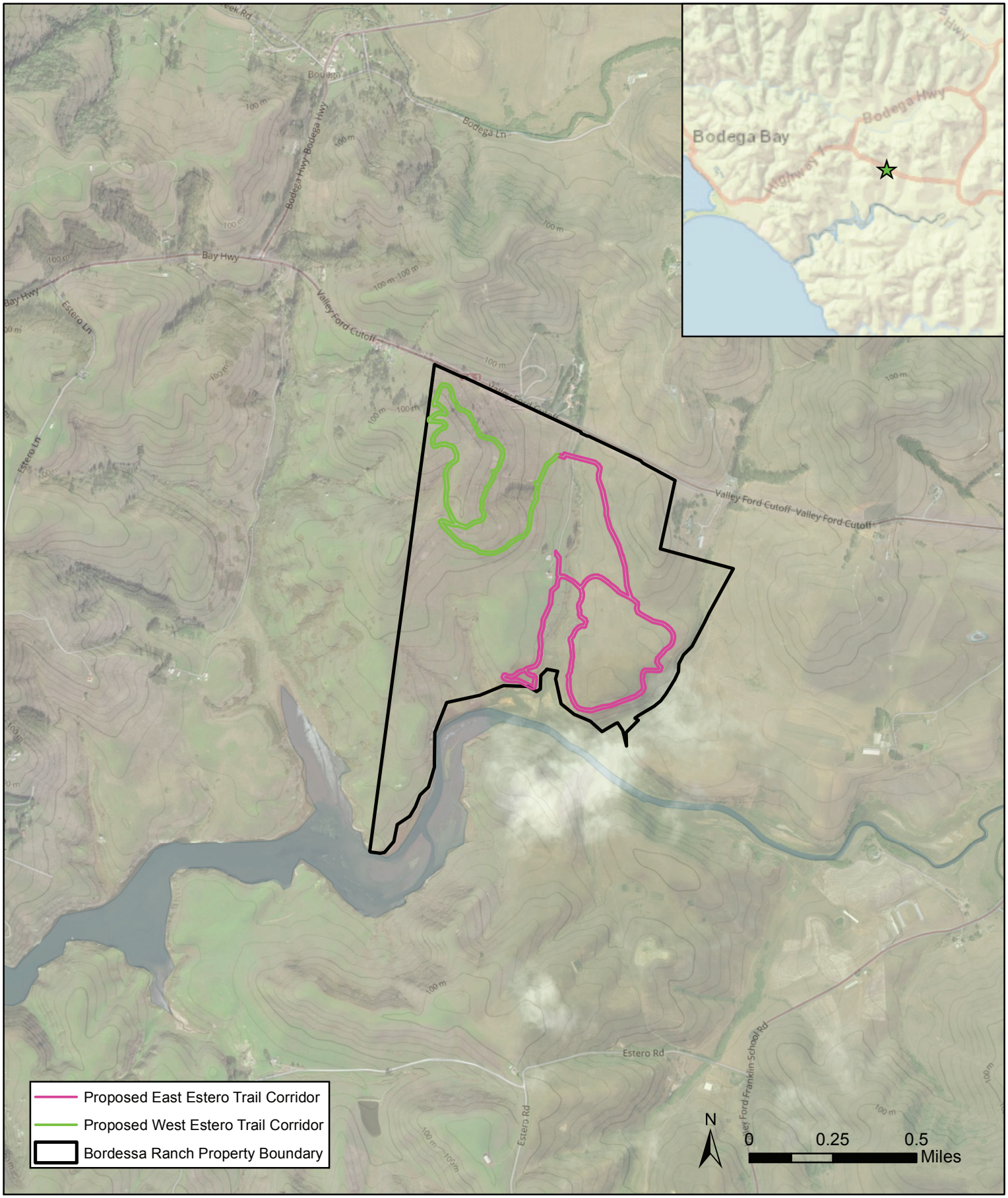
CONCLUSION

Due to the lack of suitable refuge from high tides, lack of channelization and topography for foraging and shelter, and no CNDDB occurrences within 5 miles in the past 35 years, there is virtually no potential for Ridgway's rail or SMHM to be present on the Property. No suitable habitat is present for either Ridgway's rail or SMHM in the planned trail easement corridors on site.

Sincerely,

Gretchen Padgett-Flohr

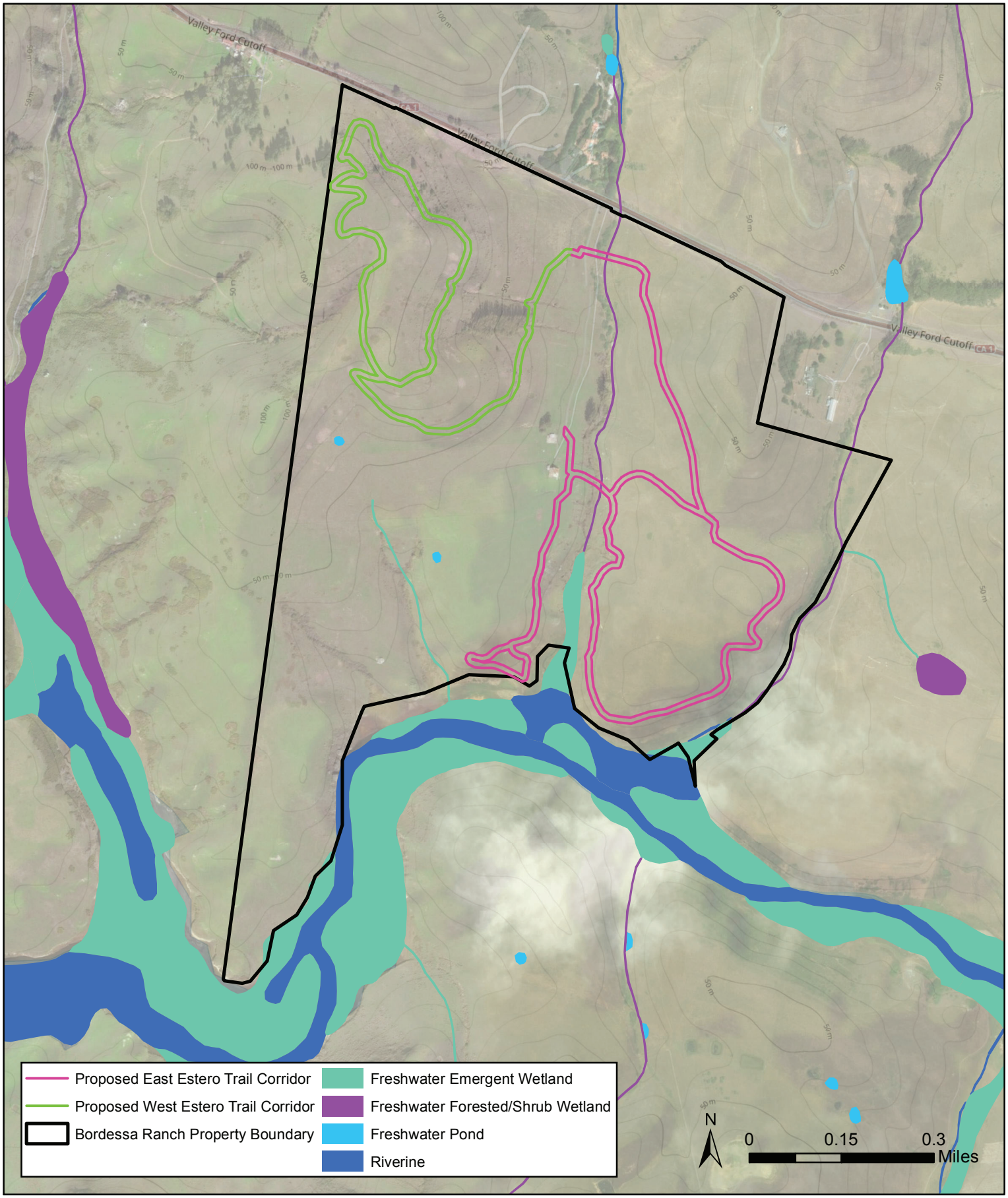
Dr. Gretchen Padgett-Flohr



Californian Environmental Services, Inc.

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Oakland, CA 94612

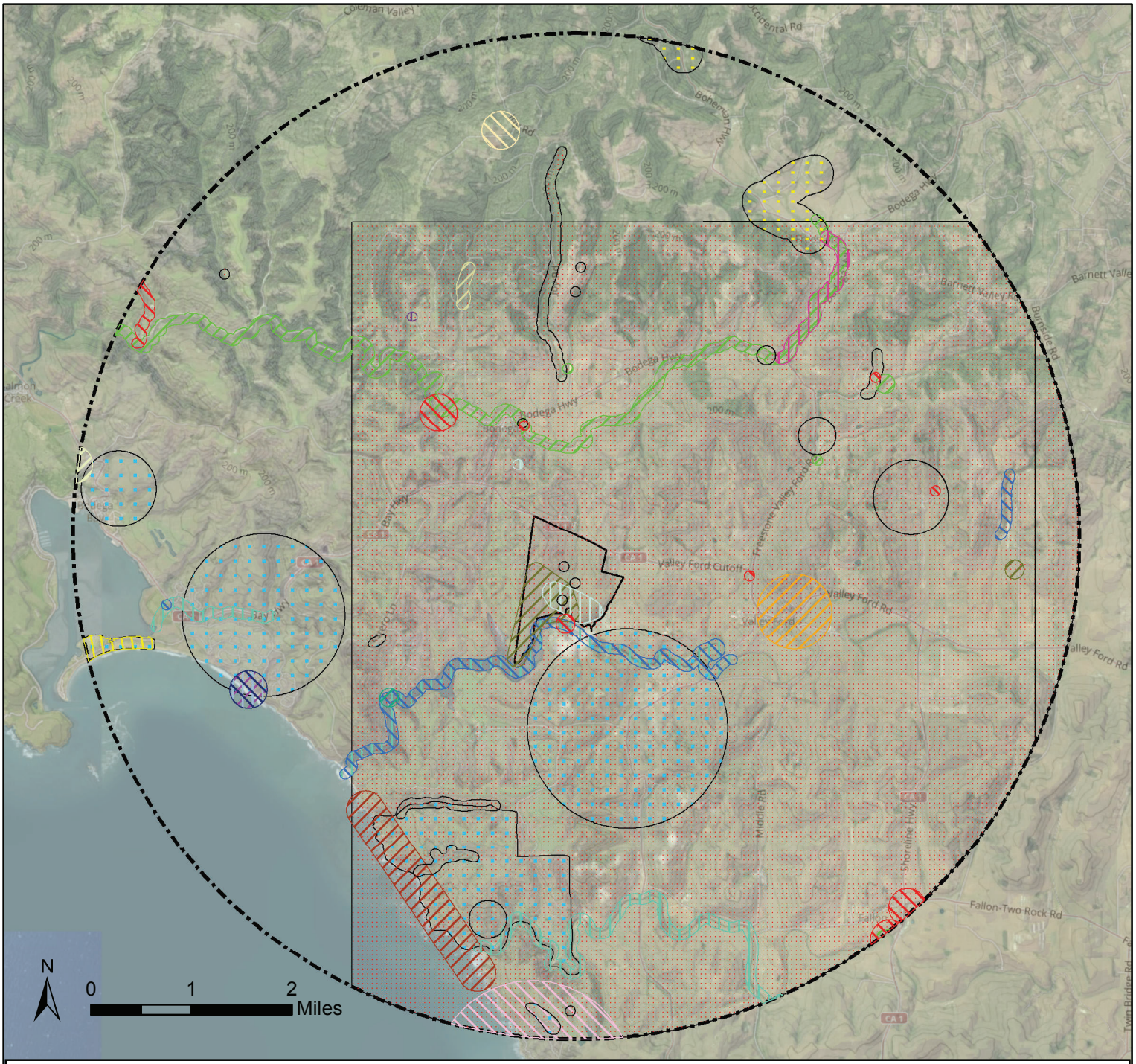
Figure 1: Site Vicinity and Project Area Map
Bordessa Ranch - Estero Trail



Californian Environmental Services, Inc.

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Figure 2: National Wetlands Inventory Map
Bordessa Ranch - Estero Trail



Californian Environmental Services, Inc.

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Figure 3: CNDDB Map (5-mile radius)
Bordessa Ranch - Estero Trail

REFERENCES

California Department of Fish and Wildlife Natural Diversity Database, March 2014.

Fisler, G.F. 1965. Adaptations and speciation in harvest mice of the marshes of San Francisco Bay. University of California Publications in Zoology 77: 1-108.

Gedan, K.B., B.R. Silliman, and M D. Bertness. 2009. Centuries of human-driven change in salt marsh ecosystems. Annual Review of Marine Science, 1: 117-141.

Geissel, W., H.S. Shellhammer, and H.T. Harvey. 1988. The ecology of the salt marsh harvest mouse (*Reithrodontomys raviventris*) in a diked salt marsh. Journal of Mammalogy, 69(4): 696-703.

Jameson, E.W. jr., Peeters, H.J. 1988. California Mammals. University of California Press, Berkeley, California.

Johnson, V. and H.S. Shellhammer. 1988. The ecology of the salt marsh harvest mouse (*Reithrodontomys raviventris)* in a diked marsh and adjacent grasslands in Palo Alto, California. Report to U.S. Fish and Wildlife Service, Endangered Species Section, Sacramento, California. 29 pp.

Nelson, K., R.J. Baker, H.S. Shellhammer, and R.K. Chesser. 1984. Test of Alternative Hypotheses Concerning the Origin of *Reithrodontomys raviventris*: Genetic Analysis.

Padgett-Flohr, G.E. and L. Isakson. 2003. A Random Sampling of Salt Marsh Harvest Mice in a Muted Tidal Marsh. Journal of Wildlife Management, 67(3): 646-653.

RBF Consulting. 2010. Dumbarton Transit Oriented Development Specific Plan Draft Environmental Impact Report State Clearinghouse Number 2010042012. May.

Rush, S.A., K.F. Gaines, W.R. Eddleman, and C.J. Conway. 2012. Clapper Rail (Rallus longirostris), The Birds of North America Online. A. Poole (Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved September 24, 2014 from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/340.

San Francisco Estuary Invasive Spartina Project. 2005. California clapper rail: Rallus longirostris obsoletus.

Shellhammer, H.S., R. Jackson, W. Davilla, A.M. Gilroy, H.T. Harvey, and L. Simons. 1982. Habitat Preferences of Salt Marsh Harvest Mice (*Reithrodontomys raviventris*). The Wasmann Journal of Biology 40(1-2): 102-114.

