

Biological Site Assessment

20 Ocean Avenue (APN: 193-162-11, 193-172-04)

Bolinas, Marin County, California



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WRA Project # 340286

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EXECUTIVE SUMMARY

This report details the regulatory background, methods, results, and recommendations of a Biological Site Assessment located at 20 Ocean Avenue (Study Area) in Marin County, California. WRA, Inc. performed field survey in August 2024. The Study Area is composed of developed areas, invaded coastal scrub, blue gum grove, ocean/beach, and an ephemeral stream. The Proposed Project involves the development of a single-family residence, accessory dwelling unit, and associated infrastructure including a septic system.

The Study Area contains an ephemeral stream situated within a blue gum grove with no associated riparian vegetation. Therefore, it does not meet the definition of “stream” under the Marin County Local Coastal Program and would only merit a 20-foot setback according to the Marin County Countywide Plan. All Proposed Project elements have been sited greater than 50 feet from the ephemeral stream. The Proposed Project will implement best management practices to provide protection to the stream in addition to the +50-foot setback.

The Study Area does not have the potential to support special-status plants; therefore, the Proposed Project will not incur impacts to such.

One special-status mammal and five special-status birds as well as non-status birds with baseline legal protection, have the potential to occur in the Study Area. Protective measures and best management practices will be deployed as part of the Proposed Project and provided herein to avoid impacting these resources.

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Definitions

Study Area: The area throughout which the assessment was performed, i.e., the subject parcel (APN: 193-162-11, 193-172-04) as well as a portion of Ocean Avenue that is outside of these parcels, totaling approximately 3.8 acres.

Project Area: The area encompassing the Proposed Project (i.e., residence, ADU, driveway, septic system, other built environment); the area evaluated for potential impacts to sensitive biological resources, totaling 0.1 acre (5,269 square feet).

List of Abbreviations & Acronyms

BGEPA	Bald and Golden Eagle Protection Act
BIOS	Biogeographic Information and Observation System
BRRS	Biological Resources Reconnaissance Survey
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CECP	California Essential Connectivity Project
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CFGC	California Fish and Game Code
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPPA	California Native Plant Protection Act
CNPS	California Native Plant Society
County	Marin County
Corps	U.S. Army Corps of Engineers
CRPR	California Rare Plant Rank
CSRL	California Soils Resources Lab
CWA	Clean Water Act
EFH	Essential Fish Habitat
ESA	(Federal) Endangered Species Act
MBTA	Migratory Bird Treaty Act
NOAA	National Oceanic and Atmospheric Administration
NMFS	National Marine Fisheries Service
NRCS	Natural Resource Conservation Service
NWI	National Wetland Inventory
NWPL	National Wetland Plant List
OHWM	Ordinary High Water Mark
RWQCB	Regional Water Quality Control Board
SSC	Species of Special Concern
SFP	State Fully Protected Species
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WBWG	Western Bat Working Group
WRA	WRA, Inc.

1.0 INTRODUCTION

On August 29 and September 10, 2024, WRA, Inc. (WRA) performed an assessment of biological resources at 20 Ocean Avenue (APN: 193-162-11, 193-172-04; hereafter Study Area) (Figure A-1, Appendix A). The purpose of this study was to gather the information necessary to complete a review of biological resources under the California Environmental Quality Act (CEQA), and in accordance with the California Coastal Act and Marin County Local Coastal Program (LCP), and the requirements of the Marin County Community Development Agency, Planning Division.

A biological site assessment (BSA) provides general information on the presence, or potential presence, of sensitive species and habitats. The site visit includes a focused botanical survey; however, protocol-level surveys for plants and wildlife were not included as part of the survey. This survey is not a formal wetland delineation; in instances where such a delineation may be required for project approval by local, state, or federal agencies, results would be reported herein but may be presented elsewhere in separate reports. This survey is based on information available at the time of the study and on-site conditions that were observed on the date(s) the site was visited.

This report describes the results of the site visit, which assessed the Project Area for environmentally sensitive habitat areas (ESHA), which include: (1) the presence of sensitive land cover types, (2) the potential for land cover types on the site to support special-status plant and wildlife species, and (3) the presence of any other sensitive natural resources protected by local, state, or federal laws and regulations. Special-status species observed during the site assessment were documented and their presence is discussed herein. Specific findings on the habitat suitability or presence of special-status species or sensitive habitats may require that protocol-level surveys or other studies be conducted; recommendations for additional studies are provided, if necessary.

2.0 REGULATORY BACKGROUND

This report is intended to facilitate conformance of the Proposed Project with the standards outlined in the Marin County Code, General Plan, and LCP. In addition to the requirements of Marin County, the Proposed Project may also be subject to several federal and state regulations designed to protect sensitive natural resources. Full analysis of these requirements in the context of the Proposed Project is addressed herein.

2.1 Federal and State Regulatory Setting

2.1.1 Sensitive Land Cover Types

Land cover types are herein defined as those areas of a particular vegetation type, soil or bedrock formation, aquatic features, and/or other distinct phenomena. Typically, land cover types have identifiable boundaries that can be delineated based on changes in plant assemblages, soil or rock types, soil surface or near-surface hydroperiod, anthropogenic or natural disturbance, topography, elevation, etc. Many land cover types are not considered sensitive or otherwise protected under the environmental regulations discussed here. However, these land cover types

typically provide essential ecological and biological functions for plants and wildlife, including, frequently, special-status species. Those land cover types that are considered or protected under one or more environmental regulations are discussed below.

Waters of the United States: The United States Army Corps of Engineers (Corps) regulates “Waters of the United States” under Section 404 of the Clean Water Act (CWA). Waters of the United States are defined in the Code of Federal Regulations (CFR) as waters susceptible to use in commerce, including interstate waters and wetlands, all other waters (intrastate waterbodies, including wetlands), and their tributaries (33 CFR 328.3). Potential wetland areas, according to the three criteria used to delineate wetlands as defined in the Corps Wetlands Delineation Manual (Environmental Laboratory 1987), are identified by the presence of (1) hydrophytic vegetation, (2) hydric soils, and (3) wetland hydrology. Areas that are inundated at a sufficient depth and for a sufficient duration to exclude growth of hydrophytic vegetation are subject to Section 404 jurisdiction as “other waters” and are often characterized by an ordinary high water mark (OHWM). Other waters, for example, generally include lakes, rivers, and streams. The placement of fill material into Waters of the United States generally requires an individual or nationwide permit from the Corps under Section 404 of the CWA.

Waters of the State: The term “Waters of the State” is defined by the Porter-Cologne Act as “any surface water or groundwater, including saline waters, within the boundaries of the state.” The Regional Water Quality Control Board (RWQCB) protects all waters in its regulatory scope and has special responsibility for wetlands, riparian areas, and headwaters. These waterbodies have high resource value, are vulnerable to filling, and are not systematically protected by other programs. RWQCB jurisdiction includes “isolated” wetlands and waters that may not be regulated by the Corps under Section 404. Waters of the State are regulated by the RWQCB under the State Water Quality Certification Program which regulates discharges of fill and dredged material under Section 401 of the CWA and the Porter-Cologne Water Quality Control Act. Projects that require a Corps permit, or fall under other federal jurisdiction, and have the potential to impact Waters of the State, are required to comply with the terms of the Water Quality Certification determination. If a project does not require a federal permit but does involve dredge or fill activities that may result in a discharge to Waters of the State, the RWQCB has the option to regulate the dredge and fill activities under its state authority in the form of Waste Discharge Requirements.

Streams, Lakes, and Riparian Habitat: Streams and lakes, as habitat for fish and wildlife species, are subject to jurisdiction by CDFW under Sections 1600-1616 of California Fish and Game Code (CFGF). Alterations to or work within or adjacent to streambeds or lakes generally require a 1602 Lake and Streambed Alteration Agreement. The term “stream”, which includes creeks and rivers, is defined in the California Code of Regulations (CCR) 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 [including] watercourses having a surface or subsurface flow that supports or has supported riparian vegetation” (14 CCR 1.72). In addition, the term “stream” can include ephemeral streams, dry washes, watercourses with subsurface flows, canals, aqueducts, irrigation ditches, and other means of water conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife (CDFG 1994). “Riparian” is defined as “on, or pertaining to, the banks of a stream.” Riparian vegetation is defined as “vegetation which occurs in and/or adjacent to a stream and is dependent on, and occurs because of, the stream itself” (CDFG 1994).

Removal of riparian vegetation also requires a Section 1602 Lake and Streambed Alteration Agreement from CDFW.

Sensitive Natural Communities: Sensitive natural communities not discussed above include habitats that fulfill special functions or have special values. Natural communities considered sensitive are those identified in local or regional plans, policies, regulations, or by the CDFW. CDFW ranks sensitive communities as "threatened" or "very threatened" (CDFG 2010, CDFW 2018a) and keeps records of their occurrences in its California Natural Diversity Database (CNDDB; CDFW 2018a). CNDDB vegetation alliances are ranked 1 through 5 based on NatureServe's (2018) methodology, with those alliances ranked globally (G) or statewide (S) as 1 through 3 considered sensitive. Impacts to sensitive natural communities identified in local or regional plans, policies, or regulations or those identified by the CDFW or U.S. Fish and Wildlife Service (USFWS) must be considered and evaluated under CEQA (CCR Title 14, Div. 6, Chap. 3, Appendix G).

2.1.2 Special-status Species

Plants: Special-status plants include taxa that have been listed as endangered or threatened, or are formal candidates for such listing, under the federal Endangered Species Act (ESA) and/or California Endangered Species Act (CESA). The California Native Plant Protection Act (CNPPA) lists 64 "rare" or "endangered" and prevents "take", with few exceptions, of these species. Plant species on the California Native Plant Society (CNPS) Rare and Endangered Plant Inventory (Inventory) with California Rare Plant Ranks (Rank) of 1, 2, and 3 are also considered special-status plant species and must be considered under CEQA. Rank 4 species are typically only afforded protection under CEQA when such species are particularly unique to the locale (e.g., range limit, low abundance/low frequency, limited habitat) or are otherwise considered locally rare. A description of the CNPS Ranks is provided below in Appendices B and C.

Wildlife: As with plants, special-status wildlife includes species/taxa that have been listed or are formal candidates for such under ESA and/or CESA. The federal Bald and Golden Eagle Protection Act provides relatively broad protections to both of North America's eagle species (bald [*Haliaeetus leucocephalus*] and golden eagle [*Aquila chrysaetos*]) that in some regards are similar to those provided by ESA. The CFGC designates some species as Fully Protected (SFP), which indicates that take of that species cannot be authorized through a state permit. Additionally, CDFW Species of Special Concern (species that face extirpation in California if current population and habitat trends continue) are given special consideration under CEQA and therefore considered special-status species. In addition to regulations for special-status species, most native birds in the United States, including non-status species, have baseline legal protections under the Migratory Bird Treaty Act of 1918 and CFGC, i.e., sections 3503, 3503.5 and 3513. Under these laws/codes, the intentional harm or collection of adult birds as well as the intentional collection or destruction of active nests, eggs, and young is illegal. For bat species, the Western Bat Working Group (WBWG) designates conservation status for species of bats, and those with a high or medium-high priority are typically given special consideration under CEQA.

Critical Habitat, Essential Fish Habitat, and Wildlife Corridors: Critical habitat is a term defined in the ESA as a specific and formally designated geographic area that contains features essential for the conservation of a threatened or endangered species, and that may require special management and protection. The ESA requires federal agencies to consult with the USFWS to conserve listed species on their lands and to ensure that any activities or projects they fund, authorize, or carry out will not jeopardize the survival of a threatened or endangered species. In consultation for those species with critical habitat, federal agencies must also ensure that their activities or projects do not adversely modify critical habitat to the point that it will no longer aid in the species' recovery. Note that designated critical habitat areas that are currently unoccupied by the species, but which are deemed necessary for the species' recovery are also protected by the prohibition against adverse modification.

The Magnuson-Stevens Fishery Conservation and Management Act ("Magnuson-Stevens Act") provides for conservation and management of fishery resources in the U.S. This Act establishes a national program intended to prevent overfishing, rebuild overfished stocks, ensure conservation, and facilitate long-term protection through the establishment of Essential Fish Habitat (EFH). EFH consists of aquatic areas that contain habitat essential to the long-term survival and health of fisheries, which may include the water column, certain bottom types, vegetation (e.g. eelgrass (*Zostera* spp.)), or complex structures such as oyster beds. Any federal agency that authorizes, funds, or undertakes action that may adversely affect EFH is required to consult with NMFS. Movement and migratory corridors for native wildlife (including aquatic corridors) as well as wildlife nursery sites are given special consideration under CEQA.

2.2 Marin County Regulatory Setting

In Marin County, a sensitive resource includes "jurisdictional wetlands, occurrences of special-status species, occurrences of sensitive natural communities, wildlife nurseries and nesting areas, and wildlife movement corridors. The County development review process typically requires a site assessment by qualified professionals to confirm whether any sensitive resources could be affected . . ." Furthermore, The California Coastal Act (CCA) defines environmentally sensitive habitat area (ESHA) under Section 30107.5 and protected under section 30240 and include wetlands, rivers, streams and lakes, and riparian areas. For the purposes of this report, WRA has taken into consideration any areas that may meet the definition of any ESHA defined by the CCA, listed in the *Statewide Interpretive Guidelines for Identifying and Mapping Wetlands and Other Wet Environmentally Sensitive Habitat Areas* ("California Coastal Commission guidelines", CCC 1981), or the Marin County Local Coastal Program (LCP) (Marin County 1979).