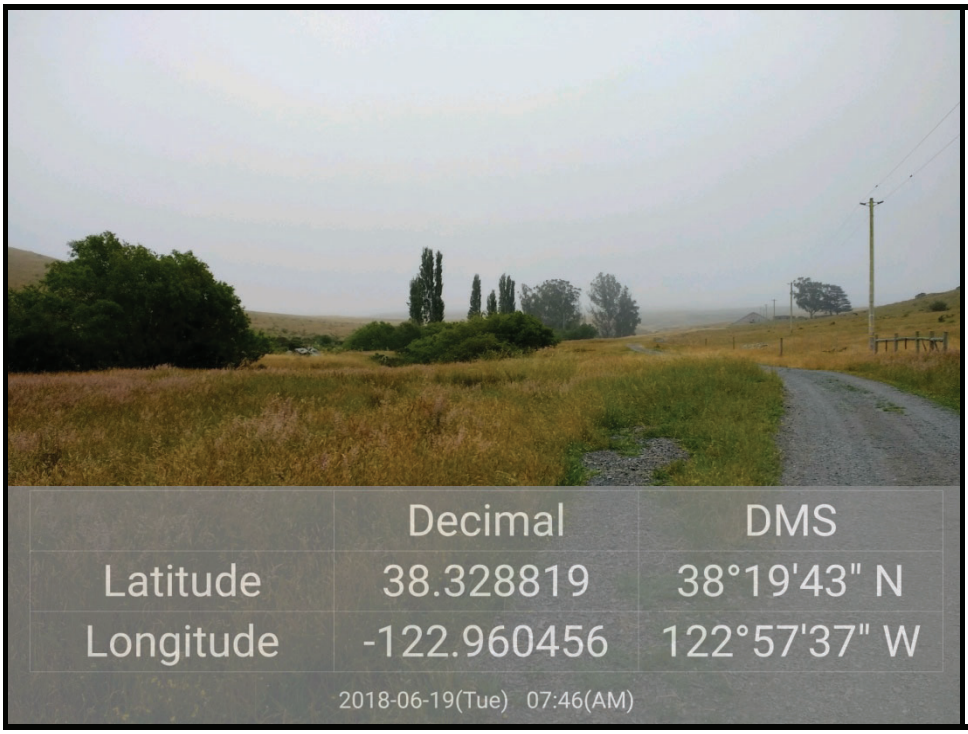
Shellhammer, H. 1984. Identification of Salt Marsh Harvest Mice. *Reithrodontomys raviventris*, in the Field and With Cranial Characteristics. California Fish and Game: 70(2): 113-120.

U.S. Environmental Protection Agency. 2010. California Clapper Rail: Rallus longirostris obsoletus.

U.S. Fish and Wildlife Service. 2013. Recovery Plan for Tidal Marsh Ecosystems of Northern and Central California. Sacramento, California. xviii + 605 pp.

Zedler, J. and P Adam. 2002. Saltmarshes. *Chapter In*: Handbook of Ecological Restoration. M.R. Perrow and A.J. Davy (eds). Pp. 238-266.

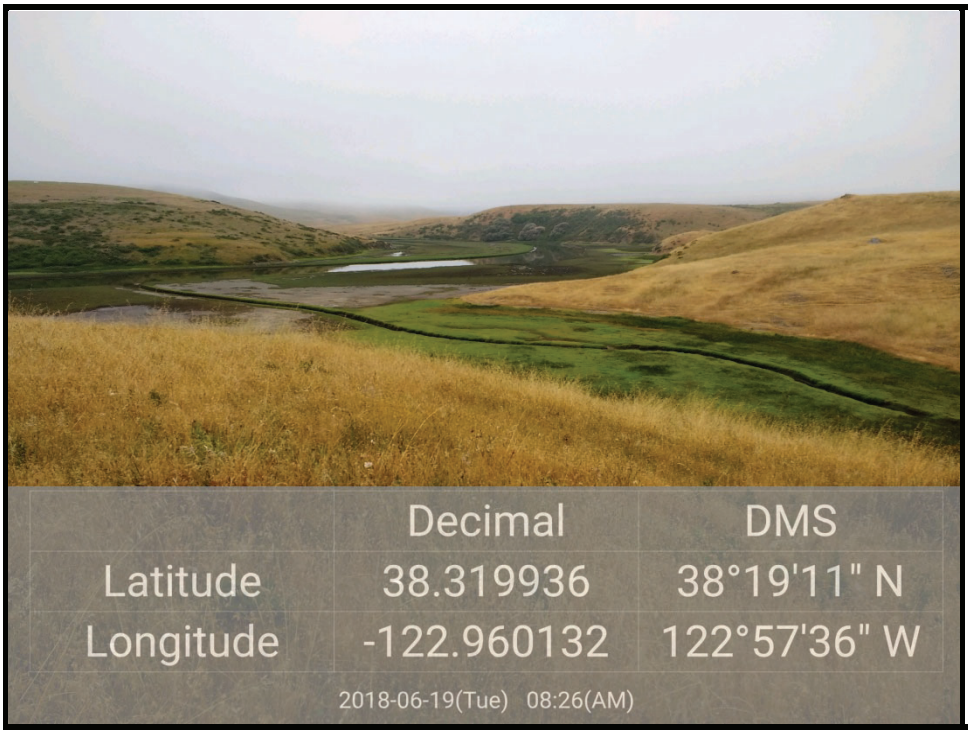
Representative Photographs



Photograph 1:

June 19, 2018

Upland habitat and freshwater riparian area near the property gate, looking south.

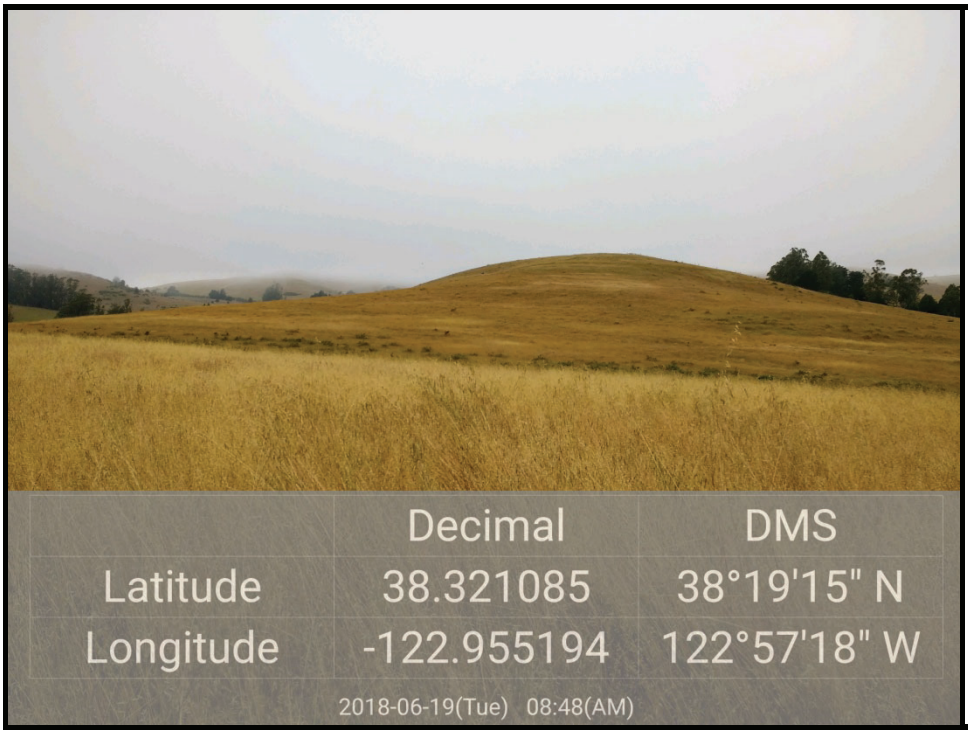


Photograph 2:

June 19, 2018

View of the drainage and Estero from the western trail easement. Lighter green from the center to the right of the frame along the drainage is primarily freshwater wetland and riparian associated species, darker green to the left are pickleweed stands.

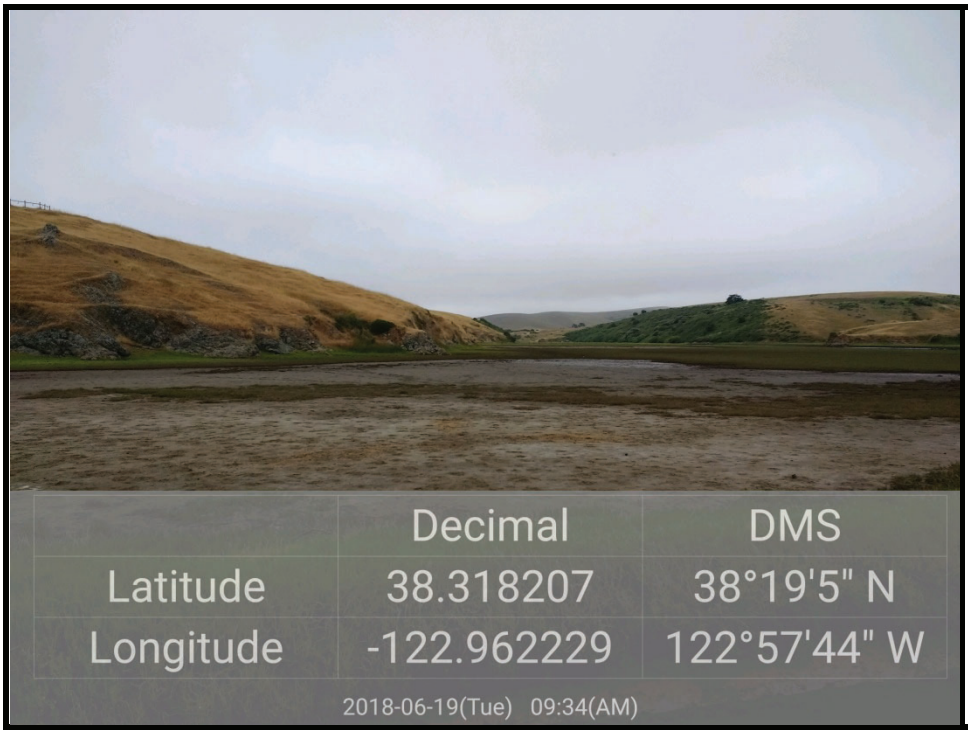
Photographs Continued



Photograph 3:

June 19, 2018

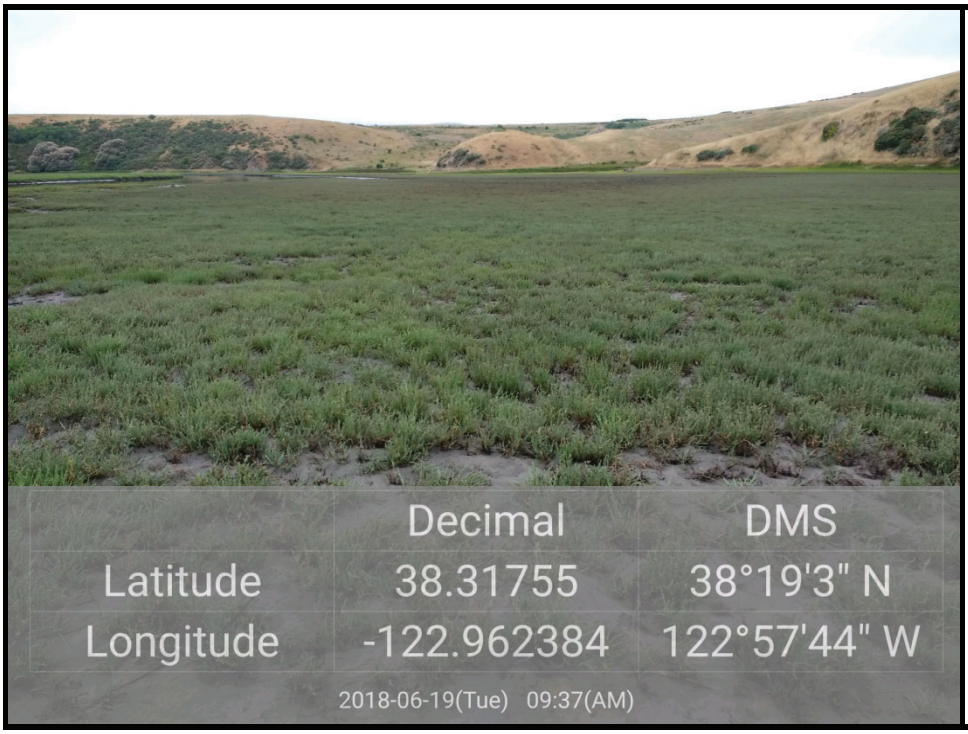
Typical habitat in the trail easements.



Photograph 4:

June 19, 2018

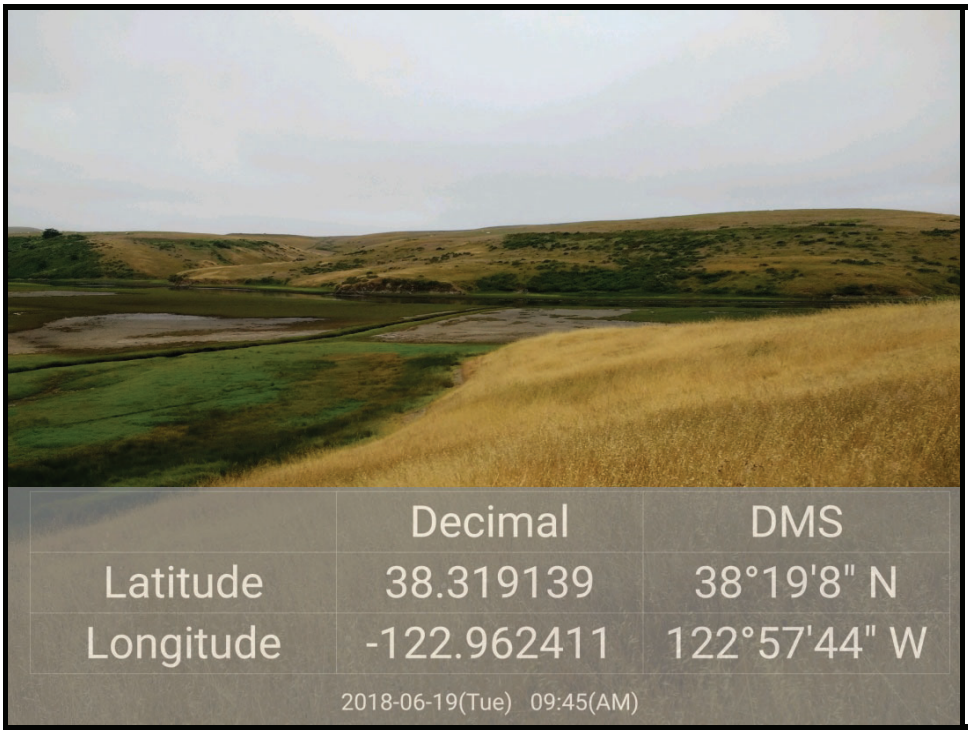
Mud flats interspersed with pickleweed, facing east from the junction of the drainage and the Estero.



Photograph 5:

June 19, 2018

Very short, patchy pickleweed facing west along the Estero at the junction of the Estero and the drainage. Note lack of topography and channelization.



Photograph 6:

June 19, 2018

View of the marsh area from the eastern trail easement. Mudflats delineate boundary between pickleweed, salt grass, and riparian vegetation.

APPENDIX D

Cultural Resources Report

DUDEK

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August 25, 2018

Rich Stabler
Sonoma County Agricultural Preservation and Open Space District
2550 Ventura Avenue
Santa Rosa, California 95403

Subject: ***Cultural Resources Inventory Report for the Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas Project, Sonoma County, California – Negative Findings***

Dear Mr. Stabler:

This letter documents the cultural resources inventory conducted by Dudek for the Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas Project (proposed Project), located near Valley Ford, Sonoma County (Figure 1). The County of Sonoma (County) is the lead agency responsible for compliance with the California Environmental Quality Act (CEQA). The Sonoma County Agricultural Preservation and Open Space District (District) will be a Responsible Agency as it holds the Conservation Easement over the project area, and is the current holder of the Trail Easement for the purposes of designating the Trail Corridors. All cultural resource fieldwork and reporting for this project has been conducted by archaeologists meeting the Secretary of the Interior's Professional Qualifications Standards. A Native American Heritage Commission (NAHC) Sacred Lands File (SLF) search did not indicate the presence of any Native American sacred sites. County consultation with Native American representatives did not result in the identification of tribal cultural resources (TCRs) in the area. A Northwest Information Center (NWIC) records search indicated that no cultural resources have been previously recorded within the area of potential effect (APE) or the surrounding half-mile records search area. Intensive-level pedestrian survey conducted of the APE did not identify cultural resources.

PROJECT LOCATION AND PRESENT USE

The project site is located on the south side of State Route 1 (SR 1), approximately one-mile south of the unincorporated community of Bodega, California, and approximately 2.5-miles west of the unincorporated community of Valley Ford, California at 17000 Valley Ford Cutoff (Figure 2). It is bounded on the north by SR 1, on the south by the Estero Americano (Estero), and on the east

and west by habitat similar to habitat found within the project site. Elevation within the project site varies from approximately 10 feet above mean sea level (AMSL) along the center of the site to 340 feet AMSL in the northwestern hills. The site is situated in Sections 27, 28, 33 and 34 of Township 6 North, and Range 10 West on the Valley Ford 7.5 minute quadrangle. The site is mostly undeveloped and is dominated by annual grassland habitat within approximately 495 acres of rolling hills and open pasture that currently is and historically has been used for grazing. There is an access road that runs north to south through the center of the property to an existing barn and other outbuildings on the site.

PROJECT DESCRIPTION

The District is proposing to designate two trail corridors and associated staging (parking) areas pursuant to the Trail Easement and consistent with the Conservation Easement. Under the terms of the Trail Easement, the District must designate and survey the precise locations of two 50-foot-wide pedestrian-only trail corridors, cumulatively not to exceed 5 miles in length, and two staging areas, not to exceed 1.5 acres in total combined area. The area of potential effect (APE) for the Project is represented by the 50-foot-wide trail easement and a 50-foot buffer surrounding the proposed staging areas (Figure 3). The vertical APE, as represented by the maximum depth of excavation, is anticipated to be less than 2-feet below the surface throughout most portions of the trail and staging areas, with some areas possibly requiring cut and fill up to 5-feet deep. Drainage crossing are planned to be a combination of wet crossings, one small bridge replacement, and/or wooden footbridges spanning existing drainages. These crossings would avoid drainage channel modifications, and would result in the same depth of disturbance associated with other trail segments.

The proposed Project would establish two pedestrian/hiker-only trail corridors with associated staging areas (trailheads/parking lots) that would allow for low-intensity public access to pursue outdoor, recreational, and educational uses. Future uses may include hiking, nature study, bird watching, sightseeing, picnicking, outdoor education, docent-led tours, scientific research and observation, and other similar uses. Future uses may also include limited, seasonal walk-in access to the Estero for pedestrians and hand-carried, non-motorized boats, such as kayaks and canoes, if and to the extent the District determines that such access is compatible with sensitive resources associated with the Estero and the property. The District may place limitations on the nature, hours, and season of public access to the access road, bridge, and access gate, as well as the staging areas and trail corridors, as it deems appropriate for natural resource protection.

The anticipated trail system would be the principal means for providing public access to the property and the Estero. Within the two trail corridors, the trails would be constructed for

pedestrian use only (no dogs, bikes, or equestrians would be allowed at any time) and are anticipated to be approximately 5-feet wide; constructed of compacted native material or other permeable surface; would be designed consistent with the federal Architectural Barriers Act Accessibility Guidelines for backcountry trails; and would include wet crossings or wooden footbridges at ephemeral stream crossings (all footbridges would span the stream and not require any work in the channel so no permits would be needed). Trail markers, posts, interpretive signs, and benches, would be placed along the trail to assist users. Benches would be constructed of wood and would be compliant with the Architectural Barriers Act. No more than six benches would be provided along the trail corridors. The trail markers provided at the trailheads and at all trail intersections would provide directions and distances (in miles and tenths of a mile) to noteworthy locations along the trail. Trail markers would be constructed of wood and would measure approximately 3-feet tall.

The bridge along the existing access road would be replaced with a weathered steel or wood and the bridge deck would be paved with asphalt or concrete. The bridge would be designed to span from bank to bank to eliminate disturbance or construction in the channel. A new gate would be constructed to enable the trail and staging areas to be closed at sundown. The future development of the staging areas would likely include relocation and extension of the existing access road to both staging areas. The access road to the staging areas would also be gravel and would provide operations, maintenance, emergency, and public access to the trail system. The staging areas would also be constructed with a gravel base with one concrete paved parking stall to enable those with disabilities access and would also include bicycle racks. Signs, consistent with the requirements set forth in the Trail Easement, would include wayfinding and maps as well as signage that explains the "rules" of access (e.g., specifying dogs prohibited on the property including in the staging areas and on the trails) would also be provided at both staging areas and at the trailheads. Educational signage with information about protected plant and wildlife species would also be provided at key locations along the trails.

In addition, consistent with the Conservation Easement, the Bordessa Ranch includes a proposal to construct a lighted horse arena within the 2-acre designated Agricultural Building Envelope (ABE). This would be a separate project initiated by the landowners. Existing structures on the site including the barn, sheds and outbuildings, concrete water tank and troughs, spring boxes, and above-ground water tanks are not within the boundaries of the proposed project and would not be modified, removed, or altered in any way by project implementation.

REGULATORY CONTEXT

While the Project as currently planned is subject only to state and local regulatory conditions, all work has been conducted in compliance with federal regulations as well. As such, federal regulations are also provided here for reference should they be required in the future.

Federal Regulations

National Historic Preservation Act

The NHPA established the National Register of Historic Places (NRHP) and the President's Advisory Council on Historic Preservation (ACHP), and provided that states may establish State Historic Preservation Officers (SHPOs) to carry out some of the functions of the NHPA. Most significantly for federal agencies responsible for managing cultural resources, Section 106 of the NHPA directs that "[t]he head of any Federal agency having direct or indirect jurisdiction over a proposed Federal or federally assisted undertaking in any State and the head of any Federal department or independent agency having authority to license any undertaking shall, prior to the approval of the expenditure of any Federal funds on the undertaking or prior to the issuance of any license, as the case may be, take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the NRHP." Section 106 also affords the ACHP a reasonable opportunity to comment on the undertaking (16 USC 470f).

36 Code of Federal Regulations, Part 800 (36 CFR 800) implements Section 106 of the NHPA. It defines the steps necessary to identify historic properties (those cultural resources listed in or eligible for listing in the NRHP), including consultation with federally recognized Native American tribes to identify resources with important cultural values; to determine whether or not they may be adversely affected by a proposed undertaking; and the process for eliminating, reducing, or mitigating the adverse effects.

The content of 36 CFR 60.4 defines criteria for determining eligibility for listing in the NRHP. The significance of cultural resources identified during an inventory must be formally evaluated for historic significance in consultation with the California SHPO to determine if the resources are eligible for inclusion in the NRHP. Cultural resources may be considered eligible for listing if they possess integrity of location, design, setting, materials, workmanship, feeling, and association. The criteria for determining eligibility are essentially the same in content and order as those outlined under the California Environmental Quality Act (CEQA), but the criteria under NHPA are labeled A through D (rather than 1-4 under CEQA).

Regarding criteria A through D of Section 106, the quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, cultural resources, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and that:

A. are associated with events that have made a significant contribution to the broad patterns of our history; or

B. are associated with the lives of persons significant in our past; or

C. embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. have yielded or may be likely to yield, information important in prehistory or history [36 CFR 60.4].

The current cultural resources inventory is not designed to generate enough data to make eligibility recommendations on previously recorded cultural resources that are outside of the project area, or newly discovered cultural resources; such determinations are typically made during a subsequent evaluation phase (e.g., excavations at prehistoric sites). However, the survey was designed to generate enough information to provide informal assessments of eligibility to help guide management considerations.

State of California

The California Register of Historical Resources

In California, the term "historical resource" includes "any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California" (Public Resources Code (PRC) Section 5020.1(j)). In 1992, the California legislature established the California Register of Historical Resources (CRHR) "to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change" (PRC Section 5024.1(a)). The criteria for listing resources on the CRHR, enumerated in the following text, were developed to be in accordance with previously established criteria developed for listing in the NRHP. According to PRC Section

5024.1(c)(1–4), a resource is considered historically significant if it (i) retains "substantial integrity," and (ii) meets at least one of the following criteria:

(1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage

(2) Is associated with the lives of persons important in our past

(3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values

(4) Has yielded, or may be likely to yield, information important in prehistory or history

To understand the historic importance of a resource, sufficient time must have passed to obtain a scholarly perspective on the events or individuals associated with the resource. A resource less than 50 years old may be considered for listing in the CRHR if it can be demonstrated that sufficient time has passed to understand its historical importance (see 14 CCR 4852(d)(2)).

The CRHR protects cultural resources by requiring evaluations of the significance of prehistoric and historic resources. The criteria for the CRHR are nearly identical to those for the NRHP, and properties listed or formally designated as eligible for listing in the NRHP are automatically listed in the CRHR, as are state landmarks and points of interest. The CRHR also includes properties designated under local ordinances or identified through local historical resource surveys.

California Environmental Quality Act

As described further in the following text, the following CEQA statutes and CEQA Guidelines are of relevance to the analysis of archaeological, historic, and tribal cultural resources:

PRC Section 21083.2(g) defines "unique archaeological resource."

PRC Section 21084.1 and CEQA Guidelines Section 15064.5(a) define "historical resources." In addition, CEQA Guidelines Section 15064.5(b) defines the phrase "substantial adverse change in the significance of an historical resource." It also defines the circumstances when a project would materially impair the significance of a historical resource.

PRC Section 21074(a) defines "tribal cultural resources."

PRC Section 5097.98 and CEQA Guidelines Section 15064.5(e) set forth standards and steps to be employed following the accidental discovery of human remains in any location other than a dedicated ceremony.

Native American Heritage Commission (NAHC) will be contacted to resolve disputes regarding the disposition of such remains. In addition, the Native American Historic Resource Protection Act makes it a misdemeanor, punishable by up to 1 year in jail, to deface or destroy a Native American historic or cultural site that is listed or may be eligible for listing in the CRHR.

California Health and Safety Code Section 7050.5

California law protects Native American burials, skeletal remains, and associated grave goods, regardless of their antiquity, and provides for the sensitive treatment and disposition of those remains. California Health and Safety Code Section 7050.5 requires that if human remains are discovered in any place other than a dedicated cemetery, no further disturbance or excavation of the site or nearby area reasonably suspected to contain human remains can occur until the County Coroner has examined the remains (Section 7050.5b). PRC Section 5097.98 also outlines the process to be followed in the event that remains are discovered. If the County Coroner determines or has reason to believe the remains are those of a Native American, the coroner must contact the California NAHC within 24 hours (Section 7050.5c). The NAHC will notify the Most Likely Descendant. With the permission of the landowner, the Most Likely Descendant may inspect the site of discovery. The inspection must be completed within 48 hours of notification of the Most Likely Descendant by the NAHC. The Most Likely Descendant may recommend means of treating or disposing of, with appropriate dignity, the human remains and items associated with Native Americans. PRC Sections 21083.2(b)–(c) and CEQA Guidelines Section 15126.4 provide information regarding the mitigation framework for archaeological and historic resources, including examples of preservation-in-place mitigation measures; preservation-in-place is the preferred manner of mitigating impacts to significant archaeological sites because it maintains the relationship between artifacts and the archaeological context, and may also help avoid conflict with religious or cultural values of groups associated with the archaeological site(s).

Under CEQA, a project may have a significant effect on the environment if it may cause "a substantial adverse change in the significance of an historical resource" (PRC Section 21084.1; CEQA Guidelines Section 15064.5(b)). If a site is either listed or eligible for listing in the CRHR, or if it is included in a local register of historic resources, or identified as significant in a historical resources survey (meeting the requirements of PRC Section 5024.1(q)), it is a "historical resource" and is presumed to be historically or culturally significant for purposes of CEQA (PRC Section

21084.1; CEQA Guidelines Section 15064.5(a)). The lead agency is not precluded from determining that a resource is a historical resource, even if it does not fall within this presumption (PRC Section 21084.1; CEQA Guidelines Section 15064.5(a)).

A "substantial adverse change in the significance of an historical resource" reflecting a significant effect under CEQA means "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired" (CEQA Guidelines Section 15064.5(b)(1); PRC Section 5020.1(q)). In turn, the significance of a historical resource is materially impaired when a project does any of the following:

> (1) Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register; or
>
> (2) Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to Section 5020.1(k) of the PRC or its identification in an historical resources survey meeting the requirements of Section 5024.1(g) of the PRC, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
>
> (3) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register as determined by a lead agency for purposes of CEQA [CEQA Guidelines Section 15064.5(b)(2)].

Pursuant to these sections, the CEQA inquiry begins with evaluating whether a project site contains any "historical resources," then evaluates whether that project will cause a substantial adverse change in the significance of a historical resource such that the resource's historical significance is materially impaired.

If it can be demonstrated that a project will cause damage to a unique archaeological resource, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that they cannot be left undisturbed, mitigation measures are required (Section 21083.2(a), (b), and (c)).

Section 21083.2(g) defines a unique archaeological resource as an archaeological artifact, object, or site about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

(1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information

(2) Has a special and particular quality such as being the oldest of its type or the best available example of its type

(3) Is directly associated with a scientifically recognized important prehistoric or historic event or person

Impacts to nonunique archaeological resources are generally not considered a significant environmental impact (PRC Section 21083.2(a); CEQA Guidelines Section 15064.5(c)(4)). However, if a nonunique archaeological resource qualifies as tribal cultural resource (PRC 21074(c); 21083.2(h)), further consideration of significant impacts is required.