The CCA defines an ESHA as follows:

"Environmentally sensitive habitat area" means 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. "

The Marin LCP further defines/clarifies an ESHA as follows:

“ESHA consists of three general categories: [1] wetlands, [2] streams and riparian vegetation, and [3] terrestrial ESHAs. Terrestrial ESHA includes non-aquatic habitats that support rare and endangered species; coastal dunes as referenced in C-BIO-7 (Coastal Dunes); roosting and nesting habitats as referenced in C-BIO-10 (Roosting and Nesting Habitats); and riparian vegetation that is not associated with a perennial or intermittent stream. The ESHA policies of C-BIO-2 (ESHA Protection) and C-BIO-3 (ESHA Buffers) apply to all categories of ESHA, except where modified by the more specific policies of the LCP.”

The CCC Guidelines and Marin LCP discuss the various definitions for specific types of ESHAs, including wetlands, streams and riparian areas. Many of these definitions are synonymous with the definitions described above. Additional definitions are provided below.

Coastal Act Wetlands

The Coastal Act defines wetlands as:

"Wetland means land 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".

(Public Resources Code § 30121)

CCC Administrative Regulations (Section 13577 (b)) provides a more explicit definition:

"Wetlands are lands 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 or drastic fluctuations of surface water levels, wave action, water flow, turbidity or high concentrations of salt or other substance 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 deepwater habitats."

The Coastal Act defines the upland limit of wetlands as:

(1) the boundary between land with predominantly hydrophytic cover and land with predominantly mesophytic or xerophytic cover; (2) the boundary between soil that is predominantly hydric and soil that is predominantly non-hydric; or (3) in the case of wetlands without vegetation or soil, the boundary between land that is flooded or saturated at some time each year and land that is not."

Coastal Act Streams and Riparian Vegetation

The Marin County LCP defines streams as those streams “perennial or intermittent, which are mapped by the USGS in the National Hydrographic Dataset” (Marin County 2019). Riparian vegetation is roughly defined as those plants that occur along a stream course and dependent

upon that stream course. The Marin County LCP notes that stream buffers shall be either 50 feet landward from the riparian edge, 100 feet landward from the top-of-bank, or recommended by a qualified biologist. Reduction of the buffer shall not be less than 50 feet with the exceptions outlined in C-BIO-25:

- It is proposed on a legal lot of record located entirely within the buffer; or
- It is demonstrated that permitted development cannot be feasibly accommodated entirely outside the required buffer; or
- It is demonstrated that the permitted development outside the buffer would have a greater impact on the stream or riparian ESHA and the continuance of its habitat than development within the buffer.

Terrestrial ESHA

According to the Marin LCP, terrestrial ESHA are noted above and shall receive a 50-foot buffer, “a width that may be adjusted by the County as appropriate to protect the habitat value of the resource, but in no case shall be less than 25 feet”. Considerations and requirements for adjusted buffers are outlined in C-BIO-3 and include but are not limited to sensitivity of the ESHA, habitat requirements, site conditions including topography, presence of vegetation, etc.

Marin County Stream Conservation Areas

A Stream Conservation Area (SCA) is designated along all natural watercourses supporting riparian vegetation for a length of 100 feet or more. The SCA consists of the watercourse itself between the tops of the banks and a strip of land extending laterally outward from the top of both banks. For those ephemeral streams that do not meet these criteria, a minimum 20-foot development setback shall be required. Otherwise, for streams with an intermittent or perennial hydroperiod and/or with 100 feet or greater of contiguous riparian vegetation, the SCA shall be 100 feet from the top-of-bank. Development activities that may occur within an SCA are closely regulated by the County and require consideration of impacts of proposed developments on species and habitats during the environmental review process. Allowable uses include but are not limited to repair or retrofit to existing development within the SCA; driveways and utility lines without feasible alternatives; passive recreation; and agricultural uses. Exceptions to full compliance with SCA include:

- A parcel falls entirely within the SCA; or
- Development on the parcel entirely outside of the SCA either is infeasible or would have greater impacts on water quality, wildlife habitat, other sensitive biological resources, or other environmental constraints than development within the SCA.

Marin County Wetland Conservation Areas

A Wetland Conservation Area (WCA) is designated around all Corps jurisdictional wetlands. The WCA consists of the wetland itself and a strip of land extending laterally outward from the wetland for 100 feet or as deemed appropriate by a qualified biologist to avoid impacts and protect the wetland. Development activities that may occur within a WCA are closely regulated by the County

and require consideration of impacts of proposed developments on species and habitats during the environmental review process.

Marin County Tree Protection and Preservation

Codes 22.27 and 22.62 provide tree protection and outline the process for acquiring a tree removal, respectively. Chapter 22.27 maintains a list of 36 native trees of a particular size diameter at breast height (DBH) that are protected and provides a pathway for mitigating for the removal of such trees. Mitigation is subject to approval of Marin County and may include any one or a combination of: (1) on-site replacement planting, (2) designation of on-site preservation with a management plan, (3) removal of invasive species, and/or (4) in-lieu fee paid to Marin County Parks and Open Space Department. Chapter 22.62 outlines trees exempt from protection and requirement of a permit including, but not limited to: hazard trees, trees with infestations and/or poor health, commercially planted trees, routine maintenance, and others.

3.0 ENVIRONMENTAL SETTING

The approximately 3.8-acre Study Area consists of a single parcel (see Appendix A). It is in western Marin County, approximately 0.5 miles southwest of central Bolinas and 2.8 aerial miles west of Stinson Beach. The Study Area is located on a coastal bluff of the Bolinas Mesa immediately overlooking and touching the Pacific Ocean. Detailed descriptions of the local setting are below.

3.1 Topography and Soils

The overall topography of the Study Area is gently to steeply sloped, ranging from approximately 0 to 170 feet above sea level. According to the *Soil Survey of Marin County* (USDA 1985) the Study Area is underlain by three soil mapping units: Xerorthents-Urban land complex, 0 to 9 percent slopes; Rock outcrop-Xerorthents complex, 50 to 75 percent slopes; and Beaches. These mapping units are summarized below.

Xerorthents: Orthents are young, developing soils situated on old landforms lacking weatherable minerals. They typically form in residuum. They are typically used for rangeland, pasture, row cropping, and open habitat. Additionally, they have a xeric moisture regime (seasonally dry).

3.2 Climate and Hydrology

The Study Area is located within the maritime fog zone of Marin County where summer temperatures are buffeted by fog, and fog drip contributes significantly to annual rainfall totals. Winter “tule” fog is common in the Study Area, while summer “coastal” fog emerges with increased interior temperatures. The average annual maximum temperature of Point Reyes Lighthouse (CA047027) is 61.0 degrees Fahrenheit, while the average annual minimum temperature is 54.1 degrees Fahrenheit. Predominantly, precipitation falls as rainfall with an annual average of 17.05 inches. Precipitation bearing weather systems are predominantly from the west and south with most of the rainfall between November and March, with a combined average of 13.45 inches (WRCC 2025).

The local watershed is Bolinas Lagoon/Bolinas Bay (HUC 12: 180500050403) and the regional watershed is Pacific Frontal (HUC 8: 18050005). There are no blue-line streams or other aquatic features mapped on the Bolinas 7.5-minute quadrangles (USGS 2015) or the National Wetlands Inventory (NWI; USFWS 2025a). However, there is one stream mapped as Fluvial in the California Aquatic Resources Inventory (CARI; SFEI 2025), which is likewise mapped as an Ephemeral Stream in the National Hydrography Dataset (NHD; USGS 2025). The primary hydrologic sources are direct precipitation, and consequent surface sheet and in-channel flow. Precipitation in the majority of the Study Area infiltrates quickly due to rocky loam soils. The entire property was investigated for aquatic resources, with a particular focus on the area denoted in the CARI/NHD; detailed descriptions of aquatic resources are in Section 5.1 below.

3.3 Land Cover and Land Use

The Study Area is two contiguous partially developed parcels bound by Terrace Avenue to the north, the Pacific Ocean to the south, and residential developed properties to the west and east. Developed areas include a dirt driveway and (paved) Ocean Avenue. The remainder of the property is a mix of blue gum grove, invaded coastal bluff, an ephemeral stream, and beach/Pacific Ocean. Detailed plant community descriptions are included in Section 5.1 below, and all observed plant and wildlife species are included in Appendix B. Regional land uses include semi-urban residential, rural residential, recreation, aquaculture, and pasture agriculture (Google Earth 2025). Historically, land uses in the region were open rangeland of larger ranches, rural residential, and aquaculture. There is no history of intensive agriculture, quarrying, mining, or timbering in the Study Area (Historic Aerials 2025).

4.0 ASSESSMENT METHODS

Prior to the site visits, WRA biologists reviewed the following literature and performed database searches to assess the potential for sensitive natural communities (e.g., wetlands) and special-status species (e.g., endangered plants):

- *Soil Survey of Marin County, California* (USDA 1985)
- Bolinas 7.5-minute quadrangle (USGS 2015)
- Contemporary aerial photographs (Google Earth 2025)
- Historical aerial photographs (Historical Aerials 2025)
- National Wetlands Inventory (NWI; USFWS 2025a)
- California Aquatic Resources Inventory (CARI; SFEI 2025)
- California Natural Diversity Database (CNDDB; CDFW 2025a)
- California Native Plant Society Electronic Inventory (CNPS 2025a)
- Consortium of California Herbaria (CCH 2025)
- USFWS Information for Planning and Consultation (USFWS 2025b)
- eBird Online Database (eBird 2025)
- CDFW Publication, *California Bird Species of Special Concern in California* (Shuford and Gardali 2008)

- CDFW and University of California Press publication *California Amphibian and Reptile Species of Special Concern* (Thomson et al. 2016)
- *The Marin County Breeding Bird Atlas* (Shuford 1993)
- *A Field Guide to Western Reptiles and Amphibians* (Stebbins 2003)
- *A Manual of California Vegetation, 2nd Edition* (Sawyer et al. 2009)
- *A Manual of California Vegetation Online* (CNPS 2025b)
- *Preliminary Descriptions of the Terrestrial Natural Communities* (Holland 1986)
- *California Natural Community List* (CDFW 2018a)

Database searches (i.e., CNDDDB, CNPS) focused on the Bolinas USGS 7.5-minute quadrangle for special-status plants. The special-status wildlife evaluation was based on database searches for the entirety of Marin County.

Following the remote assessment, a botanist with 40-hour Corps wetland delineation and wildlife biologist training traversed the entire Study Area on foot to document: (1) land cover types (e.g., terrestrial communities, aquatic resources), (2) if and what type of aquatic natural communities (e.g., wetlands) are present, (3) existing conditions and to determine if such provide suitable habitat for any special-status plant or wildlife species, and (4) if special-status species are present¹.

4.1 Land Cover Types

4.1.1 Terrestrial Land Cover Types

Terrestrial land cover types were mapped and evaluated across the entire Study Area. In most instances, communities are delineated based on distinct shifts in plant assemblage (vegetation) and follow the *California Natural Community List* (CDFW 2018a), *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986), and *A Manual of California Vegetation, Online Edition* (CNPS 2025b). In some cases, it may be necessary to identify variants of community types or to describe non-vegetated areas that are not described in the literature; should an undescribed variant be used, it will be noted in the description. Vegetation alliances (natural communities) with a CDFW Rank of 1 through 3 (globally critically imperiled (S1/G1), imperiled (S2/G2), or vulnerable (S3/G3), were evaluated as sensitive as part of this evaluation.²

4.1.2 Aquatic Resources

Aquatic resources include Waters of the U.S., Waters of the State, and Streams, Lakes, and Riparian Habitat as defined in the CWA, Porter-Cologne Act, and CFGC, respectively. Marin County mandates setbacks from these aquatic resources and therefore requires mapping of the outward extent of such features. This site assessment does not constitute a formal wetland delineation; however, the surveys looked for superficial indicators of wetlands such as hydrophytic vegetation (i.e., plant communities dominated by wetland species), evidence of inundation or flowing water, saturated soils and seepage, and topographic depressions/swales. If sample points were taken,

¹ Due to the timing of the assessment, it may or may not constitute protocol-level species surveys; see Section 4.2 if the site assessment would constitute a formal or protocol-level species survey.

² Ranking of CDFW List of Vegetation Alliances is based on NatureServe Rankings (NatureServe 2025).

WRA followed the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Corps 2008).

If streams potentially jurisdictional under the CWA and/or the CFGC are noted on a site, they are delineated using a mix of surveyed topography data, high resolution aerial photographs, and a sub-meter GPS unit. The OHWM would be used to determine the extent of potential Section 404 jurisdiction, while the top-of-bank would be used to determine the extent of CFGC Section 1602 and 401. Streams with associated woody vegetation were assessed to determine if these areas would be considered riparian habitat by the CDFW following *A Field Guide to Lake and Streambed Alteration Agreements, Section 1600-1607, California Fish and Game Code* (CDFG 1994). Finally, all streams were assessed to determine if they meet the criteria for a SCA.

4.2 Special-status Species

4.2.1 General Assessment

Potential occurrence of special-status species in the Study Area was evaluated by first determining which special-status species occur in the greater vicinity through a literature and database review. Database searches for known occurrences of special-status species focused on the 7.5-minute USGS quadrangles mentioned above for special-status plants and the entirety of Marin County for special-status wildlife.

A preliminary site visit was made on August 29, 2024, to evaluate the presence of suitable habitat for special-status species. Suitable habitat conditions are based on physical and biological conditions of the site, as well as the professional expertise of the investigating biologists. The potential for each special-status species to occur in the Study Area was then determined according to the following criteria:

- No Potential. Habitat on and adjacent to the site is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).
- Unlikely. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.
- Moderate Potential. Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.
- High Potential. All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.
- Present. Species is observed on the site or has been recorded (i.e. CNDDb, other reports) on the site in the recent past.

If a more thorough assessment was warranted, a targeted or protocol-level assessment or survey was conducted or recommended as a future study. Methods for the assessments are described

below. If a special-status species was observed during the site visit, its presence was recorded and discussed below in Section 5.2.