CEQA Guidelines Section 15064.5 assigns special importance to human remains and specifies procedures to be used when Native American remains are discovered. As described in the following text, these procedures are detailed in PRC Section 5097.98.

California State Assembly Bill 52

Assembly Bill (AB) 52 of 2014 amended PRC Section 5097.94 and added PRC Sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3. AB 52 established that Tribal Cultural Resources (TCR) must be considered under CEQA and also provided for additional Native American consultation requirements for the lead agency. Section 21074 describes a TCR as a site, feature, place, cultural landscape, sacred place, or object that is considered of cultural value to a California Native American Tribe. A TCR is either:

- On the California Register of Historical Resources or a local historic register; Eligible for the California Register of Historical Resources or a local historic register; or
- A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1.

AB 52 formalizes the lead agency–tribal consultation process, requiring the lead agency to initiate consultation with California Native American groups that are traditionally and culturally affiliated with the project, including tribes that may not be federally recognized. Lead agencies are required

to begin consultation prior to the release of a negative declaration, mitigated negative declaration, or environmental impact report.

Section 1 (a)(9) of AB 52 establishes that "a substantial adverse change to a tribal cultural resource has a significant effect on the environment." Effects on tribal cultural resources should be considered under CEQA. Section 6 of AB 52 adds Section 21080.3.2 to the PRC, which states that parties may propose mitigation measures "capable of avoiding or substantially lessening potential significant impacts to a tribal cultural resource or alternatives that would avoid significant impacts to a tribal cultural resource." Further, if a California Native American tribe requests consultation regarding project alternatives, mitigation measures, or significant effects to tribal cultural resources, the consultation shall include those topics (PRC Section 21080.3.2[a]). The environmental document and the mitigation monitoring and reporting program (where applicable) shall include any mitigation measures that are adopted (PRC Section 21082.3[a]).

Native American Human Remains

State law (PRC Section 5097 et seq.) addresses the disposition of Native American burials in archaeological sites and protects such remains from disturbance, vandalism, or inadvertent destruction; establishes procedures to be implemented if Native American skeletal remains are discovered during construction of a project; and established the Native American Heritage Commission (NAHC).

In the event that Native American human remains or related cultural material are encountered, Section 15064.5(e) of the CEQA Guidelines (as incorporated from PRC Section 5097.98) and California Health and Safety Code Section 7050.5 define the subsequent protocol. In the event of the accidental discovery or recognition of any human remains, excavation or other disturbances shall be suspended of the site or any nearby area reasonably suspected to overlie adjacent human remains or related material. Protocol requires that a county-approved coroner be contacted in order to determine if the remains are of Native American origin. Should the coroner determine the remains to be Native American, the coroner must contact the NAHC within 24 hours. The most likely descendent may make recommendations to the landowner or the person responsible for the excavation work, for means of treating, with appropriate dignity, the human remains and any associated grave goods as provided in PRC Section 5097.98 (14 CCR 15064.5(e)).

NORTHWEST INFORMATION CENTER RECORDS SEARCH

A records search of the APE and the surrounding half-mile was completed by NWIC staff on October 25, 2017 (Confidential Appendix A). This search included their collection of mapped

prehistoric, historical and built-environment resources, Department of Parks and Recreation (DPR) Site Records, technical reports, archival resources, and ethnographic references. Additional consulted sources included the National Register of Historic Places (NRHP), California Inventory of Historical Resources/CRHR and listed OHP Archaeological Determinations of Eligibility, California Points of Historical Interest, California Historical Landmarks, and Caltrans Bridge Survey information.

Previously Conducted Studies

NWIC records indicate that four previous cultural resources technical investigations have been conducted within a half-mile of the proposed Project site. Of these, one study included the entirety of the APE (Table 1).

Table 1. Previous technical studies within a half-mile radius of the APE

Report ID	Author	Year	Title	Relative to APE
S-009573	Marcia K. Kelly and Margaret L. Buss	1987	Negative Archaeological Survey Report, proposed replacement or realignment of 54 culverts, 04-SON-1 P.M. 2.14/54.56, 04-MRN-1 P.M. 13.82/48.32, 4232-120390	Within a half-mile
S-018458	Jonathan Legare	1996	A Cultural Resources Study of the Griffin Property, Bodega, Sonoma County, California	Within a half-mile
S-035051	Nelson B. Thompson	2008	Review of Cultural Resources Surveys Conducted of the 04-SON-01 Right of Way in Sonoma County For Maintenance Planning by Caltrans District 04 and Anthropological Studies Center, SSU Personnel Between 1997 and 2001 (PM 0.0/58.53) (letter report)	Within a half-mile
S-045445	Eileen Barrow	2014	A Cultural Resources Survey of a Portion of the Bordessa Ranch, 17000 Highway 1, Valley Ford, Sonoma County, California	Included entire APE

Barrow 2014 (S-045445)

This investigation, completed by Eileen Barrow of Tom Origer and Associates in 2014, included the entire APE. The investigation was requested and authorized by Karen Davis-Brown of Sonoma County Regional Parks. Work included an intensive-level pedestrian survey of the APE, applying 15-meter transects in areas with the highest potential for cultural resources and 30-meter transects in areas where more extreme topography was present. The study resulted in the identification of one prehistoric obsidian flake. No archaeological features, deposits, or sites were observed. Review of photographs of the structures on the property by architectural historian Vikki R. Beard resulted in the observation that the barn/residence, while greater than 45 years in age, did not

appear to meet eligibility criteria for inclusion on the CRHR or NRHP. Based on these findings, investigators recommended no additional cultural resources investigation or monitoring to be necessary.

Previously Identified Cultural Resources

No previously recorded archaeological resources are on file with the NWIC within the APE or the surrounding half-mile records search buffer. One previously recorded prehistoric isolate has been noted within the Project site (see above S-045445 description). No locational information was provided for this single obsidian flake. In addition, the barn within the Project site was noted to be of historic age, however it has not been formally recorded and would not be modified or otherwise affected as part of the project. (Confidential Appendix A)

Dudek reviewed historical aerials (available since 1952) and topographic maps (available since 1935). These maps and aerial photographs did not indicate the presence of historical built-environment resources within the APE. The barn located on the Project site, outside of the proposed trail corridors and staging areas comprising the present APE, are represented on the 1935 topographic maps.

NAHC AND TRIBAL CORRESPONDENCE

Dudek requested a NAHC search of their Sacred Lands File on October 13, 2017 for the proposed Project area. The NAHC provided results on October 25, 2018. This search did not indicate the presence of Native American sacred sites within this area, or the surrounding Sections 27, 28, 32, 33, and 34 (Appendix B). The NAHC additionally provided a list of Native American tribes and individuals/organizations that might have knowledge of cultural resources in this area. It should be noted that Tom Origer and Associates also contacted the NAHC and culturally affiliated tribal representatives in 2014. One response was received from Lytton Rancheria of California. Ms. Brenda Tomares, while indicating that the tribe was unaware of any resources within the area covered by the present Project, did request that they be contacted should any cultural resources or human remains be encountered. Ms. Tomares further requested that Lytton Rancheria be consulted by the project proponent, which is the County.

The proposed Project is subject to compliance with Assembly Bill 52 (PRC Section 21074), which requires consideration of impacts to "tribal cultural resources" as part of the CEQA process, and requires the CEQA lead agency to notify any groups (who have requested notification) of the proposed project who are traditionally or culturally affiliated with the geographic area of the project. Because Assembly Bill 52 is a government-to-government process, all records of

correspondence related to Assembly Bill 52 notification and any subsequent consultation are on file with the County. The County reports that to-date, it has not received any information from consulted tribes identifying any TCRs or cultural resources that may be affected by the Project.

METHODS

Intensive Pedestrian Survey

Dudek archaeologist Adam Giacinto, MA, RPA, inspected all areas of the proposed 50-foot-wide trail corridors on June 19, 2018. No archaeological or historic-era built-environment artifacts or features were identified as a result of this investigation. Approximately one-fifth of the ground surface was directly visible due to the presence of grasses that characterizes a majority of the project site. Subsurface exposures were thoroughly inspected along the banks of drainages intersecting the proposed trail corridors at a number of locations. The historic-age barn, located approximately 80-feet outside of the APE, was observed to be present as reported by previous cultural resources investigations. With the exception of limited movement of surface soils caused by cattle grazing, the APE remains largely undisturbed. While no archaeological resources were observed, portions of the APE do intersect depositional environments such as low-slope drainages, terraces, and knolls suitable to support the presence of cultural deposits.

SUMMARY AND MANAGEMENT CONSIDERATIONS

No archaeological resources were identified within the project site or immediate vicinity as a result of the intensive pedestrian survey, the CHRIS records search, a NAHC Sacred Lands File search, or Native American outreach. In addition, proposed trail construction would be relatively limited in its level of disturbance. However, it is always possible that intact archaeological deposits are present in subsurface contexts. Based on the topographic and environmental setting, the APE does have some potential to support the presence of unanticipated cultural resources. Having considered the available information, no additional cultural resources work, including monitoring, is recommended to be necessary. Management recommendations to address potential impacts to unanticipated archaeological resources and human remains during trail construction activities are provided below.

Unanticipated Archaeological Resources

All construction crews should be alerted to the potential to encounter archaeological material. In the event that cultural resources (sites, features, artifacts, or fossilized material) are exposed during construction activities for the proposed Project, all construction work occurring within 100 feet of the find shall immediately stop until a qualified specialist, meeting the Secretary of the Interior's

Professional Qualification Standards, can evaluate the significance of the find and determine whether additional study is warranted. Prehistoric archaeological deposits may be indicated by the presence of discolored or dark soil, fire-affected material, concentrations of fragmented or whole shell, burned or complete bone, non-local lithic materials, or the characteristic observed to be atypical of the surrounding area. Common prehistoric artifacts may include modified or battered lithic materials; lithic or bone tools that appeared to have been used for chopping, drilling, or grinding; projectile points; fired clay ceramics or non-functional items; and other items. Historic-age deposits are often indicated by the presence of glass bottles and shards, ceramic material, building or domestic refuse, ferrous metal, or old features such as concrete foundations or privies. Depending upon the significance of the find under CEQA (14 CCR 15064.5(f); PRC Section 21082), the archaeologist may simply record the find and allow work to continue. Prior to any potentially destructive evaluation efforts such as excavation, the feasibility of resource avoidance should be first considered and discussed with the County. If the discovery proves significant under CEQA, additional work, such as preparation of an archaeological treatment plan, testing, or data recovery may be warranted.

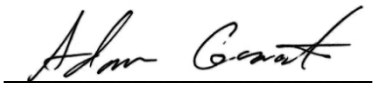
Unanticipated Human Remains

In accordance with Section 7050.5 of the California Health and Safety Code, if human remains are found, the county coroner shall be immediately notified of the discovery. No further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains shall occur until the county coroner has determined, within 2 working days of notification of the discovery, the appropriate treatment and disposition of the human remains. If the county coroner determines that the remains are, or are believed to be, Native American, he or she shall notify the NAHC in Sacramento within 24 hours. In accordance with California Public Resources Code, Section 5097.98, the NAHC must immediately notify those persons it believes to be the most likely descendant from the deceased Native American. The most likely descendant shall complete his/her inspection within 48 hours of being granted access to the site. The designated Native American representative would then determine, in consultation with the property owner, the disposition of the human remains.

As noted above, cultural resources investigations have not yielded information that would suggest the presence of cultural resources that could be affected by the Project. Should you have any questions relating to this report and its findings, please do not hesitate to contact me directly.

Subject: Cultural Resources Inventory Report for the Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas Project, Sonoma County, California – Negative Findings

Respectfully Submitted,



Adam Giacinto, M.A., RPA
Archaeologist

DUDEK
Office: 530.863.4653
Email: agiacinto@dudek.com

cc: Christine Kronenberg, Dudek

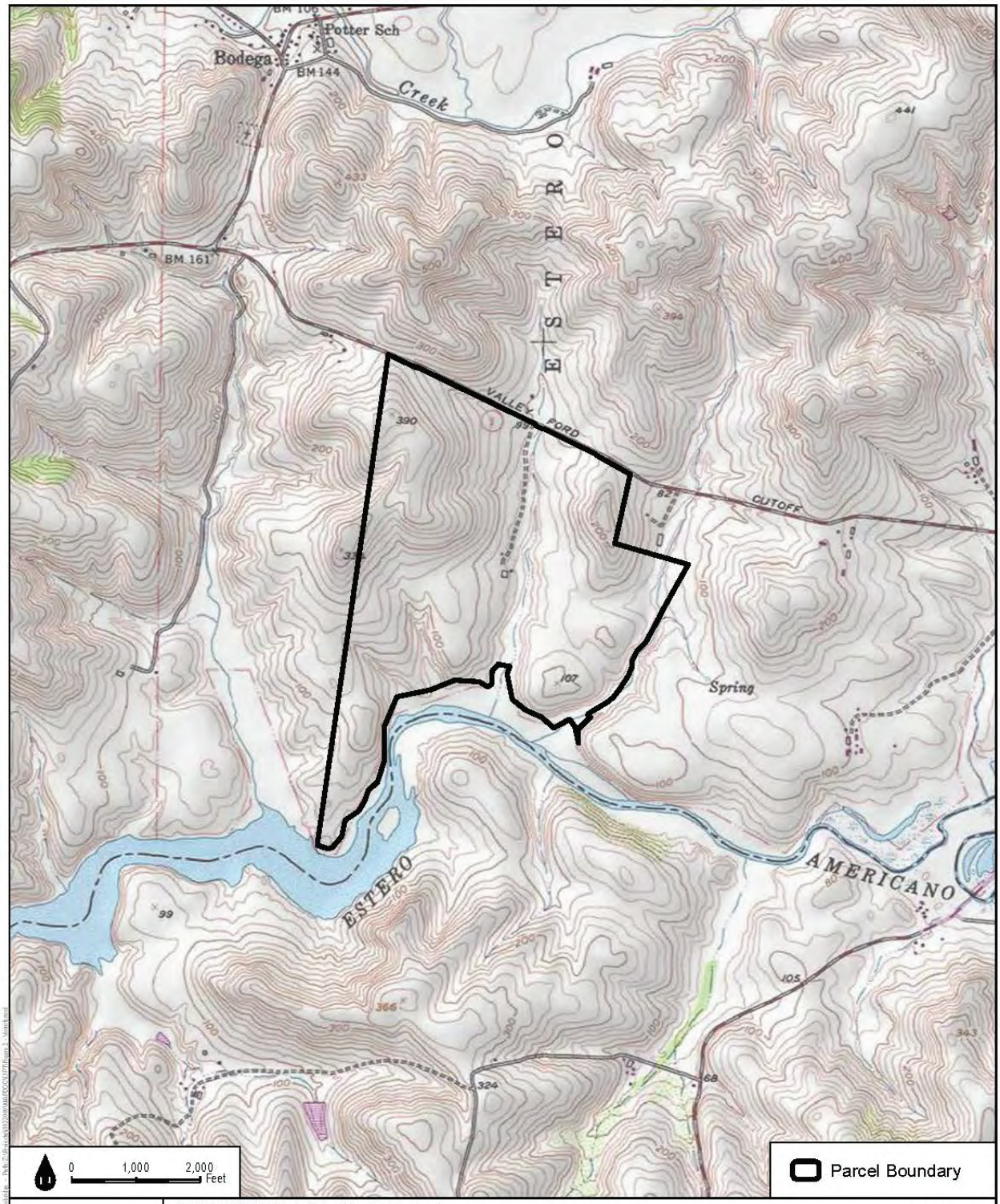
Att: Figure 1. Regional Map
Figure 2. Vicinity Map
Figure 3. Project Area Map
Appendix A: NWIC Records Search Information (Confidential)
Appendix B: NAHC Sacred Lands File Search Results

NATIONAL ARCHAEOLOGICAL DATA BASE INFORMATION

Authors:	Adam Giacinto, M.A., RPA and Micah Hale, PhD, RPA
Firm:	Dudek
Client/Project Proponent:	The Sonoma County Agricultural Preservation and Open Space District
Report Date:	8/27/18
Report Title:	Cultural Resources Inventory Report for the Estero Trail Easement: Designation of Trail Corridors and Associated Staging Areas Project, Sonoma County, California – Negative Findings
Type of Study:	Cultural Resources Inventory
New Sites:	None
Updated Sites:	None
USGS Quad:	Valley Ford 7.5-minute
Acreage:	Approximately 30 acres
Permit Numbers:	N/A
Key Words:	Negative results; Inventory; Survey; Estero Americana


Project Site
Pacific Ocean
Mendocino County
Sonoma County
Lake County
Napa County
Marin County
Kelseyville
Clearlake
Lower Lake
Cobb
Hidden Valley Lake
Windsor
Larkfield-Wikiup
Forestville
Occidental
Santa Rosa
South Santa Rosa
Rohnert Park
Bodega Bay
Petaluma
Novato
Inverness
Lagunitas-Forest Knolls
Lucas Valley-Marinwood
San Rafael
Mill Valley
Angwin
Deer Park
St. Helena
Napa
Richmond
Berkeley
Alameda
San Francisco
San Francisco County
San Mateo County
0 5 10 Miles
SOURCE: ArcGIS Online Basemap
DUDEK
FIGURE 1
Regional Map
Bordessa Ranch - Estero Trail
Cultural Resources Report

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SOURCE: USGS 7.5-Minute Series Valley Ford Quadrangle
Township 6N; Range 10W; Sections 27, 28, 33, 34

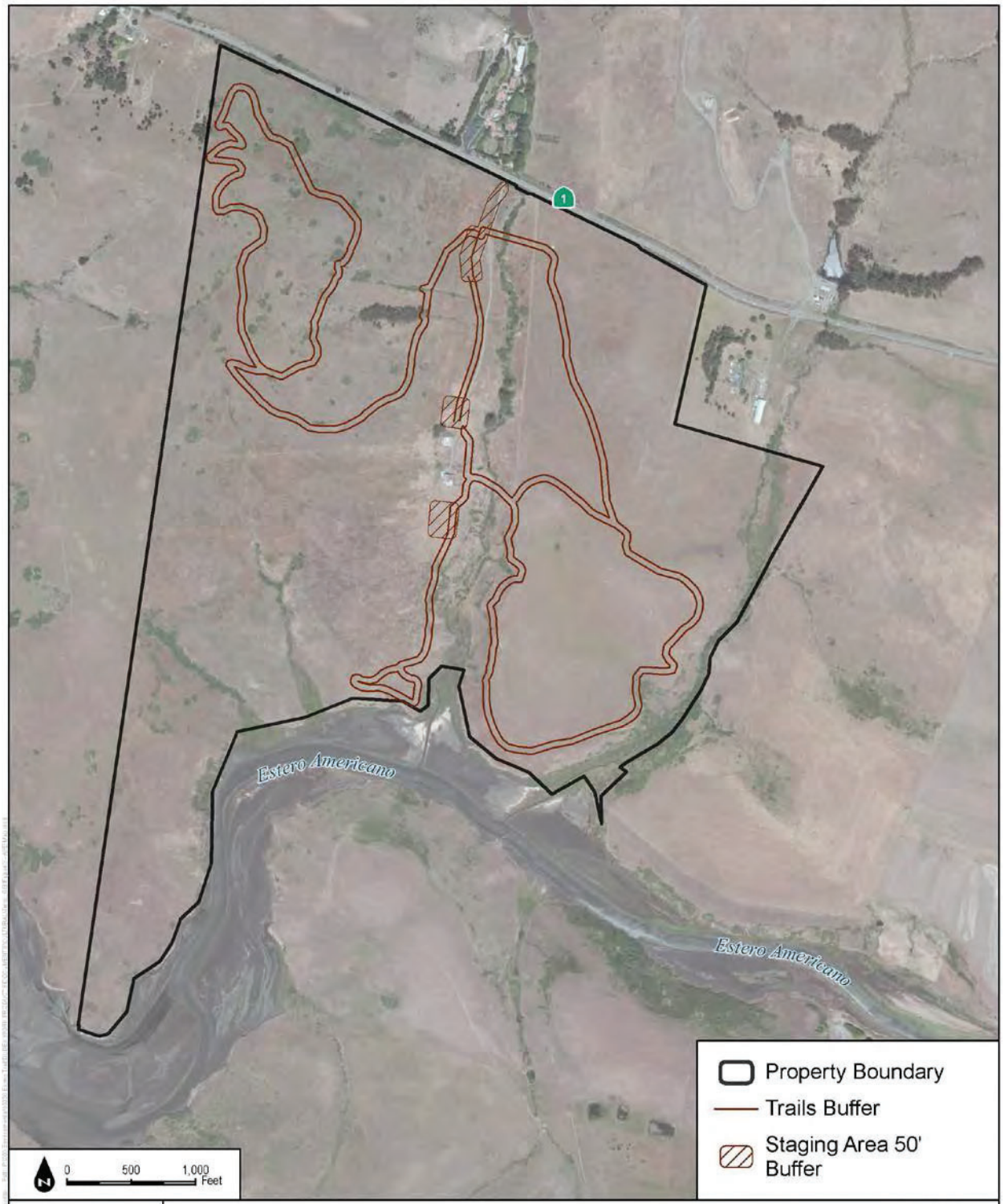
FIGURE 2
Vicinity Map

DUDEK

Bordessa Ranch - Estero Trail

Cultural Resources Report

INTENTIONALLY LEFT BLANK


1
Estero Americano
Estero Americano
Property Boundary
Trails Buffer
Staging Area 50' Buffer
N
0
500
1,000
Feet
DUDEK
SOURCE: Bing Maps (Accessed 2017)
FIGURE 3
Area of Potential Effect
Bordessa Ranch - Estero Trail
Cultural Resources Report

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APPENDIX A

NWIC Records Search Confirmation

CALIFORNIA HISTORICAL RESOURCES INFORMATION SYSTEM

ALAMEDA
COLUSA
CONTRA COSTA
DEL NORTE
HUMBOLDT
LAKE
MARIN
MENDOCINO
MONTEREY
NAPA
SAN BENITO
SAN FRANCISCO
SAN MATEO
SANTA CLATA
SANTA CRUZ
SOLANO
SONOMA
YOLO

Northwest Information Center
Sonoma State University
150 Professional Center Drive, Suite E
Rohnert Park, California 94928-3609
Tel: 707.588.8455
nwic@sonoma.edu
http://www.sonoma.edu/nwic

10/25/2017 NWIC File No.: 17-0986

Adam Giacinto
Dudek
833 Lincoln Way, Suite 208
Auburn, CA 95603

re: Estero Trail Project

The Northwest Information Center received your record search request for the project area referenced above, located on the Valley Ford USGS 7.5' quad. The following reflects the results of the records search for the project area and a 0.5 mile radius:

Resources within project area:	None
Resources within 0.5 mile radius:	None
Reports within project area:	S-45445 & 9573.
Reports within 0.5 mile radius:	S-35051 & 18458.
Other Reports within records search radius:	S-848, 2399, 2458, 7888, 8226, 9462, 9795, 11050, 12123, 15529, 17171, 17835, 18217, 20395, 29655, 30204, 31615, 32454, 32596, 33600, 47285, & 48927. These reports are classified as Other Reports; reports with little or no field work or missing maps. The electronic maps do not depict study areas for these reports, however a list of these reports has been provided. In addition, you have not been charged any fees associated with these studies.

Resource Database Printout (list):	☐ enclosed	☐ not requested	☒ nothing listed
Resource Database Printout (details):	☐ enclosed	☒ not requested	☐ nothing listed
Resource Digital Database Records:	☐ enclosed	☐ not requested	☒ nothing listed
Report Database Printout (list):	☒ enclosed	☐ not requested	☐ nothing listed
Report Database Printout (details):	☐ enclosed	☒ not requested	☐ nothing listed
Report Digital Database Records:	☒ enclosed	☐ not requested	☐ nothing listed
Resource Record Copies:	☐ enclosed	☐ not requested	☒ nothing listed
Report Copies:	☒ enclosed	☐ not requested	☐ nothing listed
OHP Historic Properties Directory:	☒ enclosed	☐ not requested	☐ nothing listed

Archaeological Determinations of Eligibility:	☐ enclosed	☐ not requested	☒ nothing listed
CA Inventory of Historic Resources (1976):	☒ enclosed	☐ not requested	☐ nothing listed
Caltrans Bridge Survey:	☐ enclosed	☒ not requested	☐ nothing listed
Ethnographic Information:	☐ enclosed	☒ not requested	☐ nothing listed
Historical Literature:	☐ enclosed	☒ not requested	☐ nothing listed
Historical Maps:	☐ enclosed	☒ not requested	☐ nothing listed
Local Inventories:	☒ enclosed	☐ not requested	☐ nothing listed
GLO and/or Rancho Plat Maps:	☐ enclosed	☒ not requested	☐ nothing listed
Shipwreck Inventory:	☐ enclosed	☒ not requested	☐ nothing listed

*Notes:

** Current versions of these resources are available on-line:

Caltrans Bridge Survey: http://www.dot.ca.gov/hq/structur/strmaint/historic.htm

Soil Survey: http://www.nrcs.usda.gov/wps/portal/nrcs/surveylist/soils/survey/state/?stateId=CA

Please forward a copy of any resulting reports from this project to the office as soon as possible. Due to the sensitive nature of archaeological site location data, we ask that you do not include resource location maps and resource location descriptions in your report if the report is for public distribution. If you have any questions regarding the results presented herein, please contact the office at the phone number listed above.

The provision of CHRIS Data via this records search response does not in any way constitute public disclosure of records otherwise exempt from disclosure under the California Public Records Act or any other law, including, but not limited to, records related to archeological site information maintained by or on behalf of, or in the possession of, the State of California, Department of Parks and Recreation, State Historic Preservation Officer, Office of Historic Preservation, or the State Historical Resources Commission.

Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the Office of Historic Preservation are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area. Additionally, Native American tribes have historical resource information not in the CHRIS Inventory, and you should contact the California Native American Heritage Commission for information on local/regional tribal contacts.

Should you require any additional information for the above referenced project, reference the record search number listed above when making inquiries. Requests made after initial invoicing will result in the preparation of a separate invoice.

Thank you for using the California Historical Resources Information System (CHRIS).

Sincerely,
Lisa C. Hagel
Researcher

APPENDIX B

NAHC Sacred Lands File Search

DUDEK

853 LINCOLN WAY, SUITE #208
AUBURN, CALIFORNIA 95603
T 530.887.8500 F 530.885.8372

October 13, 2017

Native American Heritage Commission
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691

Subject: ***Sacred Lands File Search Request for the Estero Trails Project, County of Sonoma, California***

Dear NAHC Staff,

Installation of trails are planned by the County of Sonoma in the Valley Ford area as part of the Estero Trails Project (Figure 1). The proposed project is located south of the Estero Trail Cutoff, and southeast of the town of Bodega. This search area falls within the following Public Land Survey System (PLSS) area: Township 5N, Range 10W, Section 4; Township 6N, Range 10W, Sections 27, 28, 32, 33, and 34; and on the Valley Ford, California United States Geologic Survey (USGS) 7.5-Minute Series Quadrangles.

Dudek is contacting the NAHC as part of the Inventory effort to request a search of the Sacred Lands File for any Native American cultural resources that may fall within a one-half mile buffer of the proposed project location. Please provide contact information for all Native American tribal representatives that should be contacted regarding these project activities. This information can be emailed to me at agiacinto@dudek.com.

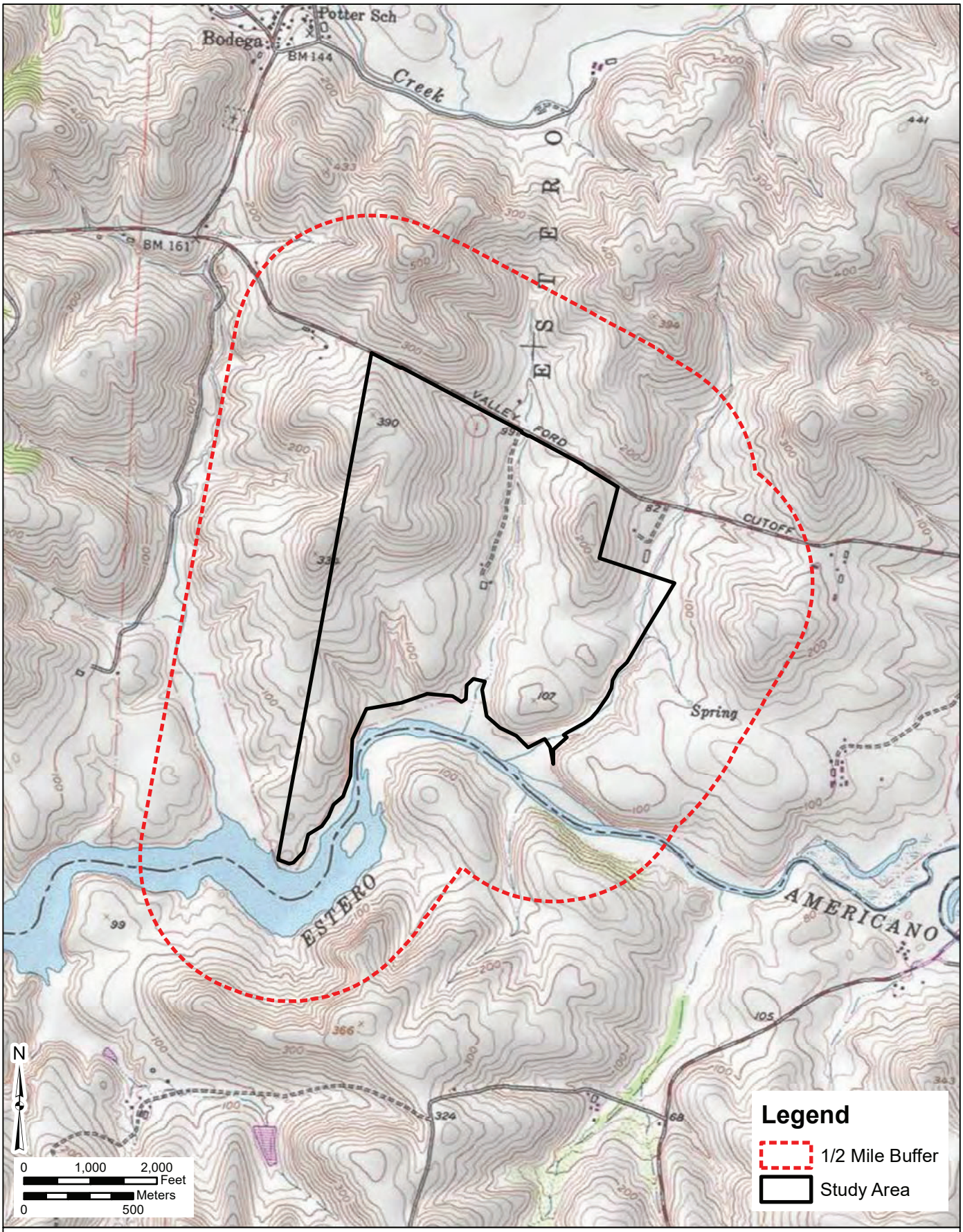
If you have any questions about this investigation, please contact me directly by email or phone.