4.2.2 Special-status Plants

Two site visits were conducted on August 29 and September 10, 2024, which was a period sufficient to identify numerous plant species within the Study Area. All plants were identified using *The Jepson Manual, 2nd Edition* (Baldwin et. al. 2012), Jepson Flora Project (eFlora 2025), and/or the *Marin Flora* (Howell et al. 2007), to the taxonomic level necessary to determine if they were sensitive. Plant names follow those of Jepson Flora Project (eFlora 2025), unless otherwise noted. A protocol-level special-status plant survey was not conducted due to the lack of potential for such plants to occur in the Study Area (see Section 5.2).

4.2.3 Special-status Wildlife

A general wildlife assessment was performed on August 29, 2024. This assessment consisted of traversing the entirety of the Study Area. Habitat elements required or associated with certain species (e.g., California red-legged frog) or species groups (e.g., bats, anadromous fish) were searched for and noted. Such habitat elements include, but are not limited to: plant assemblages and vegetation structure; stream depth, width, hydro-period, slope, and bed-and-bank structure; rock outcrops, caves, cliffs, overhangs, and substrate texture and rock content; history of site alteration and contemporary disturbances; etc.

A second site visit was conducted on September 10, 2024, to conduct an in-depth and targeted monarch butterfly (*Danaus plexippus*) habitat assessment. Prior to the site visit, a WRA entomologist conducted a background database search for the Bolinas region from the CNDDDB (CDFW 2025a), The Western Monarch County (Xerces 2024), and *Initial Assessment of Monarch Butterfly Overwintering Habitat in Bolinas, California* (Weiss 2024). Following the background research, WRA traversed the blue gum grove within the Study Area to assess the structure of the stand, water source, and nectar resources. Results are summarized in Section 5.2.2 and are detailed in a separate letter drafted by WRA which is included as Appendix E.

4.2.4 Critical Habitat, Essential Fish Habitat, and Wildlife Corridors

Prior to the site visit the USFWS Critical Habitat Mapper (USFWS 2025b) and the NMFS Essential Fish Habitat Mapper (NMFS 2025) were queried to determine if critical habitat for any species or EFH, respectively, occurs within the Study Area. To account for potential impacts to wildlife movement/migratory corridors, biologists reviewed maps from the California Essential Connectivity Project (CECP) by Caltrans (2010) and CDFW's Biogeographic Information and Observation System (BIOS) (CDFW 2025b). The CECP maps both 1) "Natural Landscape Blocks," or discrete areas of mostly natural land covers that support biodiversity, and 2) "Essential Connectivity Areas" that provide ecological connectivity between the former. Additionally, aerial imagery (Google Earth 2025) for the local area was referenced to assess if local core habitat areas were present within or connected to the Study Area. This assessment was refined based on observations of on-site physical and/or biological conditions.

5.0 ASSESSMENT RESULTS

5.1 Land Cover Types

Land cover types observed by WRA within the Study Area are shown in Figure A-3 (Appendix A). Five land cover types are present: developed areas, invaded coastal bluff, blue gum grove, coastal strand (beach)/ocean, and ephemeral stream. The Project Area has been intentionally sited to avoid all sensitive resources and limit impacts to areas infested with non-native plants.

5.1.1 Terrestrial Land Cover Types

Developed Area (no vegetation alliance). CDFW Rank: None. Within the Study Area, the developed portion is composed of dirt driveway and a portion of paved Ocean Avenue. The vegetation and soils are highly altered, consisting of overhanging trees, escaped/remnant landscape species, and disturbance tolerant herbs. Species include blue gum (*Eucalyptus globulus*), Monterey cypress (*Hesperocyparis macrocarpa*), poison hemlock (*Conium maculatum*), Latin American fleabane (*Erigeron karvinskianus*), red sandspurry (*Spergularia rubra*), panic veldtgrass (*Ehrharta erecta*), and mouse barley (*Hordeum murinum*). The developed area totals 0.1 acre in the Study Area none of which is situated in the Project Area.

Blackwood Acacia/Silver Wattle Grove (*Acacia melanoxylon*/*Acacia dealbata* Woodland Semi-Natural Alliance). CDFW Rank: None. Blackwood acacia groves occur throughout the entire outer Coast Ranges, Bay Area, Central Valley, and lower elevations Sierra Nevada Foothills. These groves from planted small groups, individuals, and escaped landscaping situated in upland disturbed areas, roadsides, bluffs, and other areas with poor nutrient soils (Sawyer et al. 2009, CNPS 2025b). The Study Area contains 1.7 acres of acacia grove, of which 445 square feet are situated in the Project Area.

The overstory is dominated by silver wattle (*Acacia dealbata*), with occasional blackwood acacia (*Acacia melanoxylon*), blue gum (*Eucalyptus globulus*), and Monterey cypress (*Hesperocyparis macrocarpa*). The tree canopy is patchy with interstitial weedy shrubs and herbs including iceplant (*Carpobrotus edulis*), Pride-of-Madeira (*Echium candicans*), hairy rockrose (*Cistus incanus*), French broom (*Genista monspessulana*), Italian thistle (*Carduus pycnocephalus*), milk thistle (*Silybum marianum*), jade plant (*Crassula ovata*), Pampas grass (*Cortaderia jubata*), and panic veldtgrass (*Ehrharta erecta*).

Blue Gum Grove (*Eucalyptus globulus* Semi-Natural Woodland Stands). CDFW Rank: None. Blue gum groves are known from the Coast Ranges and Central Valley, typically as planted woodlands and shelterbelts to buffer coastal winds and provide shade (Sawyer et al. 2009, CNPS 2025b). This vegetation alliance is dominated by one of several eucalyptus species (*Eucalyptus* spp.), all of which are not native to North America. Blue gum (and other eucalyptus) groves are frequently situated in rural and semi-urbanized settings, along streams, and coastal hills/prairies. The Study Area contains 1.7 acres of blue gum grove, of which 4,814 square feet are situated in the Project Area.

The overstory is composed of blue gum (*Eucalyptus globulus*), with the occasional Monterey cypress (*Hesperocyparis macrocarpa*). The understory is infested with aggressive non-native species including cape ivy (*Delairea odorata*), English ivy (*Hedera helix*), French broom (*Genista monspessulana*), and nasturtium (*Tropaeolum majus*). Native species are neither dense nor abundant and mostly confined to the margins of an ephemeral stream that runs through this grove. Such species include poison oak (*Toxicodendron diversilobum*), bracken fern (*Pteridium aquilinum*), coastal hedgenettle (*Stachys chamissonis*), and California blackberry (*Rubus ursinus*).

5.1.2 Aquatic Resources

Coastal Strand/Ocean. CWA Section 404/401. Rank: None. Coastal strands are those rocky and sandy areas on the immediate shoreline nearly or completely devoid of vegetation due to fluctuating tides, wave action, and azonal substrate. In the Study Area, coastal strand includes the toe-of-slope of the Bolinas bluff face and narrow strip of beach. The Study Area contains 0.3 acre of coastal strand/ocean, none of which is situated in the Project Area.

Ephemeral Stream. CWA Section 404/401, CFGC Section 1602. Rank: None. The Study Area supports one stream which is situated on the northern edge. This stream flows from west to east where it exits the property. From there, it flows directly to the Pacific Ocean approximately 0.17 river miles downstream. This stream appears to contain an ephemeral hydroperiod with flows only during and immediately following substantial rainfalls. The bed is a mix of fine sediments and cobbles, while the banks are rocky fine sediment. The adjacent species assemblage contains some herbaceous hydrophytes, but characteristically riparian vegetation is absent.

This stream is not mapped on the Bolinas 7.5-minute quadrangle (USGS 2015) or the NWI (USFWS 2025a); however, it is mapped as Fluvial in the CARI (SFEI 2025) and as an Ephemeral Stream in the NHD (USGS 2025). Because this feature contains both OWHM and TOB, and it has a direct surface connection with the Pacific Ocean, this drainage stream would be considered jurisdictional under Section 404/401 of the CWA and Section 1602 of the CFGC. This stream does not appear to meet the definition of “stream” under the Marin County LCP due to its ephemeral hydroperiod and definition of such in the NHD; likewise, it appears to only merit a 20-foot SCA setback because it contains an ephemeral hydroperiod and lacks characteristic woody riparian vegetation.

5.2 Special-status Species

5.2.1 Special-status Plant Species

Based upon a review of the resource databases listed in Section 4.0, 48 special-status plant species have been documented in the vicinity of the Study Area. As outlined in Appendix C, all of these species are unlikely or have no potential to occur for one or more of the following:

- Hydrologic conditions (e.g., tidal, riverine) necessary to support the special-status plant species are not present in the Study Area.
- Edaphic (soil) conditions (e.g., volcanic tuff, serpentine) necessary to support the special-status plant species are not present in the Study Area.
- Topographic conditions (e.g., north-facing slope, montane) necessary to support the special-status plant species are not present in the Study Area.

- Unique pH conditions (e.g., alkali scalds, acidic bogs) necessary to support the special-status plant species are not present in the Study Area.
- Associated natural communities (e.g., interior chaparral, tidal marsh) necessary to support the special-status plant species are not present in the Study Area.
- The Study Area is geographically isolated (e.g. below elevation, coastal environ) from the documented range of the special-status plant species.
- Land use history and contemporary management (e.g., absence of mowing or grazing) has degraded the localized habitat necessary to support the special-status plant species.

5.2.2 Special-status Wildlife Species

A total of 57 special-status wildlife species have been documented in Marin County (CDFW 2025a, USFWS 2025b). As outlined in Appendix C none of these species were observed (utilizing) during WRA's site visits to the Study Area, though six have the potential to occur there. The remaining 51 species are unlikely or have no potential to occur due to one or more of the following reasons:

- Aquatic habitats (e.g., rivers, estuaries, ponds) necessary to support the special-status wildlife species are not present in the Study Area.
- Vegetation habitats (e.g., coast redwood forest, coastal prairie, emergent marsh) that provide nesting and/or foraging resources necessary support the special-status wildlife species are not present in the Study Area.
- Physical structures and vegetation (e.g., mines/caves, riparian forest) necessary to provide nesting, cover, and/or foraging habitat to support the special-status wildlife species are not present in the Study Area.
- Host plants (e.g., dog violet, harlequin lotus) necessary to provide larval and nectar resources for the special-status wildlife species are not present in the Study Area.
- The Study Area is outside (e.g., north of, west of) of the special-status wildlife species documented nesting range.

Those six special-status wildlife species with the potential to occur in the Study Area are detailed below:

Pallid bat (*Antrozous pallidus*). CDFW Species of Special Concern, WBWG High Priority. Moderate Potential (Presence Unknown). Pallid bats are distributed from southern British Columbia and Montana to central Mexico, and east to Texas, Oklahoma, and Kansas. This species occurs in numerous habitats ranging from rocky arid deserts to grasslands, and into higher elevation coniferous forests. Roosts are typically in rock crevices, tree hollows, mines, caves, and a variety of man-made structures, including vacant and occupied buildings. Tree roosting has been documented within snags and basal hollows of conifers, and within bole cavities in oak trees. Pallid bats are primarily insectivorous, feeding on large prey that is usually taken on the ground but sometimes in flight. Prey include arthropods such as scorpions, ground crickets, and cicadas (WBWG 2025). Trees within the Study Area may contain cavities or snags suitable for roosting by this species, and there are CNDDDB occurrences in the vicinity (CDFW 2025a). A targeted bat habitat assessment was not performed under this biological assessment.

Golden eagle (*Aquila chrysaetos*). Bald and Golden Eagle Protection Act, State Fully Protected Species. Moderate Potential (Presence Unknown). The golden eagle is a large raptor that occurs in open and semi-open areas from sea level to high elevation. Typical occupied habitats include grasslands, shrublands, deserts, woodlands, and coniferous forests. Breeding activity occurs broadly from January through August, and in California is usually initiated from January to March. The large stick nests of this species are reused across the years and may be maintained throughout the year. Nests are most often placed on the ledges of steep cliffs, but nesting also occurs in trees and on tall manmade structures (e.g., utility towers) (Kochert et al. 2002). Golden eagles forage over wide areas, feeding primarily on medium-sized mammals (e.g., ground squirrels and rabbits), large birds, and carrion. This species was not observed in the Study Area; however, a targeted bird survey was not part of this assessment.

Great egret (*Ardea alba*). CDFW Protected Rookery Sites. Moderate Potential (Presence Unknown). Great egrets feed and rest in fresh, and saline emergent wetlands, along the margins of estuaries, lakes, and slow-moving streams, on mudflats and salt ponds, and in irrigated croplands and pastures. The birds primarily forage for fishes, amphibians, snakes, snails, crustaceans, insects, and small mammals (Palmer 1962). Nests and roosts in large trees (Grinnell and Miller 1944, Cogswell 1977). In northern California and the Central Valley this species is a common year-round resident occurring primarily in bottomlands, marshes, coastal lowlands, and valleys. This species was not observed in the Study Area; however, a targeted bird survey was not part of this assessment.

Great blue heron (*Ardea herodias*). CDFW Protected Rookery Sites. Moderate Potential (Presence Unknown). Great blue herons are a year-round resident common throughout much of California. They are colonial or semi-colonial typically roosting and nesting in trees, frequently with other heron species. They have been known to nest and roost on man-made structures, shrubs, and directly on the ground, where predators are absent (Vennesland and Butler 2011, Butler 1992). Their nests are usually located near sizable waterbodies (i.e., lakes, bays, ocean shoreline) where they forage. Herons primarily prey on fish and aquatic invertebrates but may also prey on small terrestrial vertebrates (e.g., mice, lizards). This species was not observed in the Study Area; however, a targeted bird survey was not part of this assessment.