Regards,

Adam Giacinto, M.A., RPA
Archaeologist

DUDEK
853 Lincoln Way, Suite 208
Auburn, CA 95603
Office: 760.479.4252
Email: agiacinto@dudek.com

Attachments:
Figure 1. Records Search Map



SOURCE: USGS 7.5-Minute Series Valley Ford Quadrangle
Township 5N; Range 10W; Section 4
Township 6N; Range10W; Sections 27, 28, 32, 33, 34

Records Search Map

Estero Trail

NATIVE AMERICAN HERITAGE COMMISSION
Environmental and Cultural Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
(916) 373-3710

October 25, 2017

Adam Giancinto
DUDEK

Sent by Email: agiacinto@dudek.com
Number of Pages: 2

RE: Estero Trails Project, Valley Ford, Sonoma County

Dear Mr. Giacinto:

A record search of the Native American Heritage Commission (NAHC) *Sacred Lands File* was completed for the area of potential project effect (APE) referenced above with negative results**. Please note that the absence of specific site information in the *Sacred Lands File* does not indicate the absence of Native American cultural resources in any APE.**

I suggest you contact all of those listed, if they cannot supply information, they might recommend others with specific knowledge. The list should provide a starting place to locate areas of potential adverse impact within the APE. **By contacting all those on the list, your organization will be better able to respond to claims of failure to consult.** If a response has not been received within two weeks of notification, the NAHC requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact via email: Sharaya.souza@nahc.ca.gov.

Sincerely,

Sharaya Souza
Staff Services Analyst
(916) 573-0168

Native American Heritage Commission
Native American Contacts
10/24/2017

Dry Creek Rancheria Band of Pomo Indians
Chris Wright, Chairperson
P.O. Box 607 — Pomo
Geyserville , CA 95441
(707) 522-4233
(707) 522-4286

Federated Indians of Graton Rancheria
Gene Buvelot
6400 Redwood Drive, Ste 300 — Coast Miwok
Rohnert Park , CA 94928 — Southern Pomo
gbuvelot@gratonrancheria.com
(415) 279-4844 Cell

(707) 566-2288 ext 103

Federated Indians of Graton Rancheria
Greg Sarris, Chairperson
6400 Redwood Drive, Ste 300 — Coast Miwok
Rohnert Park , CA 949t28 — Southern Pomo
(707) 566-2288 Office
(707) 566-2291 Fax

Kashia Band of Pomo Indians of the Stewarts Point
Reno Keoni Franklin, Chairperson
1420 Guerneville Rd. Ste 1 — Pomo
Santa Rosa , CA 95403
reno@stewartspoint.org
(707) 591-0580 Office

(707) 591-0583 Fax

Lytton Rancheria of California
Marjorie Mejia, Chairperson
437 Aviation Blvd. — Pomo
Santa Rosa , CA 95403
margiemejia@aol.com
(707) 575-5917
(707) 575-6974 - Fax

Middletown Rancheria
Jose Simon III, Chairperson
P.O. Box 1035 — Pomo
Middletown , CA 95461 — Lake Miwok
(707) 987-3670 Office

(707) 987-9091 Fax

Mishewal-Wappo Tribe of Alexander Valley
Scott Gabaldon, Chairperson
2275 Silk Road — Wappo
Windsor , CA 95492
scottg@mishewalwappotribe.com
(707) 494-9159

This list is current only as of the date of this document and is based on the information available to the Commission on the date it was produced.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessments for the Estero Trails Project, Valley Ford, Sonoma County

APPENDIX E

Traffic Model Outputs

Prepared by NDS/ATD

Prepared by National Data & Surveying Services

VOLUME

SR-1 W/O Freestone Valley Ford Rd

Day: Friday
Date: 4/20/2018

City: Sonoma County
Project #: CA18_8173_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	2,046	3,137	5,183

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00	0	0	0		2		2		12:00	0	0	34		64		98	
00:15	0	0	3		1		4		12:15	0	0	41		68		109	
00:30	0	0	0		1		1		12:30	0	0	48		62		110	
00:45	0	0	0	3	1	5	1	8	12:45	0	0	50	173	65	259	115	432
01:00	0	0	0		1		1		13:00	0	0	46		60		106	
01:15	0	0	1		0		1		13:15	0	0	59		73		132	
01:30	0	0	1		0		1		13:30	0	0	42		63		105	
01:45	0	0	2	4	0	1	2	5	13:45	0	0	42	189	84	280	126	469
02:00	0	0	0		0				14:00	0	0	41		67		108	
02:15	0	0	1		2		3		14:15	0	0	50		73		123	
02:30	0	0	0		1		1		14:30	0	0	41		70		111	
02:45	0	0	3	4	1	4	4	8	14:45	0	0	57	189	94	304	151	493
03:00	0	0	0		1		1		15:00	0	0	35		59		94	
03:15	0	0	1		2		3		15:15	0	0	47		54		101	
03:30	0	0	1		1		2		15:30	0	0	42		76		118	
03:45	0	0	1	3	1	5	2	8	15:45	0	0	46	170	73	262	119	432
04:00	0	0	0		2		2		16:00	0	0	41		72		113	
04:15	0	0	0		0				16:15	0	0	52		76		128	
04:30	0	0	3		2		5		16:30	0	0	39		66		105	
04:45	0	0	2	5	5	9	7	14	16:45	0	0	54	186	65	279	119	465
05:00	0	0	4		1		5		17:00	0	0	39		70		109	
05:15	0	0	4		2		6		17:15	0	0	43		77		120	
05:30	0	0	3		2		5		17:30	0	0	41		57		98	
05:45	0	0	9	20	6	11	15	31	17:45	0	0	26	149	60	264	86	413
06:00	0	0	10		7		17		18:00	0	0	33		54		87	
06:15	0	0	9		10		19		18:15	0	0	26		47		73	
06:30	0	0	5		14		19		18:30	0	0	22		62		84	
06:45	0	0	9	33	13	44	22	77	18:45	0	0	23	104	51	214	74	318
07:00	0	0	13		16		29		19:00	0	0	18		46		64	
07:15	0	0	15		18		33		19:15	0	0	21		34		55	
07:30	0	0	17		31		48		19:30	0	0	19		40		59	
07:45	0	0	13	58	34	99	47	157	19:45	0	0	19	77	42	162	61	239
08:00	0	0	19		31		50		20:00	0	0	25		46		71	
08:15	0	0	21		41		62		20:15	0	0	40		36		76	
08:30	0	0	13		29		42		20:30	0	0	21		33		54	
08:45	0	0	23	76	33	134	56	210	20:45	0	0	13	99	32	147	45	246
09:00	0	0	29		34		63		21:00	0	0	10		21		31	
09:15	0	0	29		39		68		21:15	0	0	19		18		37	
09:30	0	0	16		29		45		21:30	0	0	11		18		29	
09:45	0	0	32	106	32	134	64	240	21:45	0	0	10	50	19	76	29	126
10:00	0	0	35		35		70		22:00	0	0	9		10		19	
10:15	0	0	40		34		74		22:15	0	0	3		10		13	
10:30	0	0	28		40		68		22:30	0	0	7		11		18	
10:45	0	0	44	147	41	150	85	297	22:45	0	0	6	25	7	38	13	63
11:00	0	0	47		51		98		23:00	0	0	1		3		4	
11:15	0	0	32		53		85		23:15	0	0	6		5		11	
11:30	0	0	50		62		112		23:30	0	0	3		8		11	
11:45	0	0	36	165	67	233	103	398	23:45	0	0	1	11	7	23	8	34
TOTALS				624		829		1453	TOTALS				1422		2308		3730
SPLIT %				42.9%		57.1%		28.0%	SPLIT %				38.1%		61.9%		72.0%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	2,046	3,137	5,183

AM Peak Hour				10:45		11:30		11:30	PM Peak Hour				12:30		14:00		14:00
AM Pk Volume				173		261		422	PM Pk Volume				203		304		493
Pk Hr Factor				0.865		0.960		0.942	Pk Hr Factor				0.860		0.809		0.816
7 - 9 Volume	0	0		134		233		367	4 - 6 Volume	0	0		335		543		878
7 - 9 Peak Hour				08:00		07:30		08:00	4 - 6 Peak Hour				16:00		16:00		16:00
7 - 9 Pk Volume	0	0		76		137		210	4 - 6 Pk Volume	0	0		186		279		465
Pk Hr Factor	0.000	0.000		0.826		0.835		0.847	Pk Hr Factor	0.000	0.000		0.861		0.918		0.908

Prepared by NDS/ATD

Prepared by National Data & Surveying Services

VOLUME

SR-1 W/O Freestone Valley Ford Rd

Day: Saturday
Date: 4/21/2018

City: Sonoma County
Project #: CA18_8173_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	3,236	3,679	6,915

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00	0	0	1		7		8		12:00	0	0	131		117		248	
00:15	0	0	1		8		9		12:15	0	0	53		117		170	
00:30	0	0	1		5		6		12:30	0	0	49		91		140	
00:45	0	0	1	4	3	23	4	27	12:45	0	0	52	285	106	431	158	716
01:00	0	0	1		2		3		13:00	0	0	54		108		162	
01:15	0	0	1		1		2		13:15	0	0	42		108		150	
01:30	0	0	1		1		2		13:30	0	0	55		101		156	
01:45	0	0	0	3	1	5	1	8	13:45	0	0	69	220	84	401	153	621
02:00	0	0	0		2		2		14:00	0	0	86		107		193	
02:15	0	0	0		1		1		14:15	0	0	59		108		167	
02:30	0	0	0		0				14:30	0	0	75		103		178	
02:45	0	0	1	1	1	4	2	5	14:45	0	0	96	316	81	399	177	715
03:00	0	0	0		1		1		15:00	0	0	82		80		162	
03:15	0	0	2		2		4		15:15	0	0	81		93		174	
03:30	0	0	1		1		2		15:30	0	0	83		73		156	
03:45	0	0	1	4	1	5	2	9	15:45	0	0	114	360	78	324	192	684
04:00	0	0	0		0				16:00	0	0	93		63		156	
04:15	0	0	1		0		1		16:15	0	0	84		83		167	
04:30	0	0	0		1		1		16:30	0	0	81		68		149	
04:45	0	0	2	3	2	3	4	6	16:45	0	0	92	350	65	279	157	629
05:00	0	0	1		3		4		17:00	0	0	96		43		139	
05:15	0	0	4		2		6		17:15	0	0	103		47		150	
05:30	0	0	1		5		6		17:30	0	0	88		48		136	
05:45	0	0	4	10	3	13	7	23	17:45	0	0	89	376	40	178	129	554
06:00	0	0	4		4		8		18:00	0	0	76		28		104	
06:15	0	0	5		9		14		18:15	0	0	79		25		104	
06:30	0	0	4		16		20		18:30	0	0	74		40		114	
06:45	0	0	10	23	9	38	19	61	18:45	0	0	57	286	31	124	88	410
07:00	0	0	6		15		21		19:00	0	0	62		23		85	
07:15	0	0	11		19		30		19:15	0	0	54		17		71	
07:30	0	0	17		27		44		19:30	0	0	46		29		75	
07:45	0	0	9	43	30	91	39	134	19:45	0	0	46	208	11	80	57	288
08:00	0	0	21		30		51		20:00	0	0	38		17		55	
08:15	0	0	13		42		55		20:15	0	0	56		21		77	
08:30	0	0	24		42		66		20:30	0	0	28		12		40	
08:45	0	0	25	83	44	158	69	241	20:45	0	0	25	147	13	63	38	210
09:00	0	0	24		46		70		21:00	0	0	22		18		40	
09:15	0	0	29		48		77		21:15	0	0	15		10		25	
09:30	0	0	28		54		82		21:30	0	0	14		9		23	
09:45	0	0	23	104	64	212	87	316	21:45	0	0	17	68	10	47	27	115
10:00	0	0	29		61		90		22:00	0	0	18		9		27	
10:15	0	0	26		75		101		22:15	0	0	9		9		18	
10:30	0	0	25		85		110		22:30	0	0	15		15		30	
10:45	0	0	36	116	87	308	123	424	22:45	0	0	11	53	8	41	19	94
11:00	0	0	36		106		142		23:00	0	0	5		9		14	
11:15	0	0	41		115		156		23:15	0	0	6		7		13	
11:30	0	0	34		104		138		23:30	0	0	4		7		11	
11:45	0	0	45	156	102	427	147	583	23:45	0	0	2	17	2	25	4	42
TOTALS				550		1287		**1837**	**TOTALS**				2686		2392		**5078**
SPLIT %				29.9%		70.1%		**26.6%**	**SPLIT %**				52.9%		47.1%		**73.4%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	3,236	3,679	6,915