Snowy egret (*Egretta thula*). CDFW Protected Rookery Sites. Moderate Potential (Presence Unknown). Snowy egrets are year-round residents of the Central Valley, but primarily only a winter visitor to the coast of California. They are widespread along shores of freshwater and saltwater emergent wetlands, ponds, lakes, wet fields, irrigation ditches, and slow-flowing rivers and large streams. They nest and roost in trees and dense wetland vegetation, often in mixed colonies with other wading birds. Snowy egret preys on small fish, crustaceans, large insects, and small vertebrates. This species was not observed in the Study Area; however, a targeted bird survey was not part of this assessment.

Bald eagle (*Haliaeetus leucocephalus*). Bald and Golden Eagle Protection Act, State Endangered, State Fully Protected. Moderate Potential (Presence Unknown). The bald eagle occurs primarily as a winter visitor but also as a year-round (breeding) resident throughout most of California. Habitat is somewhat variable, but the species is usually strongly associated with larger bodies of water including lakes, reservoirs, major river systems, estuaries, and the

ocean. Breeding occurs primarily in forested areas near water bodies; wintering habitat is more general, though water is usually present. Their large nests are typically built in the upper portions of large, live trees that provide dominant views of surrounding areas (Buehler 2000). Bald eagles are highly opportunistic foragers; fish and waterfowl are usually favored, but a variety of live prey and carrion are consumed. This species was observed soaring over Bolinas Lagoon/Pacific Ocean but was not over or in the Study Area. A targeted bird survey was not part of this assessment.

5.2.2 Critical Habitat, Essential Fish Habitat, and Wildlife Corridors

The Study Area does not contain any designated Critical Habitat (USFWS 2024b, NMFS 2025) or Essential Fish Habitat (NMFS 2025). The Study Area is not within a designated wildlife corridor (CalTrans 2010). The site is located within a larger tract of a mixed rural residential portion of Marin County. At a localized scale the Study Area provides connectivity between lightly developed lands. Due to the nature of the Proposed Project, the rural nature and medium lot size of the surrounding parcels, potential corridor functions among the surrounding lands and the Study Area will remain intact.

6.0 PROJECT ANALYSIS AND RECOMMENDATIONS

The Proposed Project is the new construction of a single-family residence, an accessory dwelling unit, a new septic system, and associated infrastructure. The development will be near and spanning both sides of Ocean Avenue. It has been intentionally sited to avoid the coastal bluff face in the southern portion and the ephemeral stream on the northern edge. Trees will necessarily be removed for the development, all of which are non-native blue gums (*Eucalyptus globulus*) and Monterey cypress (*Hesperocyparis macrocarpa*).

6.1 Land Cover Types

6.1.1 Terrestrial Land Cover Types

The Study Area supports three terrestrial land cover types: developed areas, blue gum grove, and acacia grove (coastal bluff), none of which are considered ESHA. Native trees will be avoided by the Proposed Project. Should such trees need to be removed, then they will be evaluated following Marin County Code Section 22.62 Tree Removal Permits. No further actions are recommended for terrestrial land cover types.

6.1.2 Aquatic Resources

The Study Area supports an ephemeral stream on the northern edge adjacent Terrace Avenue. This stream does not meet the definition of “stream” under the LCP; therefore, setback requirements are not explicit under the LCP. Irrespective of this, based on suitable percolation, the septic necessarily will be sited between Ocean Avenue and the ephemeral stream; therefore, the reduction of the setback to the minimum 50 feet, per C-BIO-25(4) is justifiable per the application of C-BIO-25(1)(b). Additionally, under the Countywide Plan, this stream would only require a 20-

foot setback because it supports an ephemeral hydroperiod and lacks 100 feet of contiguous riparian vegetation per BIO-4.1. The following recommendations are forwarded to provide additional protection to the ephemeral stream beyond the proposed +50-foot buffer:

Recommendation 2: Ground-breaking activities that may move sediment should occur during the dry season (approximately April 1 through October 15). If rainfall is in the forecast, standard erosion control measures (e.g., straw waddles, bales) should be deployed on the downhill edge of the Proposed Project above the ephemeral stream. Construction personnel should be informed of the location of the site's ephemeral stream with high visibility flagging or staking prior to construction. No materials or equipment shall be laid down in the setback to the aquatic resources, and spill prevention materials shall be deployed for all construction equipment and materials.

6.2 Special-status Species

6.2.1 Special-status Plants

The Study Area does not have the potential to support special-status species; therefore, the Proposed Project will not impact such. No further actions are recommended for special-status plants.

6.2.2 Special-status Wildlife

The Study Area has the potential to support six special-status wildlife species (one mammal and five birds), as well as non-status birds protected under the MBTA and CFGC. The following measures are recommended to avoid or otherwise minimize potential impacts to these species.

Bat Species: One special-status bat (pallid bat) has the potential to occur within the Study Area. Removal and trimming of trees during the local bat maternity season (generally, April through August) could impact bat breeding and potentially result in the take of bats. Because a targeted bat habitat assessment was not conducted as part of this biological assessment. It is WRA's understanding that trees will not be removed as part of the Proposed Project; however, if tree removal becomes necessary to complete the construction, the following recommendations are forwarded to ensure protection of bats:

Recommendation 2: Any tree removal should be performed from September through March, outside of the general bat maternity season. If tree removal during this period is not feasible, it is recommended that a bat habitat assessment and survey effort (the latter if needed) be performed by a qualified biologist prior to tree removal to determine if bats are present in the trees. If no suitable roosting habitat for bats is found, then no further study is warranted. If special-status bat species or bat maternity roosts are detected, then roost trees should be avoided until the end of the maternity roosting season. If this avoidance is not feasible, appropriate species- and roost-specific mitigation measures should be developed in consultation with CDFW. Irrespective of seasonal timing, all felled trees should remain on the ground for at least 24 hours prior to chipping, off-site removal, or other processing to allow any bats present within the felled trees to escape.

All Bird Species (including non-special-status): In addition to the five special-status bird species discussed above (great egret, great blue heron, golden eagle, snowy egret, bald eagle), various non-status bird species with baseline protections under the MBTA and CFGC may use vegetation within the Project Areas for nesting. Pre-construction surveys are recommended to ensure that the implementation of the Project would not impact any nesting birds; additional surveys for NSO should be conducted. To avoid any potential impacts to these species, the following measures are provided.

Recommendation 3: Vegetation removal and initial ground disturbance occur from August 16 to January 31, outside of the general bird nesting season. If tree and other vegetation removal during this time is not feasible, a pre-construction nesting bird survey should be performed by a qualified biologist no more than 7 days prior to the initiation of tree removal or ground disturbance is recommended. The survey should cover the Project Area (including tree removal areas) and surrounding areas within 500 feet. If active bird nests are found during the survey, an appropriate no-disturbance buffer should be established by the qualified biologist. Once it is determined that the young have fledged (left the nest) or the nest otherwise becomes inactive (e.g., due to predation), the buffer may be lifted, and work may be initiated within the buffer.

6.2.3 Critical Habitat, Essential Fish Habitat, and Wildlife Corridors

The Study Area does not contain Critical Habitat, Essential Fish Habitat, or other significant wildlife corridor functions. The Proposed Project will not construct wildlife fencing or other barriers to prevent localized wildlife movement and there will be sufficient space between buildings for wildlife move between. On a local scale, wildlife moves through the similarly lightly developed properties of the region and will almost certainly continue within the Study Area without substantial change; therefore, no impacts will occur to such and there are no further recommendations.

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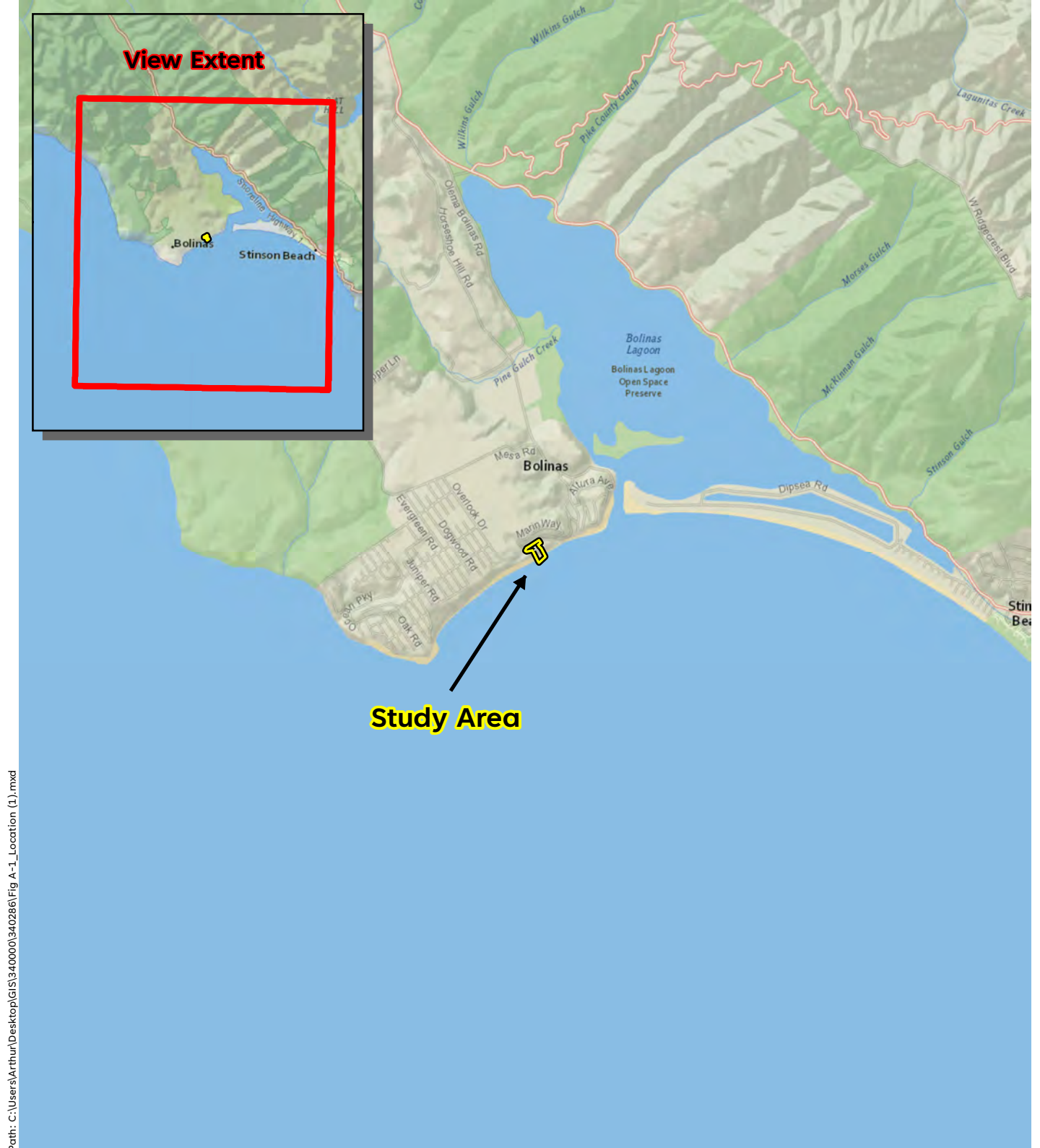
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Appendix A

Figures



Sources: National Geographic, WRA | Prepared By: Arthur, 8/26/2024

Figure A-1. Study Area Location

20 Ocean Avenue
Bolinas, Marin County, CA

0 1 2 Miles



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Sources: DigitalGlobe 2016 Aerial, WRA | Prepared By: Arthur, 1/27/2025

Figure A-2. Soil Mapping Units



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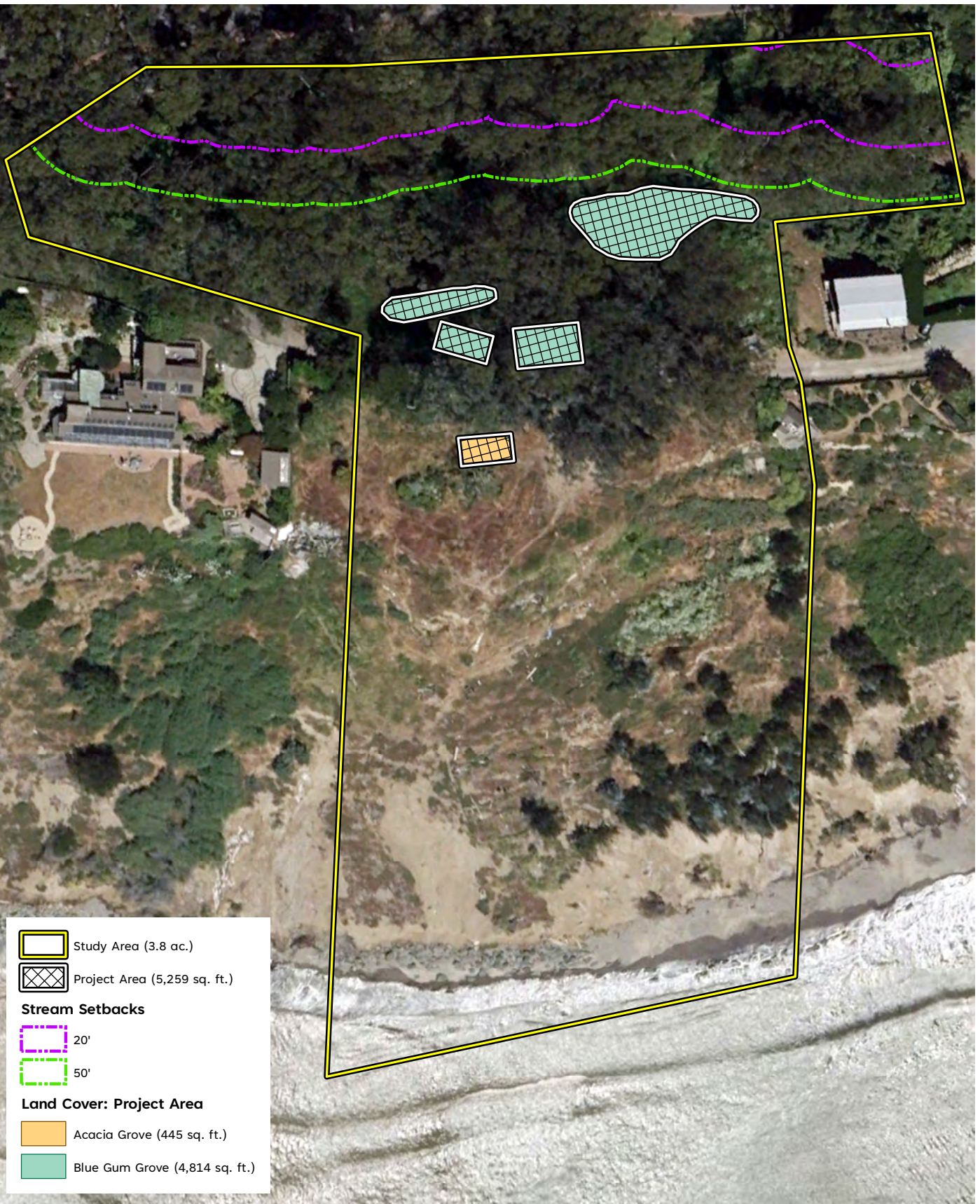


Sources: DigitalGlobe 2016 Aerial, WRA | Prepared By: Arthur, 1/27/2025

Figure A-3. Land Cover: Study Area



Path: C:\Users\Arthur\Desktop\GIS\340000\340286\Fig A-2+ _Portrait.mxd



Sources: DigitalGlobe 2016 Aerial, WRA | Prepared By: Arthur, 1/27/2025

Figure A-4. Land Cover: Project Area



Appendix B

Species Observed in the Study Area

Table B-1. Plant species observed in the Study Area: August 29 and September 10, 2024

FAMILY	SCIENTIFIC NAME	COMMON NAME	LIFE FORM	ORIGIN	RARE STATUS ¹	INVASIVE STATUS ²	WETLAND INDICATOR ³
Aizoaceae	<i>Carpobrotus edulis</i>	iceplant	perennial forb	non-native	--	high	NL
Amaryllidaceae	<i>Amaryllis belladonna</i>	naked lady	perennial forb	non-native	--	--	NL
Anacardiaceae	<i>Toxicodendron diversilobum</i>	poison oak	deciduous shrub	native	--	--	FACU
Apiaceae	<i>Conium maculatum</i>	poison hemlock	perennial forb	non-native	--	moderate	FACW
Apiaceae	<i>Daucus carota</i>	Queen Anne's lace	perennial forb	non-native	--	assessed	UPL
Araceae	<i>Zantedeschia aethiopica</i>	calla lily	perennial forb	non-native	--	limited	OBL
Araliaceae	<i>Hedera helix</i>	English ivy	evergreen vine	non-native	--	high	NL
Asteraceae	<i>Baccharis pilularis</i>	coyote brush	evergreen shrub	native	--	--	NL
Asteraceae	<i>Carduus pycnocephalus</i>	Italian thistle	annual forb	non-native	--	moderate	NL
Asteraceae	<i>Cirsium vulgare</i>	bull thistle	perennial forb	non-native	--	moderate	FACU
Asteraceae	<i>Delairea odorata</i>	Cape ivy	perennial forb	non-native	--	high	FAC
Asteraceae	<i>Erigeron karvinskianus</i>	Latin American fleabane	perennial forb	non-native	--	assessed	FAC
Asteraceae	<i>Hypochaeris radicata</i>	rough cat's-ear	perennial forb	non-native	--	moderate	FACU
Asteraceae	<i>Silybum marianum</i>	milk thistle	perennial forb	non-native	--	limited	NL
Asteraceae	<i>Sonchus asper</i>	prickly sow thistle	annual forb	non-native	--	assessed	FAC
Asteraceae	<i>Sonchus oleraceus</i>	common sow thistle	annual forb	non-native	--	--	NL
Boraginaceae	<i>Echium candicans</i>	Pride-of-Madeira	evergreen shrub	non-native	--	limited	NL
Brassicaceae	<i>Raphanus sativus</i>	wild radish	perennial forb	non-native	--	limited	NL
Caryophyllaceae	<i>Spergularia rubra</i>	red sandspurry	perennial forb	non-native	--	--	FAC
Cistaceae	<i>Cistus incanus</i>	hairy rockrose	evergreen shrub	non-native	--	--	NL
Crassulaceae	<i>Crassula ovata</i>	jade plant	perennial forb	non-native	--	--	NL
Cucurbitaceae	<i>Marah fabacea</i>	California manroot	perennial vine	native	--	--	NL
Cupressaceae	<i>Hesperocyparis macrocarpa</i>	Monterey cypress	evergreen tree	non-native	--		
Cupressaceae	<i>Sequoia sempervirens</i>	coast redwood	evergreen tree	native (planted)	--	--	NL
Cyperaceae	<i>Carex barbarae</i>	Santa Barbara sedge	perennial graminoid	native	--	--	FAC
Dennstaedtiaceae	<i>Pteridium aquilinum</i> var. <i>pubescens</i>	bracken fern	perennial fern	native	--	--	FACU

FAMILY	SCIENTIFIC NAME	COMMON NAME	LIFE FORM	ORIGIN	RARE STATUS ¹	INVASIVE STATUS ²	WETLAND INDICATOR ³
Dryopteridaceae	<i>Polystichum munitum</i>	western swordfern	perennial fern	native	--	--	FACU
Equisetaceae	<i>Equisetum telmateia</i> ssp. <i>braunii</i>	giant horsetail	perennial fern	native	--	--	FACW
Fabaceae	<i>Acacia dealbata</i>	silver wattle	evergreen tree	non-native	--	moderate	NL
Fabaceae	<i>Acacia melanoxylon</i>	blackwood acacia	evergreen tree	non-native	--	limited	NL
Fabaceae	<i>Genista monspessulana</i>	French broom	evergreen shrub	non-native	--	high	NL
Fabaceae	<i>Lathyrus vestitus</i>	common Pacific pea	perennial forb	native	--	--	NL
Lamiaceae	<i>Stachys chamissonis</i>	coastal hedgenettle	perennial forb	native	--	--	OBL
Myrtaceae	<i>Eucalyptus globulus</i>	blue gum	evergreen tree	non-native	--	moderate	NL
Papaveraceae	<i>Eschscholzia californica</i>	California poppy	perennial forb	native	--	--	NL
Phrymaceae	<i>Erythranthe guttata</i>	common monkeyflower	annual forb	native	--	--	OBL
Poaceae	<i>Avena barbata</i>	wild oat	annual graminoid	non-native	--	moderate	NL
Poaceae	<i>Briza maxima</i>	big rattlesnake grass	annual graminoid	non-native	--	limited	NL
Poaceae	<i>Bromus catharticus</i>	Chilean brome	perennial graminoid	non-native	--	--	NL
Poaceae	<i>Bromus diandrus</i>	rip-gut brome	annual graminoid	non-native	--	moderate	NL
Poaceae	<i>Bromus madritensis</i>	foxtail chess	annual graminoid	non-native	--	--	NL
Poaceae	<i>Cortaderia jubata</i>	Pampas grass	perennial graminoid	non-native	--	high	FACU
Poaceae	<i>Ehrharta erecta</i>	panic veldtgrass	perennial graminoid	non-native	--	moderate	NL
Poaceae	<i>Festuca bromoides</i>	brome fescue	perennial graminoid	non-native	--	--	FACU
Poaceae	<i>Holcus lanatus</i>	common velvet grass	perennial graminoid	non-native	--	moderate	FAC
Poaceae	<i>Hordeum murinum</i>	mouse barley	annual graminoid	non-native	--	moderate	FAC
Poaceae	<i>Polypogon monspeliensis</i>	rabbit's-foot grass	annual graminoid	non-native	--	limited	FACW
Polygonaceae	<i>Persicaria maculosa</i>	spotted lady's-thumb	annual forb	non-native	--	--	FACW
Rosaceae	<i>Potentilla anserina</i> ssp. <i>pacifica</i>	Pacific potentilla	perennial forb	native	--	--	OBL
Rosaceae	<i>Prunus cerasifera</i>	cherry plum	deciduous tree	non-native	--	limited	NL
Rosaceae	<i>Rubus ursinus</i>	California blackberry	evergreen shrub	native	--	--	FACU
Sapindaceae	<i>Aesculus californica</i>	California buckeye	deciduous tree	native	--	--	NL
Tropaeolaceae	<i>Tropaeolum majus</i>	nasturtium	annual vine	non-native	--	assessed	NL

All species identified using the *Jepson Manual, 2nd Edition* (Baldwin et al. 2012), *The Jepson Flora Project* (eFlora 2025), and *Marin Flora* (Howell et al. 2007); nomenclature follows *The Jepson Flora Project* (eFlora 2025) unless otherwise noted

Sp.: “species”, intended to indicate that the observer was confident in the identity of the genus but uncertain which species

Cf.: “confer” or “compared with”, intended to indicate a species appeared to the observer to be specific, but was not identified based on diagnostic characters

¹Rare Status: The CNPS Inventory of Rare and Endangered Plants (CNPS 2025a)

FE:	Federal Endangered
FT:	Federal Threatened
SE:	State Endangered
ST:	State Threatened
SR:	State Rare
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
CRPR 3:	Plants about which we need more information – a review list
CRPR 4:	Plants of limited distribution – a watch list

²Invasive Status: California Invasive Plant Inventory (Cal-IPC 2006)

High:	Severe ecological impacts; high rates of dispersal and establishment; most are widely distributed ecologically.
Moderate:	Substantial and apparent ecological impacts; moderate-high rates of dispersal, establishment dependent on disturbance; limited moderate distribution ecologically
Limited:	Minor or not well documented ecological impacts; low-moderate rate of invasiveness; limited distribution ecologically
Assessed:	Assessed by Cal-IPC and determined to not be an existing current threat

³Wetland Status: National List of Plant Species that Occur in Wetlands, Arid West Region (Corps 2022)

OBL:	Almost always a hydrophyte, rarely in uplands
FACW:	Usually a hydrophyte, but occasionally found in uplands
FAC:	Commonly either a hydrophyte or non-hydrophyte
FACU:	Occasionally a hydrophyte, but usually found in uplands
UPL:	Rarely a hydrophyte, almost always in uplands
NL:	Rarely a hydrophyte, almost always in uplands
NI:	No information; not factored during wetland delineation

Table B-2. Wildlife species observed in and around the Study Area: August 29 and September 10, 2024

SCIENTIFIC NAME	COMMON NAME
Birds	
<i>Calypte anna</i>	Anna's hummingbird
<i>Haliaeetus leucocephalus</i>	bald eagle
<i>Larus californicus</i>	California gull
<i>Callipepla californica</i>	California quail
<i>Aphelocoma californica</i>	California scrub jay
<i>Junco hyemalis</i>	dark-eyed junco
<i>Ardea Herodias</i>	great blue heron
<i>Buteo lineatus</i>	red-shouldered hawk
<i>Buteo jamaicensis</i>	red-tailed hawk
<i>Cathartes aura</i>	turkey vulture