AM Peak Hour				11:45		11:30		**11:45**	**PM Peak Hour**				16:45		12:00		**12:00**
AM Pk Volume				278		440		**705**	**PM Pk Volume**				379		431		**716**
Pk Hr Factor				0.531		0.940		**0.711**	**Pk Hr Factor**				0.920		0.921		**0.722**
7 - 9 Volume	0	0		126		249		**375**	**4 - 6 Volume**	0	0		726		457		**1183**
7 - 9 Peak Hour				08:00		08:00		**08:00**	**4 - 6 Peak Hour**				16:45		16:00		**16:00**
7 - 9 Pk Volume	0	0		83		158		**241**	**4 - 6 Pk Volume**	0	0		379		279		**629**
Pk Hr Factor	0.000	0.000		0.830		0.898		**0.873**	**Pk Hr Factor**	0.000	0.000		0.920		0.840		**0.942**

Prepared by National Data & Surveying Services

SPEED

SR-1 W/O Freestone Valley Ford Rd

Day: Friday
Date: 4/20/2018

City: Sonoma County
Project #: CA18_8173_001

Summary

Time	< 15	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70 +	Total
00:00 AM	0	0	0	0	0	0	0	1	3	2	0	1	1	8
01:00	0	0	0	0	0	1	0	0	1	0	2	0	1	5
02:00	0	0	0	0	0	0	1	1	0	4	1	1	0	8
03:00	0	0	0	0	0	0	0	3	3	0	0	2	0	8
04:00	0	0	0	0	0	0	1	3	4	4	1	1	0	14
05:00	0	0	0	0	0	0	1	4	5	12	5	3	1	31
06:00	0	0	0	0	0	2	4	6	22	20	16	6	1	77
07:00	0	0	0	0	1	3	9	25	48	45	21	4	1	157
08:00	0	0	0	0	0	2	13	34	75	60	20	3	3	210
09:00	0	0	0	3	7	1	11	32	92	63	23	7	1	240
10:00	0	0	0	0	1	2	10	54	113	86	25	4	2	297
11:00	0	0	1	0	4	13	31	94	139	83	24	6	3	398
12:00 PM	0	0	0	0	3	6	36	111	172	79	18	5	2	432
13:00	0	0	0	1	1	2	34	88	171	142	27	2	1	469
14:00	0	0	0	1	1	7	34	111	178	117	32	5	7	493
15:00	0	0	0	1	3	10	39	97	141	106	28	7	0	432
16:00	0	0	0	1	2	1	43	77	156	131	46	7	1	465
17:00	1	0	0	2	0	10	15	56	137	128	48	9	7	413
18:00	0	0	0	1	1	5	14	48	101	94	41	7	6	318
19:00	0	0	0	0	0	1	6	47	73	78	24	8	2	239
20:00	0	0	0	0	0	4	19	56	85	64	17	0	1	246
21:00	0	0	0	0	0	2	15	27	31	37	8	6	0	126
22:00	0	0	0	0	0	2	6	10	23	11	8	0	3	63
23:00	0	0	0	0	0	2	4	7	8	8	3	2	0	34
Totals	1		1	10	24	76	346	992	1781	1374	438	96	44	5183
% of Totals	0%		0%	0%	0%	1%	7%	19%	34%	27%	8%	2%	1%	100%

AM Volumes	0	0	1	3	13	24	81	257	505	379	138	38	14	1453
% AM			0%	0%	0%	0%	2%	5%	10%	7%	3%	1%	0%	28%
AM Peak Hour			11:00	09:00	09:00	11:00	11:00	11:00	11:00	10:00	10:00	09:00	08:00	11:00
Volume			1	3	7	13	31	94	139	86	25	7	3	398
PM Volumes	1	0	0	7	11	52	265	735	1276	995	300	58	30	3730
% PM	0%			0%	0%	1%	5%	14%	25%	19%	6%	1%	1%	72%
PM Peak Hour	17:00			17:00	12:00	15:00	16:00	12:00	14:00	13:00	17:00	17:00	14:00	14:00
Volume	1			2	3	10	43	111	178	142	48	9	7	493

Directional Peak Periods	AM 7-9			NOON 12-2			PM 4-6			Off Peak Volumes		
All Speeds	Volume		%	Volume		%	Volume		%	Volume		%
	367	⟷	7%	901	⟷	17%	878	⟷	17%	3037	⟷	59%

Street Name	Direction	Percentiles					
		15th	50th	Average	85th	95th	ADT
SR-1	Summary	47	53	53	59	64	5183

Prepared by National Data & Surveying Services

SPEED

SR-1 W/O Freestone Valley Ford Rd

Day: Saturday
Date: 4/21/2018

City: Sonoma County
Project #: CA18_8173_001

Summary

Time	< 15	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70 +	Total
00:00 AM	0	0	0	0	0	0	2	3	12	4	3	2	1	27
01:00	0	0	0	0	0	0	2	1	2	0	1	1	1	8
02:00	0	0	0	0	0	0	0	2	1	2	0	0	0	5
03:00	0	0	0	0	0	1	0	3	1	2	1	1	0	9
04:00	0	0	0	0	0	0	0	1	1	2	1	0	1	6
05:00	0	0	0	0	0	1	2	3	5	8	2	0	2	23
06:00	0	0	0	0	0	0	3	5	13	27	7	5	1	61
07:00	0	0	0	0	0	1	2	20	39	43	23	5	1	134
08:00	0	0	0	1	2	2	1	24	91	80	34	4	2	241
09:00	0	0	0	0	0	9	15	48	115	92	27	8	2	316
10:00	0	0	0	0	1	3	41	105	160	90	19	5	0	424
11:00	0	0	0	1	1	7	50	144	222	106	42	8	2	583
12:00 PM	3	0	0	1	5	12	56	167	247	179	38	5	3	716
13:00	0	0	0	0	3	6	55	191	214	108	38	4	2	621
14:00	0	0	0	0	7	20	53	145	313	139	32	4	2	715
15:00	0	0	0	0	5	4	54	175	252	151	37	6	0	684
16:00	0	0	0	0	5	9	23	106	239	174	66	5	2	629
17:00	1	0	0	0	0	1	20	66	235	174	49	6	2	554
18:00	0	0	0	0	1	3	7	54	117	148	60	16	4	410
19:00	0	1	1	0	3	1	7	24	103	91	42	9	6	288
20:00	0	0	0	0	0	1	14	50	67	56	16	5	1	210
21:00	0	0	0	0	3	0	12	24	38	26	7	4	1	115
22:00	0	1	0	1	0	4	6	15	34	25	7	1	0	94
23:00	0	0	0	0	1	3	8	7	9	10	2	2	0	42
Totals	**4**	**2**	**1**	**4**	**37**	**88**	**433**	**1383**	**2530**	**1737**	**554**	**106**	**36**	**6915**
% of Totals	0%	0%	0%	0%	1%	1%	6%	20%	37%	25%	8%	2%	1%	100%

AM Volumes	0	0	0	2	4	24	118	359	662	456	160	39	13	1837
% AM				0%	0%	0%	2%	5%	10%	7%	2%	1%	0%	27%
AM Peak Hour				08:00	08:00	09:00	11:00	11:00	11:00	11:00	11:00	09:00	05:00	11:00
Volume				1	2	9	50	144	222	106	42	8	2	583
PM Volumes	4	2	1	2	33	64	315	1024	1868	1281	394	67	23	5078
% PM	0%	0%	0%	0%	0%	1%	5%	15%	27%	19%	6%	1%	0%	73%
PM Peak Hour	12:00	19:00	19:00	12:00	14:00	14:00	12:00	13:00	14:00	12:00	16:00	18:00	19:00	12:00
Volume	3	1	1	1	7	20	56	191	313	179	66	16	6	716

Directional Peak Periods	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
All Speeds	Volume	%	Volume	%	Volume	%	Volume	%
	375	5%	1337	19%	1183	17%	4020	58%

Street Name	Direction	Percentiles					
		15th	50th	Average	85th	95th	ADT
SR-1	Summary	47	53	53	59	63	6915

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	186	0	0	279	0	0
Future Vol, veh/h	186	0	0	279	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	90	90	92	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	216	0	0	303	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	216	0	519	216
Stage 1	-	-	-	-	216	-
Stage 2	-	-	-	-	303	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1354	-	517	824
Stage 1	-	-	-	-	820	-
Stage 2	-	-	-	-	749	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1354	-	517	824
Mov Cap-2 Maneuver	-	-	-	-	517	-
Stage 1	-	-	-	-	820	-
Stage 2	-	-	-	-	749	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1354	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	420	0	0	375	0	0
Future Vol, veh/h	420	0	0	375	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	92	92	96	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	472	0	0	391	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	472	0	863	472
Stage 1	-	-	-	-	472	-
Stage 2	-	-	-	-	391	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1090	-	325	592
Stage 1	-	-	-	-	628	-
Stage 2	-	-	-	-	683	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1090	-	325	592
Mov Cap-2 Maneuver	-	-	-	-	325	-
Stage 1	-	-	-	-	628	-
Stage 2	-	-	-	-	683	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1090	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	186	4	8	279	5	9
Future Vol, veh/h	186	4	8	279	5	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	207	4	9	310	6	10

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	211	0	537	209
Stage 1	-	-	-	-	209	-
Stage 2	-	-	-	-	328	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1360	-	505	831
Stage 1	-	-	-	-	826	-
Stage 2	-	-	-	-	730	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1360	-	501	831
Mov Cap-2 Maneuver	-	-	-	-	501	-
Stage 1	-	-	-	-	819	-
Stage 2	-	-	-	-	730	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	10.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	673	-	-	1360	-
HCM Lane V/C Ratio	0.023	-	-	0.007	-
HCM Control Delay (s)	10.5	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	420	7	14	375	8	14
Future Vol, veh/h	420	7	14	375	8	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	92	92	96	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	472	8	15	391	9	15

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	480	0	897	476
Stage 1	-	-	-	-	476	-
Stage 2	-	-	-	-	421	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1082	-	310	589
Stage 1	-	-	-	-	625	-
Stage 2	-	-	-	-	662	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1082	-	304	589
Mov Cap-2 Maneuver	-	-	-	-	304	-
Stage 1	-	-	-	-	614	-
Stage 2	-	-	-	-	662	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	13.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	439	-	-	1082	-
HCM Lane V/C Ratio	0.054	-	-	0.014	-
HCM Control Delay (s)	13.7	-	-	8.4	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	233	0	0	349	0	0
Future Vol, veh/h	233	0	0	349	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	90	90	92	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	271	0	0	379	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	271	0	650	271
Stage 1	-	-	-	-	271	-
Stage 2	-	-	-	-	379	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1292	-	434	768
Stage 1	-	-	-	-	775	-
Stage 2	-	-	-	-	692	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1292	-	434	768
Mov Cap-2 Maneuver	-	-	-	-	434	-
Stage 1	-	-	-	-	775	-
Stage 2	-	-	-	-	692	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1292	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	525	0	0	469	0	0
Future Vol, veh/h	525	0	0	469	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	92	92	96	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	590	0	0	489	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	590	0	1079	590
Stage 1	-	-	-	-	590	-
Stage 2	-	-	-	-	489	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	985	-	242	508
Stage 1	-	-	-	-	554	-
Stage 2	-	-	-	-	616	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	985	-	242	508
Mov Cap-2 Maneuver	-	-	-	-	242	-
Stage 1	-	-	-	-	554	-
Stage 2	-	-	-	-	616	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	985	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	233	4	8	349	5	9
Future Vol, veh/h	233	4	8	349	5	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	90	90	92	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	271	4	9	379	6	10

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	275	0	670	273
Stage 1	-	-	-	-	273	-
Stage 2	-	-	-	-	397	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1288	-	422	766
Stage 1	-	-	-	-	773	-
Stage 2	-	-	-	-	679	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1288	-	418	766
Mov Cap-2 Maneuver	-	-	-	-	418	-
Stage 1	-	-	-	-	766	-
Stage 2	-	-	-	-	679	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	11.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	590	-	-	1288	-
HCM Lane V/C Ratio	0.026	-	-	0.007	-
HCM Control Delay (s)	11.3	-	-	7.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	525	7	14	469	8	14
Future Vol, veh/h	525	7	14	469	8	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	92	92	96	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	590	8	15	489	9	15

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	598	0	1113	594
Stage 1	-	-	-	-	594	-
Stage 2	-	-	-	-	519	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	979	-	231	505
Stage 1	-	-	-	-	552	-
Stage 2	-	-	-	-	597	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	979	-	226	505
Mov Cap-2 Maneuver	-	-	-	-	226	-
Stage 1	-	-	-	-	540	-
Stage 2	-	-	-	-	597	-

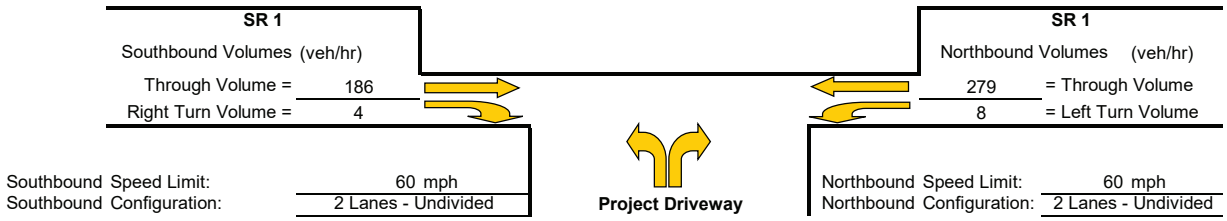
Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	16.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	349	-	-	979	-
HCM Lane V/C Ratio	0.069	-	-	0.016	-
HCM Control Delay (s)	16.1	-	-	8.7	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: SR 1- Estero Traill Access Point
Study Scenario: PM Existing plus Project

Direction of Analysis Street: North/South
Cross Street Intersects: From the West



Southbound Speed Limit: 60 mph
Southbound Configuration: 2 Lanes - Undivided

Northbound Speed Limit: 60 mph
Northbound Configuration: 2 Lanes - Undivided

Southbound Right Turn Lane Warrants

1. Check for right turn volume criteria

NOT WARRANTED Less than 40 vehicles

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	190
If AV<Va then warrant is met		-

Right Turn Lane Warranted: **NO**

Southbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

NOT WARRANTED - Less than 20 vehicles

2. Check advance volume threshold criteria for taper

Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	190
If AV<Va then warrant is met		-