Appendix C

Potential for Special-status Species to Occur in the Study Area

Table C-1. Potential for Special-status Species to Occur in the Study Area. List compiled from the CDFW BIOS database (CDFW 2025a), USFWS IPaC Report (USFWS 2025b), and CNPS Electronic Inventory (CNPS 2025a) searches. For plants, the Bolinas USGS 7.5' quadrangle was included in the search. For wildlife, the entirety of Marin County was considered.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
PLANTS				
<i>Alopecurus aequalis</i> var. <i>sonomensis</i> Sonoma alopecurus	FE; CRPR 1B	Freshwater marshes and swamps, riparian scrub; closely associated with other wetland species. Elevation range: 15 – 1200 feet. Blooms: May – July.	No Potential. The Study Area does not contain perennial wetland habitat which would support this species.	Not Present. No further actions are recommended for this species.
<i>Amorpha californica</i> var. <i>napensis</i> Napa false indigo	CRPR 1B	Openings in broadleaf upland forest, chaparral, cismontane woodland. Elevation range: 395 – 6560 feet. Blooms: April – July.	No Potential. The Study Area does not contain woodland or forest habitat to support this species.	Not Present. No further actions are recommended for this species.
<i>Amsinckia lunaris</i> bent-flowered fiddleneck	CRPR 1B	Cismontane woodland, valley and foothill grassland, coastal bluff scrub; located on gravelly substrates, frequently derived from serpentine. Elevation range: 10 – 1625 feet. Blooms: March – June.	Unlikely. The Study Area's coastal bluff is thickly invaded with non-native species that would likely outcompete and preclude the presence of this species. The substrate is not heavy gravels preferred by this species.	Presumed Absent. No further actions are recommended for this species.
<i>Arabis blepharophylla</i> coast rock cress	CRPR 4	Broadleaf upland forest, coastal bluff scrub, coastal prairie, coastal scrub; located on rocky sites, often on coastal bluffs. Elevation range: 10 – 3575 feet. Blooms: February – May.	Unlikely. The Study Area's coastal bluff is thickly invaded with non-native species that would likely outcompete and preclude the presence of this species. This perennial species would have been identifiable at the time of the site visit.	Presumed Absent. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Arctostaphylos montana</i> ssp. <i>montana</i> Mt. Tamalpais manzanita	CRPR 1B	Chaparral, valley and foothill grassland; on rocky serpentine slopes in scrub and grassland. Elevation range: 520 – 2470 feet. Blooms: February – April.	No Potential. The Study Area does not contain chaparral or rocky grassland habitat to support this species.	Not Present. No further actions are recommended for this species.
<i>Arctostaphylos virgata</i> Marin manzanita	CRPR 1B	Broadleaf upland forest, closed-cone coniferous forest, chaparral, North Coast coniferous forest; on sandstone and granitic substrates. Elevation range: 195 – 2275 feet. Blooms: January – March.	No Potential. The Study Area does not contain forest or chaparral habitat to support this species.	Not Present. No further actions are recommended for this species.
<i>Aspidotis Carlotta-halliae</i> Carlotta Hall's lace fern	CRPR 4	Chaparral, cismontane woodland; typically located in rock crevices and outcrops of serpentine. Elevation range: 325 – 4550 feet.	No Potential. The Study Area does not contain woodland or chaparral habitat, nor does it contain serpentine substrate to support this species.	Not Present. No further actions are recommended for this species.
<i>Astragalus breweri</i> Brewer's milk-vetch	CRPR 4	Chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland; located on open, gravelly serpentine or volcanic substrate. Elevation range: 290 – 2375 feet. Blooms: April – June.	No Potential. The Study Area does not contain serpentine habitat to support this species.	Not Present. No further actions are recommended for this species.
<i>Astragalus pycnostachyus</i> var. <i>pycnostachyus</i> coastal marsh milk-vetch	CRPR 1B	Coastal dunes, coastal scrub, coastal salt marshes; mesic sites in dunes, along streams, and marshes. Elevation range: 0 – 100 feet. Blooms: April – October.	No Potential. The Study Area does not contain perennial wetlands in coastal dunes or coastal marsh plain to support this species.	Not Present. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Calamagrostis ophitidis</i> serpentine reed grass	CRPR 4	Chaparral, lower montane coniferous forest, meadows and seeps, valley and foothill grassland; located in openings, often north-facing, underlain by rocky serpentine substrate. Elevation range: 290 – 3465 feet. Blooms: April – July.	No Potential. The Study Area does not contain serpentine habitat to support this species.	Not Present. No further actions are recommended for this species.
<i>Calandrinia breweri</i> Brewer's Calandrinia	CRPR 4	Chaparral, coastal scrub; located on sandy or loamy substrate in areas often recently disturbed or burned. Elevation range: 30 – 3965 feet. Blooms: March – June.	No Potential. The Study Area does not contain chaparral or scrub habitat and was not recently disturbed.	Not Present. No further actions are recommended for this species.
<i>Calochortus umbellatus</i> Oakland star tulip	CRPR 4	Broadleaf upland forest, chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland; often located on serpentine substrate. Elevation range: 325 – 2275 feet. Blooms: March – May.	No Potential. The Study Area does not contain serpentine grassland, chaparral, woodland, or forest habitat to support this species.	Not Present. No further actions are recommended for this species.
<i>Cardamine angulata</i> seaside bittercress	CRPR 2B	North Coast coniferous forest, lower montane coniferous forest; located in wet areas and along streambanks. Elevation range: 210 – 2975 feet. Blooms: March – July.	No Potential. The Study Area does not contain forest habitat to support this species.	Not Present. No further actions are recommended for this species.
<i>Carex lyngbyei</i> Lyngbye's sedge	CRPR 2B	Freshwater and brackish marshes and swamps. Elevation range: 0 – 35 feet. Blooms: May – August.	No Potential. The Study Area does not contain perennial wetland habitat to support this species.	Not Present. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Castilleja ambigua</i> var. <i>ambigua</i> Johnny-nip	CRPR 4	Coastal bluff scrub, coastal prairie, coastal scrub, marshes and swamps, valley and foothill grassland, vernal pool margins. Elevation range: 0 – 1415 feet. Blooms: March – August.	Unlikely. Although the Study area contains coastal bluff, this species is associated with seasonal wetlands and vernal mesic areas.	Presumed Absent. No further actions are recommended for this species.
<i>Ceanothus gloriosus</i> var. <i>exaltatus</i> glory bush	CRPR 4	Chaparral; typically located within maritime influence. Elevation range: 95 – 1985 feet. Blooms: March – June, sometimes August.	No Potential. The Study Area does not contain chaparral habitat to support this species.	Not Present. No further actions are recommended for this species.
<i>Ceanothus gloriosus</i> var. <i>gloriosus</i> Point Reyes ceanothus	CRPR 4	Coastal bluff scrub, closed-cone coniferous forest, coastal dunes, coastal scrub/sandy. Elevation ranges from 20 – 1710 feet. Blooms: March – May.	No Potential. The Study Area does not contain chaparral or forest habitat to support this species.	Not Present. No further actions are recommended for this species.
<i>Ceanothus masonii</i> Mason's ceanothus	SR, CRPR 1B	Chaparral; located on serpentine ridges and slopes in chaparral or transitional zones. Elevation range: 745 – 1625 feet. Blooms: March – April.	No Potential. The Study Area does not contain chaparral habitat to support this species.	Not Present. No further actions are recommended for this species.
<i>Chloropyron maritimum</i> ssp. <i>palustre</i> Point Reyes bird's-beak	CRPR 1B	Coastal salt marshes; located in low-growing saltgrass and pickleweed mats. Elevation range: 0 – 35 feet. Blooms: June – October.	No Potential. The Study Area does not contain perennial wetland habitat (coastal salt marsh) to support this species.	Not Present. No further actions are recommended for this species.
<i>Cirsium hydrophilum</i> var. <i>vaseyi</i> Mt. Tamalpais thistle	CRPR 1B	Broadleaf upland forest, chaparral; located on streams and serpentine seeps in woodland and scrub habitat. Elevation range: 780 – 2015 feet. Blooms: May – August.	No Potential. The Study Area does not contain forest or chaparral habitat to support this species.	Not Present. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Collinsia corymbosa</i> round-headed Chinese houses	CRPR 1B	Coastal dunes, coastal prairie. Elevation range: 0 – 65 feet. Blooms: April – June.	Unlikely. The Study Area does not contain coastal dune or coastal prairie habitat to support this species.	Presumed Absent. No further actions are recommended for this species.
<i>Dichondra occidentalis</i> western dichondra	CRPR 4	Chaparral, coastal scrub, cismontane woodland, valley and foothill grassland; located in rocky areas. Elevation range: 165 – 1640 feet. Blooms: sometimes January, March – July.	Unlikely. The Study Area's coastal bluff is thickly invaded with non-native species that would likely outcompete and preclude the presence of this species. This perennial species would have been identifiable at the time of the site visit.	Presumed Absent. No further actions are recommended for this species.
<i>Dirca occidentalis</i> western leatherwood	CRPR 1B	Broadleaf upland forest, chaparral, closed-cone coniferous forest, cismontane woodland, North Coast coniferous forest, riparian forest, riparian woodland; located on brushy, mesic slopes in woodland and forest. Elevation range: 165 – 1285 feet. Blooms: January – April.	No Potential. The Study Area does not contain chaparral or forest habitat to support this species.	Not Present. No further actions are recommended for this species.
<i>Elymus californicus</i> California bottle-brush grass	CRPR 4	Broadleaf upland forest, cismontane woodland, North Coast coniferous forest, riparian woodland; located in mesic areas. Elevation range: 50 – 1530 feet. Blooms: May – August, sometimes November.	No Potential. The Study Area does not contain coastal woodland or forest habitat to support this species.	Not Present. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Eriogonum luteolum</i> var. <i>caninum</i> Tiburon buckwheat	CRPR 1B	Chaparral, cismontane woodland, coastal prairie, valley and foothill grassland; located on sandy to gravelly serpentine; serpentine indicator: SE. Elevation range: 0 – 2100 feet. Blooms: May – September.	No Potential. The Study Area does not contain serpentine habitat to support this species.	Not Present. No further actions are recommended for this species.
<i>Erysimum franciscanum</i> San Francisco wallflower	CRPR 4	Maritime chaparral, coastal dunes, coastal scrub, valley and foothill grassland; typically located on serpentine or volcanic substrate, often on roadsides. Elevation range: 0 – 1790 feet. Blooms: March – June.	Unlikely. The Study Area's coastal bluff is thickly invaded with non-native species that would likely outcompete and preclude the presence of this species. This perennial species would have been identifiable at the time of the site visit.	Presumed Absent. No further actions are recommended for this species.
<i>Fritillaria lanceolata</i> var. <i>tristulis</i> Marin checker lily	CRPR 1B	Coastal bluff scrub, coastal scrub, coastal prairie; observed in canyons, riparian areas, and rock outcrops; often located on serpentine substrate. Elevation range: 45 – 490 feet. Blooms: February – May.	Unlikely. The Study Area's coastal bluff is thickly invaded with non-native species that would likely outcompete and preclude the presence of this species.	Presumed Absent. No further actions are recommended for this species.
<i>Gilia capitata</i> ssp. <i>chamissonis</i> blue coast gilia	CRPR 1B	Coastal dunes, coastal scrub. Elevation range: 5 – 600 feet. Blooms: April – July.	Unlikely. The Study Area's coastal bluff is thickly invaded with non-native species that would likely outcompete and preclude the presence of this species. This annual species would likely have been identifiable at the time of the site visit.	Presumed Absent. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Gilia capitata</i> ssp. <i>tomentosa</i> woolly-headed gilia	CRPR 1B	Coastal bluff scrub; rocky outcrops on the coast. Elevation range: 15 – 155 feet. Blooms: May – July.	Unlikely. The Study Area's coastal bluff is thickly invaded with non-native species that would likely outcompete and preclude the presence of this species. This annual species would likely have been identifiable at the time of the site visit.	Presumed Absent. No further actions are recommended for this species.
<i>Gilia millefoliata</i> dark-eyed gilia	CRPR 1B	Coastal dune. Elevation range: 5 – 100 feet. Blooms: April – July.	No Potential. The Study Area does not contain coastal dune habitat to support this species.	Not Present. No further actions are recommended for this species.
<i>Hemizonia congesta</i> ssp. <i>congesta</i> Hayfield tarplant	CRPR 1B	Coastal scrub, valley and foothill grassland. Elevation range: 65 – 1840 feet. Blooms: April – October.	Unlikely. The Study Area's coastal bluff is thickly invaded with non-native species that would likely outcompete and preclude the presence of this species. This annual species would likely have been identifiable at the time of the site visit.	Presumed Absent. No further actions are recommended for this species.
<i>Hesperolinon congestum</i> Marin western flax	FT; ST; CRPR 1B	Chaparral, valley and foothill grassland; located on serpentine substrate. Elevation range: 15 – 1205 feet. Blooms: April – July.	No Potential. The Study Area does not contain serpentine habitat to support this species.	Not Present. No further actions are recommended for this species.
<i>Horkelia tenuiloba</i> thin-lobed horkelia	CRPR 1B	Broadleaf upland forest, coastal scrub, valley and foothill grassland, chaparral; in mesic openings, on sandy substrate. Elevation range: 165 – 1640 feet. Blooms: May – July.	Unlikely. The Study Area's coastal bluff is thickly invaded with non-native species that would likely outcompete and preclude the presence of this species. This perennial species would have been identifiable at the time of the site visit.	Presumed Absent. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Hosackia gracilis</i> harlequin lotus	CRPR 4	Broadleaf 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; located in wetlands and roadside ditches. Elevation range: 0 – 2275 feet. Blooms: March – July.	No Potential. The Study Area does not contain seasonal wetland or vernal mesic areas to support this species.	Not Present. No further actions are recommended for this species.
<i>Leptosiphon aureus</i> bristly leptosiphon	CRPR 4	Chaparral, cismontane woodland, coastal prairie, valley and foothill grassland; often located on shallow, rocky substrate in foothill positions; typically, low-growing and sparse vegetation; often on edge of chaparral and shrub thickets. Elevation range: 175 – 4875 feet. Blooms: April – July.	No Potential. The Study Area does not contain rocky areas or scrub habitat to support this species.	Not Present. No further actions are recommended for this species.
<i>Lessingia micradenia</i> var. <i>micradenia</i> Tamalpais lessingia	CRPR 1B	Chaparral, valley and foothill grassland; typically located in serpentine grassland or serpentine scrub, often on roadsides. Elevation range: 325 – 1625 feet. Blooms: June – October.	No Potential. The Study Area does not contain serpentine habitat to support this species.	Not Present. No further actions are recommended for this species.
<i>Microseris paludosa</i> marsh microseris	CRPR 1B	Closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland. Elevation range: 5 – 300 feet. Blooms: April – June.	Unlikely. The Study Area's coastal bluff is thickly invaded with non-native species that would likely outcompete and preclude the presence of this species. This perennial species would have been identifiable at the time of the site visit.	Presumed Absent. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Navarretia rosulata</i> Marin County navarretia	CRPR 1B	Closed-cone coniferous forest, chaparral; located on dry, rocky sites often formed from serpentine. Elevation range: 650 – 2065 feet. Blooms: May – July.	No Potential. The Study Area does not contain serpentine habitats necessary to support this species.	Not Present. No further actions are recommended for this species.
<i>Pleuropogon hooverianus</i> North coast semaphore grass	ST; CRPR 1B	Broadleaf upland forests, meadows and seeps, freshwater marshes and swamps, North Coast coniferous forest, shaded, wet, and grassy areas in forested habitat. Elevation range: 10 – 635 feet. Blooms May – August.	No Potential. The Study Area does not contain perennial wetland habitat which would support this species.	Not Present. No further actions are recommended for this species.
<i>Pleuropogon refractus</i> nodding semaphore grass	CRPR 4	Lower montane coniferous forest, meadows and seeps, North Coast coniferous forest, riparian forest; located in mesic settings. Elevation range: 0 – 5200 feet. Blooms: March – August.	No Potential. The Study Area does not contain forest habitat to support this species.	Not Present. No further actions are recommended for this species.
<i>Quercus parvula</i> var. <i>tamalpaisensis</i> Tamalpais oak	Rank 1B	Lower montane coniferous forest; highly restricted to the slopes of Mt. Tamalpais. Elevation range: 325 – 2275 feet. Blooms: March – April.	No Potential. The Study Area does not contain coniferous forest nor is it located on the slopes of Mt. Tamalpais.	Not Present. No further actions are recommended for this species.
<i>Ranunculus lobbii</i> Lobb's buttercup	CRPR 4	Cismontane woodland, North Coast coniferous forest, valley and foothill grassland, vernal pools; located in vernal inundated areas (ponds, pools). Elevation range: 45 – 1530 feet. Blooms: February – May.	No Potential. The Study Area does not contain seasonal wetland habitat which would support this species.	Not Present. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Sidalcea calycosa</i> ssp. <i>rhizomata</i> Point Reyes checkerbloom	CRPR 1B	Marshes and swamps; located in freshwater marsh habitat near the coast. Elevation range: 10 – 245 feet. Blooms: April – September.	No Potential. The Study Area does not contain perennial wetland habitat which would support this species.	Not Present. No further actions are recommended for this species.
<i>Sidalcea hickmanii</i> ssp. <i>viridis</i> Marin checkerbloom	CRPR 1B	Chaparral; located on serpentine or volcanic substrate, often located in burns. Elevation range: 160 – 1400 feet. Blooms: May – June.	No Potential. The Study Area does not contain serpentine or volcanic habitats necessary to support this species.	Not Present. No further actions are recommended for this species.
<i>Streptanthus batrachopus</i> Tamalpais jewelflower	CRPR 1B	Closed-cone coniferous forest, chaparral; located on serpentine talus slopes. Elevation range: 990 – 2115 feet. Blooms: April – July.	No Potential. The Study Area does not contain serpentine habitats necessary to support this species.	Not Present. No further actions are recommended for this species.
<i>Streptanthus glandulosus</i> ssp. <i>pulchellus</i> Mt. Tamalpais jewelflower	CRPR 1B	Chaparral, valley and foothill grassland; located on serpentine slopes. Elevation range: 490 – 2600 feet. Blooms: May – August.	No Potential. The Study Area does not contain serpentine habitats necessary to support this species.	Not Present. No further actions are recommended for this species.
<i>Toxicoscordion fontanum</i> marsh Zigadenus	CRPR 4	Chaparral, cismontane woodland, lower montane coniferous forest, meadows and seeps, marshes and swamps; located in vernal mesic sites underlain by serpentine; serpentine indicator: BE/SI. Elevation range: 45 – 3250 feet. Blooms: April – July.	No Potential. The Study Area does not contain serpentine habitats necessary to support this species.	Not Present. No further actions are recommended for this species.
<i>Trifolium amoenum</i> showy rancheria clover	FE; CRPR 1B	Valley and foothill grassland, coastal bluff scrub, swales, open sunny sites, sometimes on serpentine. Elevation range: 15 – 1365 feet. Blooms: April – June.	Unlikely. The Study Area's coastal bluff is thickly invaded with non-native species that would likely outcompete and preclude the presence of this species.	Presumed Absent. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
WILDLIFE				
Mammals				
<i>Antrozous pallidus</i> pallid bat	SSC, WBWG High	Found in deserts, grasslands, shrublands, woodlands, and forests. Most common in open, forages along river channels. Roost sites include crevices in rocky outcrops and cliffs, caves, mines, trees and various manmade structures such as bridges, barns, and buildings (including occupied buildings). Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	Moderate Potential. The Study Area contains large blue gum (<i>Eucalyptus globulus</i>) trees that may provide roosting habitat for this species. A focused bat roost habitat survey was not conducted as part of this assessment.	Presence Unknown. Incorporate pre-construction roost habitat survey into the proposed project. If present, apply project-based work windows and best management practices to avoid impacts to this species.
<i>Aplodontia rufa phaea</i> Point Reyes mountain beaver	SSC	Known from the coastal areas of Point Reyes. Located in north-facing slopes of hills and gullies with seeps and springs nearby. Areas typically overgrown with vegetation such as sword fern (<i>Polystichum munitum</i>) and thimbleberry (<i>Rubus parviflorus</i>).	Unlikely. Although the Study Area contains a stream, it does not support dense riparian and wetland vegetation.	Presumed Absent. No further actions are recommended for this species.
<i>Corynorhinus townsendii townsendii</i> Townsend's western big-eared bat	SSC, WBWG High	Humid coastal regions of northern and central California. Roosts in limestone caves, lava tubes, mines, buildings etc. Will only roost in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to disturbance	No Potential. The Study Area does not contain large caves, mines, abandoned buildings, or other similar substrates for maternity or hibernation roosting habitat.	Not Present. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Enhydra lutris nereis</i> southern sea otter	ST, SFP	Located in near-shore marine environments from Ano Nuevo to Point Sal (possibly as north as Marin County). Requires canopies of giant kelp and bull kelp for rafting and feeding. Prefers rocky substrates with abundant invertebrates for foraging.	Unlikely. Although a portion of the Study Area overlaps with open ocean, it does not contain deep rocky areas supporting kelp beds.	Presumed Absent. No further actions are recommended for this species.
<i>Lasiurus blossevillii</i> western red bat	SSC, WBWG High	Highly migratory and typically solitary, roosting primarily in the foliage of trees or shrubs. It is associated with broad-leaved tree species including cottonwoods (<i>Populus</i> spp.), sycamores (<i>Platanus</i> spp.), alders (<i>Alnus</i> spp.), and maples (<i>Acer</i> spp.). Day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas.	Unlikely. The Study Area does not contain large trees of the type known to support maternity or hibernation roosting habitat for this species.	Presumed Absent. No further actions are recommended for this species.
<i>Lasiurus cinereus</i> western red bat	WBWG Medium	Migratory and typically solitary, roosting primarily in the foliage of trees and shrubs. Roosts are usually in broadleaf trees including cottonwoods (<i>Populus</i> spp.), sycamores (<i>Platanus</i> spp.), alders (<i>Alnus</i> spp.), and maples (<i>Acer</i> spp.). Maternity season is August through February (breeding, birthing, rearing). Day roosts are commonly in edge habitats adjacent to streams, open fields, orchards, and occasionally urban areas.	Unlikely. The Study Area does not contain large trees of the type known to support maternity or hibernation roosting habitat for this species.	Presumed Absent. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Reithrodontomys raviventris</i> salt marsh harvest mouse	FE, SE, SFP	Endemic to emergent salt and brackish wetlands of the San Francisco Bay Estuary. Pickleweed marshes are primary habitat; also occurs in various other wetland communities with dense vegetation. Does not burrow, builds loosely organized nests. Requires higher areas for dryland refugia during high tides.	No Potential. The Study Area contains no tidal or brackish marsh to support this species.	Not Present. No further actions are recommended for this species.
<i>Taxidea taxus</i> American badger	SSC	Most abundant in drier open stages of most shrub, woodland, and herbaceous vegetation types. Requires friable soils and open, uncultivated ground. Preys on burrowing rodents.	No Potential. The Study Area does not contain nor is it within extensive prairie, grassland, or open scrub habitat to support this species.	Not Present. No further actions are recommended for this species.
<i>Zapus trinotatus orarius</i> Point Reyes jumping mouse	SSC	Known from upland areas in Point Reyes. Typically located in upper margins of bunch grass wetlands, as well as coastal scrub, grassland, and meadows. Primarily forages for grass seeds, with some insects and fruits. Builds grass nests above ground, but burrows in winter.	No Potential. The Study Area does not contain bunch grass wetland or coastal prairie/meadow habitat to support this species.	Not Present. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Birds				
<i>Agelaius tricolor</i> tricolored blackbird	ST, SSC	Nearly endemic to California, where it is most numerous in the Central Valley and vicinity. Highly colonial, nesting in dense aggregations over or near freshwater in emergent growth or riparian thickets. Also uses flooded agricultural fields. Abundant insect prey near breeding areas essential.	No Potential. The Study Area does not provide vegetated ponds or emergent marsh suitable for nesting.	Not Present. No further actions are recommended for this species.
<i>Ammodramus savannarum</i> grasshopper sparrow	SSC	Summer resident. Breeds in open grasslands in lowlands and foothills, generally with low- to moderate-height grasses and scattered shrubs. Well-hidden nests are placed on the ground.	No Potential. The Study Area does not contain extensive intact grassland or prairie habitat to support this species.	Not Present. No further actions are recommended for this species.
<i>Aquila chrysaetos</i> golden eagle	BGEPA, SFP	Occurs year-round in rolling foothills, mountain areas, sage-juniper flats, and deserts. Cliff-walled canyons provide nesting habitat in most parts of range; also nests in large trees, usually within otherwise open areas.	Moderate Potential. The Study Area contains large blue gum (<i>Eucalyptus globulus</i>) trees that may provide potential nesting substrate for this species.	Presence Unknown. Incorporate pre-construction nesting bird surveys into the proposed project. If present, apply project-based work windows and best management practices to avoid impacts to this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Ardea alba</i> great egret	no status (breeding sites protected by CDFW)	Year-round resident. Nests colonially or semi-colonially, usually in trees, occasionally on the ground or elevated platforms. Breeding sites usually near foraging areas: marshes, lake margins, tidal flats, and rivers. Forages primarily on fishes and other aquatic prey, also smaller terrestrial vertebrates.	Moderate Potential. The Study Area contains a blue gum grove that may provide habitat for breeding colonies of this species.	Presence Unknown. Incorporate pre-construction nesting bird surveys into the proposed project. If present, apply project-based work windows and best management practices to avoid impacts to this species.
<i>Ardea herodias</i> great blue heron	non-status (breeding sites protected by CDFW)	Year-round resident. Nests colonially or semi-colonially in tall trees and cliffs, also sequestered terrestrial substrates. Breeding sites usually near foraging areas: marshes, lake margins, tidal flats, and rivers. Forages primarily on fishes and other aquatic prey, also smaller terrestrial vertebrates.	Moderate Potential. The Study Area contains a blue gum grove that may provide habitat for breeding colonies of this species.	Presence Unknown. Incorporate pre-construction nesting bird surveys into the proposed project. If present, apply project-based work windows and best management practices to avoid impacts to this species.
<i>Asio flammeus</i> short-eared owl	SSC	Occurs year-round, but primarily as a winter visitor; breeding very restricted in most of California. Found in open, treeless areas (e.g., marshes, grasslands) with elevated sites for foraging perches and dense herbaceous vegetation for roosting and nesting. Preys mostly on small mammals, particularly voles.	Unlikely. The Study Area does not contain open prairie, marsh, or grassland habitat to provide foraging habitat.	Presumed Absent. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Asio otus</i> long-eared owl	SSC	Occurs year-round in California. Nests in trees in a variety of woodland habitats, including oak and riparian, as well as tree groves. Requires adjacent open land with rodents for foraging, and the presence of old nests of larger birds (hawks, crows, magpies) for breeding.	No Potential. Rare in Marin County. The Study Area does not contain oak or similar woodland or similar habitat to support nesting and foraging for this species.	Not Present. No further actions are recommended for this species.
<i>Athene cunicularia</i> burrowing owl	SSC	Year-round resident and winter visitor. Occurs in open, dry grasslands and scrub habitats with low-growing vegetation, perches and abundant mammal burrows. Preys upon insects and small vertebrates. Nests and roosts in old mammal burrows, most commonly those of ground squirrels.	No Potential. The Study Area does not contain expansive open habitats such as prairie and grassland to support this species.	Not Present. No further actions are recommended for this species.
<i>Buteo swainsoni</i> Swainson's hawk	ST	Summer resident in Central Valley and limited portions of the southern California interior. Nests in tree groves and isolated trees in riparian and agricultural areas, including near buildings. Forages in grasslands and scrub habitats as well as agricultural fields, especially alfalfa. Preys on arthropods year-round as well as smaller vertebrates during the breeding season.	Unlikely. Known only from the Baylands of Marin County (CDFW 2024a, eBird 2024). Additionally, large trees are absent.	Presumed Absent. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Charadrius nivosus nivosus</i> western snowy plover	FT, SSC	Federal listing applies only to the Pacific coastal population. Year-round resident and winter visitor. Occurs on sandy beaches, salt pond levees, and the shores of large alkali lakes. Nests on the ground, requiring sandy, gravelly or friable soils.	Unlikely. Although the Study Area contains coastal strand (beach), high tides regularly cover the entire strand precluding reliable nesting for this species.	Presumed Absent. No further actions are recommended for this species.
<i>Circus hudsonius</i> northern harrier	SSC	Year-round resident and winter visitor. Found in open habitats including grasslands, prairies, marshes and agricultural areas. Nests on the ground in dense vegetation, typically near water or otherwise moist areas. Preys on small vertebrates.	No Potential. The Study Area does not contain grassland, prairie, and/or open marsh habitat to support this species.	Not Present. No further actions are recommended for this species.
<i>Contopus cooperi</i> olive-sided flycatcher	SSC	Summer resident. Typical breeding habitat is montane coniferous forests. At lower elevations, also occurs in wooded canyons and mixed forests and woodlands. Often associated with forest edges. Arboreal nest sites located well off the ground.	No Potential. The Study Area does not contain forest or native woodland stands to support this species.	Not Present. No further actions are recommended for this species.