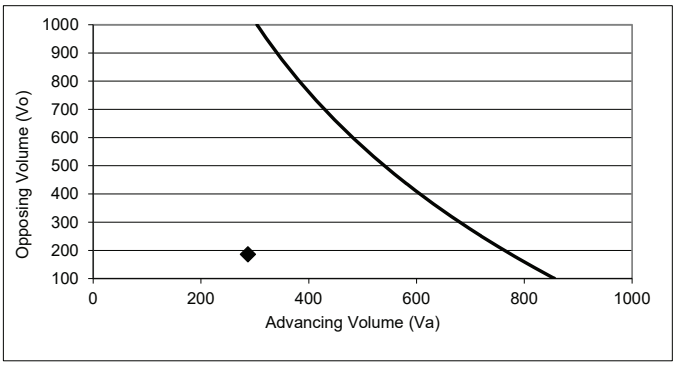
Right Turn Taper Warranted: **NO**

Northbound Left Turn Lane Warrants

Percentage Left Turns %lt 2.8 %

Advancing Volume Threshold AV 776 veh/hr

If AV<Va then warrant is met



◆ Study Intersection

Two lane roadway warrant threshold for: 60 mph

Turn lane warranted if point falls to right of warrant threshold line

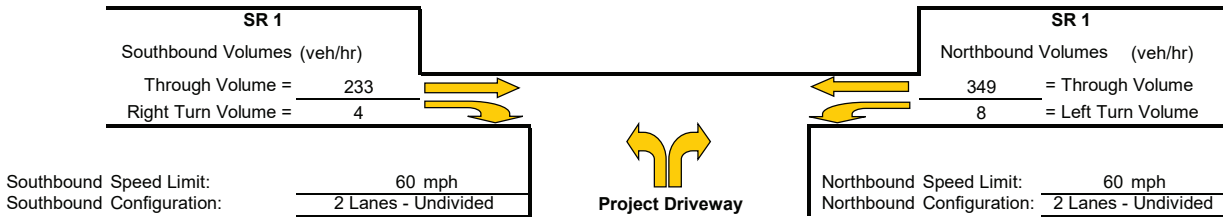
Left Turn Lane Warranted: **NO**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements* , January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: SR 1- Estero Traill Access Point
Study Scenario: PM Future plus Project

Direction of Analysis Street: North/South
Cross Street Intersects: From the West



Southbound Speed Limit: 60 mph
Southbound Configuration: 2 Lanes - Undivided

Northbound Speed Limit: 60 mph
Northbound Configuration: 2 Lanes - Undivided

Southbound Right Turn Lane Warrants

1. Check for right turn volume criteria

NOT WARRANTED Less than 40 vehicles

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	237
If AV<Va then warrant is met		-

Right Turn Lane Warranted: **NO**

Southbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

NOT WARRANTED - Less than 20 vehicles

2. Check advance volume threshold criteria for taper

Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	237
If AV<Va then warrant is met		-

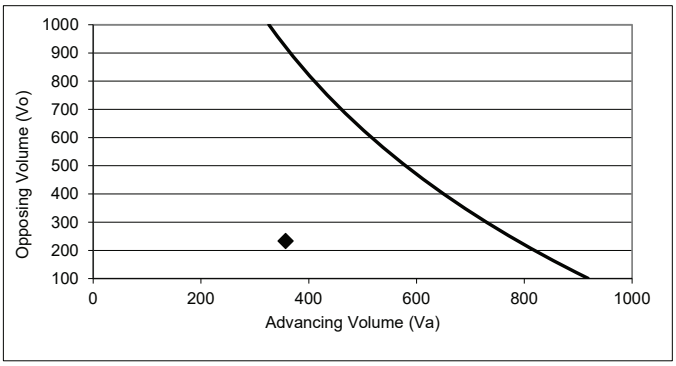
Right Turn Taper Warranted: **NO**

Northbound Left Turn Lane Warrants

Percentage Left Turns %lt 2.2 %

Advancing Volume Threshold AV 788 veh/hr

If AV<Va then warrant is met



◆ Study Intersection

Two lane roadway warrant threshold for: 60 mph

Turn lane warranted if point falls to right of warrant threshold line

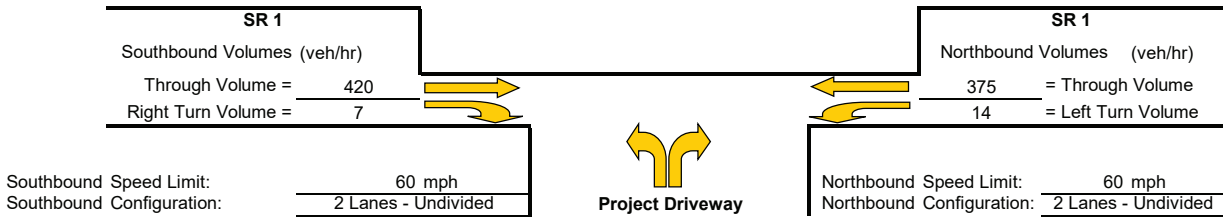
Left Turn Lane Warranted: **NO**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements* , January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: SR 1- Estero Traill Access Point
Study Scenario: MD Existing plus Project

Direction of Analysis Street: North/South
Cross Street Intersects: From the West



Southbound Speed Limit: 60 mph
Southbound Configuration: 2 Lanes - Undivided

Northbound Speed Limit: 60 mph
Northbound Configuration: 2 Lanes - Undivided

Southbound Right Turn Lane Warrants

1. Check for right turn volume criteria

NOT WARRANTED Less than 40 vehicles

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	427
If AV<Va then warrant is met		-

Right Turn Lane Warranted: **NO**

Southbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

NOT WARRANTED - Less than 20 vehicles

2. Check advance volume threshold criteria for taper

Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	427
If AV<Va then warrant is met		-

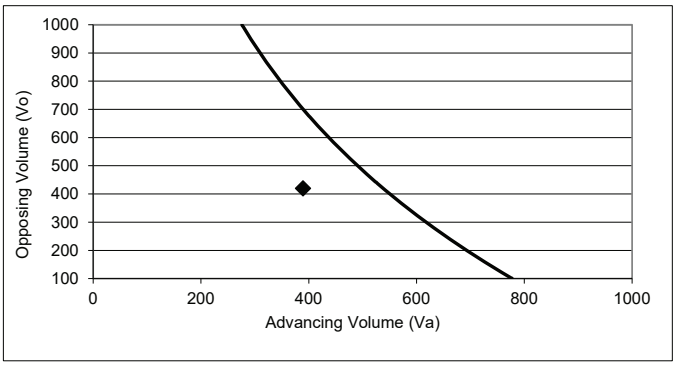
Right Turn Taper Warranted: **NO**

Northbound Left Turn Lane Warrants

Percentage Left Turns %lt 3.6 %

Advancing Volume Threshold AV 538 veh/hr

If AV<Va then warrant is met



◆ Study Intersection

Two lane roadway warrant threshold for: 60 mph

Turn lane warranted if point falls to right of warrant threshold line

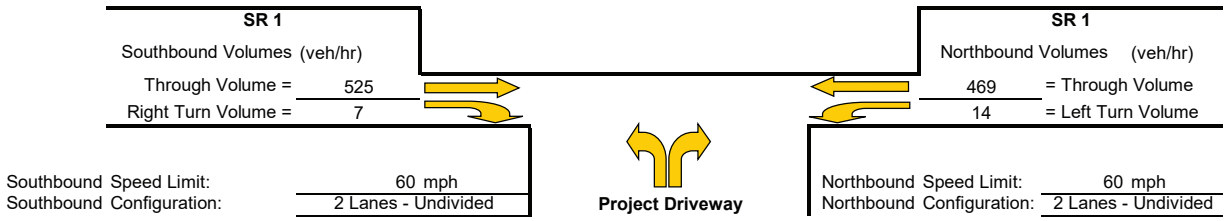
Left Turn Lane Warranted: **NO**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements* , January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: SR 1- Estero Traill Access Point
Study Scenario: MD Future plus Project

Direction of Analysis Street: North/South
Cross Street Intersects: From the West



Southbound Speed Limit: 60 mph
Southbound Configuration: 2 Lanes - Undivided

Northbound Speed Limit: 60 mph
Northbound Configuration: 2 Lanes - Undivided

Southbound Right Turn Lane Warrants

1. Check for right turn volume criteria

NOT WARRANTED Less than 40 vehicles

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	532
If AV<Va then warrant is met		-

Right Turn Lane Warranted: **NO**

Southbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

NOT WARRANTED - Less than 20 vehicles

2. Check advance volume threshold criteria for taper

Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	532
If AV<Va then warrant is met		-

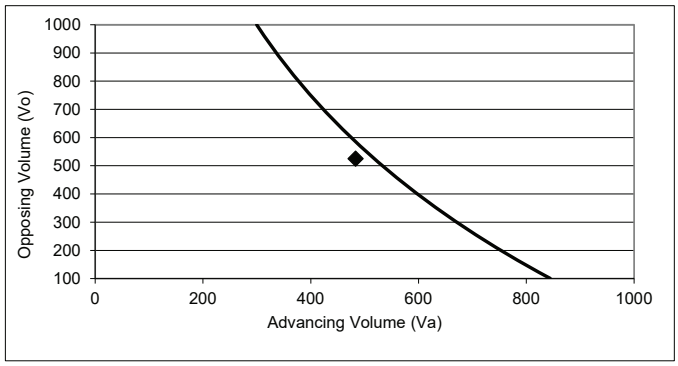
Right Turn Taper Warranted: **NO**

Northbound Left Turn Lane Warrants

Percentage Left Turns %lt 2.9 %

Advancing Volume Threshold AV 518 veh/hr

If AV<Va then warrant is met



◆ Study Intersection

Two lane roadway warrant threshold for: 60 mph

Turn lane warranted if point falls to right of warrant threshold line

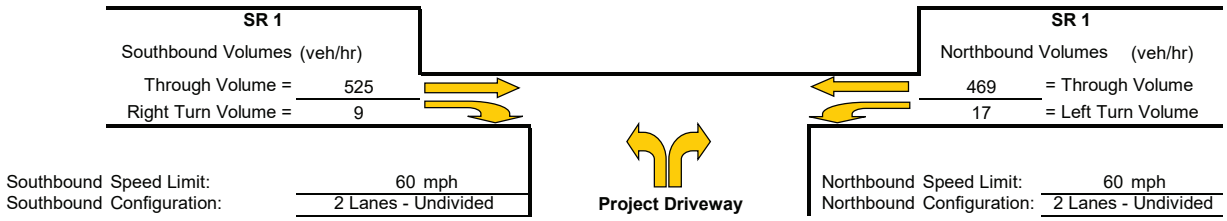
Left Turn Lane Warranted: **NO**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements* , January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: SR 1- Estero Traill Access Point
Study Scenario: MD Future plus Project (Threshold for Warrant)

Direction of Analysis Street: North/South
Cross Street Intersects: From the West



Southbound Speed Limit: 60 mph
Southbound Configuration: 2 Lanes - Undivided

Northbound Speed Limit: 60 mph
Northbound Configuration: 2 Lanes - Undivided

Southbound Right Turn Lane Warrants

1. Check for right turn volume criteria

NOT WARRANTED Less than 40 vehicles

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	534
If AV<Va then warrant is met		-

Right Turn Lane Warranted: **NO**

Southbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

NOT WARRANTED - Less than 20 vehicles

2. Check advance volume threshold criteria for taper

Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	534
If AV<Va then warrant is met		-

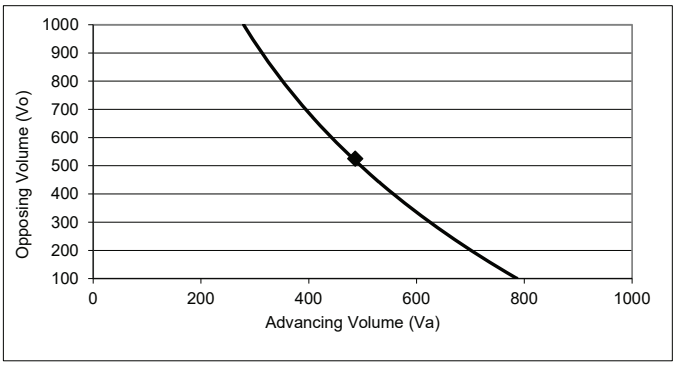
Right Turn Taper Warranted: **NO**

Northbound Left Turn Lane Warrants

Percentage Left Turns %lt 3.5 %

Advancing Volume Threshold AV 482 veh/hr

If AV<Va then warrant is met



◆ Study Intersection

Two lane roadway warrant threshold for: 60 mph

Turn lane warranted if point falls to right of warrant threshold line

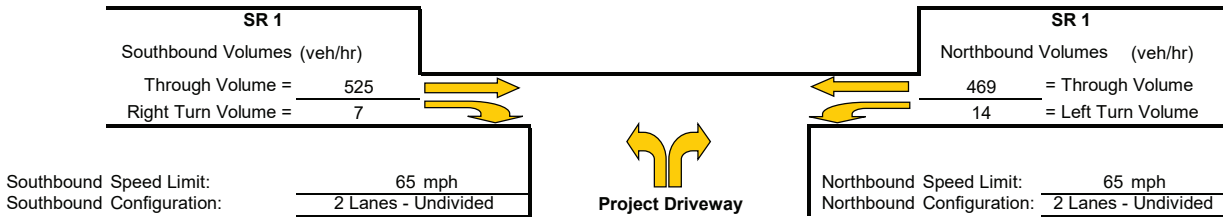
Left Turn Lane Warranted: **YES**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements* , January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: SR 1- Estero Traill Access Point
Study Scenario: MD Future plus Project

Direction of Analysis Street: North/South
Cross Street Intersects: From the West



Southbound Speed Limit: 65 mph
Southbound Configuration: 2 Lanes - Undivided

Northbound Speed Limit: 65 mph
Northbound Configuration: 2 Lanes - Undivided

Southbound Right Turn Lane Warrants

1. Check for right turn volume criteria

NOT WARRANTED Less than 40 vehicles

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	532
If AV<Va then warrant is met		-

Right Turn Lane Warranted: **NO**

Southbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

NOT WARRANTED - Less than 20 vehicles

2. Check advance volume threshold criteria for taper

Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	532
If AV<Va then warrant is met		-

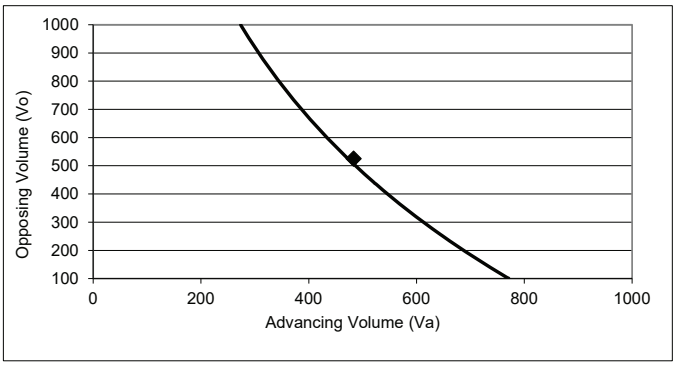
Right Turn Taper Warranted: **NO**

Northbound Left Turn Lane Warrants

Percentage Left Turns %lt 2.9 %

Advancing Volume Threshold AV 473 veh/hr

If AV<Va then warrant is met



◆ Study Intersection

Two lane roadway warrant threshold for: 65 mph

Turn lane warranted if point falls to right of warrant threshold line

Left Turn Lane Warranted: **YES**

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