<i>Coturnicops noveboracensis</i> yellow rail	SSC	Summer resident in eastern Sierra Nevada in Mono County, breeding in shallow freshwater marshes and wet meadows with dense vegetation. Also, a rare winter visitor along the coast and other portions of the state. Extremely cryptic.	Unlikely. The Study Area does not contain prairie, meadow, or marsh habitat to support this species.	Presumed Absent. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Cypseloides niger</i> black swift	SSC	Summer resident with a fragmented breeding distribution; most occupied areas in California either montane or coastal. Breeds in small colonies on cliffs behind or adjacent to waterfalls, in deep canyons, and sea-bluffs above surf. Forages aerially over wide areas. No modern nesting records in Napa County.	No Potential. The Study Area does not contain waterfalls to support this species.	Not Present. No further actions are recommended for this species.
<i>Egretta thula</i> snowy egret	no status (breeding sites protected by CDFW)	Year-round resident. Nests colonially, usually in trees, at times in sequestered beds of dense emergent vegetation (e.g., tules). Rookery sites usually situated close to foraging areas: marshes, tidal-flats, streams, wet meadows, and borders of lakes.	Moderate Potential. The Study Area contains a blue gum grove that may provide habitat for breeding colonies of this species.	Presence Unknown. Incorporate pre-construction nesting bird surveys into the proposed project. If present, apply project-based work windows and best management practices to avoid impacts to this species.
<i>Elanus leucurus</i> white-tailed kite	SFP	Year-round resident in coastal and valley lowlands with scattered trees and large shrubs, including grasslands, marshes and agricultural areas. Nests in trees, of which the type and setting are highly variable. Preys on small mammals and other vertebrates.	Unlikely. Although this species is known from the Bolinas area (eBird 2024), the Study Area does not provide grasslands and open scrub and woodland to provide nesting and foraging habitat.	Presumed Absent. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Falco peregrinus anatum</i> American peregrine falcon	SFP	Year-round resident and winter visitor. Occurs near water, including coastal areas, wetlands, lakes and rivers. Usually, nests on sheltered cliffs or tall man-made structures. Preys primarily on waterbirds.	Unlikely. Although the Study Area contains a coastal bluff face, the density of vegetation and frequent human visitation/activity precludes nesting. This species may forage over the site.	Presumed Absent. No further actions are recommended for this species.
<i>Fratercula cirrhata</i> tufted puffin	SSC	Pelagic and coastal marine. Nests near or along the coast on islands, islets, and (rarely) isolated mainland cliffs. Requires sod or earth into which the birds can burrow, or rocky crevices where friable soil is absent. Forages at sea, primarily for fish.	Unlikely. Although the Study Area contains a portion of open ocean, sea stacks and other offshore islands are absent.	Presumed Absent. No further actions are recommended for this species.
<i>Geothlypis trichas sinuosa</i> San Francisco (saltmarsh) common yellowthroat	SSC	Resident of the San Francisco Bay region, in fresh and saltwater marshes. Requires thick, continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting.	No Potential. The Study Area does not contain coastal marsh or similar wetland habitat to support this species.	Not Present. No further actions are recommended for this species.
<i>Haliaeetus leucocephalus</i> bald eagle	BGEPA, SE, SFP	Occurs year-round in California, but primarily a winter visitor; breeding population is growing. Nests in large trees in the vicinity of larger lakes, reservoirs, and rivers. Wintering habitat somewhat more variable but usually features large concentrations of waterfowl or fish.	Moderate Potential. The Study Area contains large blue gum (<i>Eucalyptus globulus</i>) trees that may provide potential nesting substrate for this species. (One individual observed soaring over Bolinas Lagoon/Pacific Ocean away from the Study Area).	Presence Unknown. Incorporate pre-construction nesting bird surveys into the proposed project. If present, apply project-based work windows and best management practices to avoid impacts to this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Hydrobates homochroa</i> ashy storm-petrel	SSC	Marine species; nests in rocky crevices on offshore islands and rocks from southern Mendocino County to norther Baja California. Forages over open ocean for invertebrates and larval fishes.	Unlikely. Although the Study Area contains a portion of open ocean, sea stacks and other offshore islands are absent.	Presumed Absent. No further actions are recommended for this species.
<i>Icteria virens</i> yellow-breasted chat	SSC	Summer resident, occurring in riparian areas with an open canopy, very dense understory, and trees for song perches. Nests in thickets of willow (<i>Salix</i> spp.), blackberry (<i>Rubus</i> spp.), and California grape (<i>Vitis californicus</i>).	No Potential. The Study Area does not contain stands of dense riparian understory favored by this species for nesting. There are no recent observations in the vicinity (eBird 2024).	Not Present. No further actions are recommended for this species.
<i>Lanius ludovicianus</i> loggerhead shrike	SSC	Year-round resident in open woodland, grasslands, savannah, and scrub. Prefers areas with sparse shrubs, trees, posts, and other suitable perches for foraging. Preys upon large insects and small vertebrates. Nests are well-concealed in densely foliated shrubs or trees.	Unlikely. Although this species is known from the Bolinas area (eBird 2024), the Study Area does not provide extensive intact grasslands and open scrub and open woodland to provide nesting and foraging habitat.	Presumed Absent. No further actions are recommended for this species.
<i>Laterallus jamaicensis coturniculus</i> California black rail	ST, SFP	Year-round resident in marshes (saline to freshwater) with dense vegetation within four inches of the ground. Prefers larger, undisturbed marshes that have an extensive upper zone and are close to a major water source. Extremely secretive and cryptic.	No Potential. The Study Area does not contain tidal or brackish marsh. Within Marin County, this species is restricted to Baylands.	Not Present. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Melospiza melodia samuelis</i> San Pablo song sparrow	SSC	Year-round resident of tidal marshes along the north side of San Francisco and San Pablo Bays. Typical habitat is dominated by pickleweed (<i>Salicornia</i> spp.), with gumplant (<i>Grindelia</i> spp.) and other shrubs present in the upper zone for nesting. May forage in areas adjacent to marshes.	No Potential. The Study Area contains no tidal or brackish marshes and is outside of this species' limited Marin County range.	Not Present. No further actions are recommended for this species.
<i>Nycticorax nycticorax</i> black-crowned night heron	no status (breeding sites protected by CDFW)	Year-round resident. Nests colonially, usually in trees but also in patches of emergent vegetation. Rookery sites are often on islands and usually located adjacent to foraging areas: margins of lakes and bays.	No Potential. The Study Area and adjacent lands lack aquatic foraging habitat.	Not Present. No further actions are recommended for this species.
<i>Passerculus sandwichensis alaudinus</i> Bryant's savannah sparrow	SSC	Year-round resident associated with the coastal fog belt, primarily between Humboldt and northern Monterey Counties. Occupies low tidally influenced habitats and adjacent areas, including grasslands. Also uses drier, more upland coastal grasslands. Nests near the ground in taller vegetation, including along levees and canals.	No Potential. The Study Area does not contain extensive intact grassland or prairie habitat to support this species.	Not Present. No further actions are recommended for this species.
<i>Pelecanus occidentalis californicus</i> California brown pelican	SFP	(Nesting colony) colonial nester on coastal islands just outside the surf line. Islands are small to moderate sized to afford protection from ground-dwelling predators.	Unlikely. Although the Study Area contains a portion of open ocean, sea stacks and other offshore islands are absent.	Presumed Absent. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Progne subis</i> purple martin	SSC	Summer resident. Inhabits woodlands and low-elevation coniferous forests. Nests in old woodpecker cavities and man-made structures (bridges, utility towers). Nest is often located in tall, isolated tree or snag.	No Potential. The Study Area does not contain forest or native woodland habitat necessary to support this species.	Not Present. No further actions are recommended for this species.
<i>Rallus obsoletus obsoletus</i> California Ridgway's (clapper) rail	FE, SE, SFP	Year-round resident in tidal marshes of the San Francisco Bay estuary. Requires tidal sloughs and intertidal mud flats for foraging, and dense marsh vegetation for nesting and cover. Typical habitat features abundant growth of cordgrass and pickleweed. Feeds primarily on mollusks and crustaceans.	No Potential. The Study Area does not contain tidal or brackish marsh. Within Napa County, this species is restricted to Baylands and the lower Napa River.	Not Present. No further actions are recommended for this species.
<i>Setophaga petechia brewsteri</i> (Brewster's) yellow warbler	SSC	Summer resident throughout much of California. Breeds in riparian vegetation close to water, including streams and wet meadows. Microhabitat used for nesting is variable, but dense willow growth is typical. Occurs widely on migration.	No Potential. The Study Area does not contain riparian habitat with dense, mature thickets of willows.	Not Present. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Strix occidentalis caurina</i> northern spotted owl	FT, ST, SSC	Year-round resident in dense, structurally complex forests, primarily those with stands of mature conifers. In Napa County, uses both coniferous and mixed (coniferous-hardwood) forests. Nests on platform-like substrates in the forest canopy, including in tree cavities. Preys on mammals.	No Potential. The Study Area does not contain conifer or mixed broadleaf-conifer forest nor is any present in the immediate vicinity.	Not Present. No further actions are recommended for this species.
Reptiles and Amphibians				
<i>Dicamptodon ensatus</i> California giant salamander	SSC	Occurs in the north-central Coast Ranges. Moist coniferous and mixed forests are typical habitat; also uses woodland and chaparral. Adults are terrestrial and fossorial, breeding in cold, permanent or semi-permanent streams. Larvae usually remain aquatic for over a year.	Unlikely. The Study Area does not contain perennial or near-perennial streams to support this species.	Presumed Absent. No further actions are recommended for this species.
<i>Emys marmorata</i> western pond turtle	SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches with aquatic vegetation. Require basking sites such as partially submerged logs, vegetation mats, or open mud banks, and suitable upland habitat (sandy banks or grassy open fields) for egg-laying.	Unlikely. The Study Area and environs do not contain ponds or other suitable aquatic breeding and non-breeding habitat to support this species.	Presumed Absent. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Rana boylei</i> foothill yellow-legged frog	SSC	Found in or near rocky streams in a variety of habitats; highly aquatic. Prefers partially sunlit, shallow streams and riffles with a rocky substrate; requires at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis. Feeds on invertebrates (aquatic and terrestrial).	Unlikely. The Study Area does not contain perennial or near-perennial streams to support this species.	Presumed Absent. No further actions are recommended for this species.
<i>Rana draytonii</i> California red-legged frog	FT, SSC	Lowlands and foothills in or near permanent sources of deep water with dense emergent and/or overhanging riparian vegetation. Favors perennial to intermittent ponds, marshes, and stream pools. Requires 11 to 20 weeks of continuous inundation for larval development. Disperses through upland habitats during and after rains.	Unlikely. The Study Area and environs do not contain ponds or other suitable aquatic breeding and non-breeding habitat to support this species.	Presumed Absent. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Fishes				
<i>Acipenser medirostris</i> green sturgeon	FT, SSC	Spawns in the Sacramento River and Klamath Rivers, at temperatures between 8 and 14 degrees Celsius. Preferred spawning substrate is large cobble but can range from clean sand to bedrock.	No Potential. This species is known from Bay sites not the open ocean.	Not Present. No further actions are recommended for this species.
<i>Eucyclogobius newberryi</i> tidewater goby	FE, SSC	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County to the mouth of the Smith River. Found in shallow lagoons and lower stream reaches. Requires still but not stagnant water and high oxygen levels.	No Potential. The Study Area does not contain estuarine waters, despite the presence of the open ocean.	Not Present. No further actions are recommended for this species.
<i>Lavinia symmetricus</i> ssp. 2 Tomaes roach	SSC	Habitat generalist. Found in well aerated perennial and tributaries to Tomales Bay. Feed primarily on algae supplemented with crustaceans and insects.	No Potential. The Study Area does not contain riverine waters to support this species.	Not Present. No further actions are recommended for this species.
<i>Oncorhynchus kisutch</i> coho salmon – central CA coast ESU	FE, SE	Occurs in inland and coastal rivers, and marine waters. Requires beds of loose, silt-free, coarse gravel for spawning. Also requires riparian cover to contribute to cool, well-aerated water. Federal listing applies to populations between Punta Gorda and San Lorenzo River. State listing applies populations south of San Francisco Bay only.	No Potential. The Study Area does not contain suitable anadromous or estuarine waters (i.e., perennial streams, rivers).	Not Present. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Oncorhynchus mykiss irideus</i> steelhead - central CA coast DPS	FT	Occurs from the Russian River south to Soquel Creek and Pajaro River. Also, in San Francisco and San Pablo Bay Basins. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles remain in fresh water for 1 or more years before migrating downstream to the ocean.	No Potential. The Study Area does not contain suitable anadromous or estuarine waters (i.e., perennial streams, rivers).	Not Present. No further actions are recommended for this species.
<i>Spirinchus thaleichthys</i> longfin smelt	FC, ST, SSC	Euryhaline, nektonic and anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column. Prefer salinities of 15 to 30 PPT but can be found in completely freshwater to almost pure seawater.	No Potential. The Study Area does not contain riverine or estuarine waters.	Not Present. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Invertebrates				
<i>Bombus crotchii</i> Crotch bumblebee	SC	Range largely restricted to California. Favors grassland and scrub habitats. Typical of bumblebees, nests are usually constructed underground. Visits a variety of plants.	Unlikely. The Study Area does not contain intact native habitats with sufficient floral resources to support this species.	Presumed Absent. No further actions are recommended for this species.
<i>Bombus occidentalis</i> western bumblebee	SC	Formerly common throughout much of western North America; populations from southern British Columbia to central California have nearly disappeared (Xerces 2015). Occurs in a wide variety of habitat types. Nests are constructed annually in pre-existing cavities, usually on the ground (e.g., mammal burrows). Many plants are visited and pollinated.	Unlikely. The Study Area does not contain intact native habitats with sufficient floral resources to support this species.	Presumed Absent. No further actions are recommended for this species.
<i>Danaus plexippus</i> monarch butterfly	FC, roosting sites protected by CDFW	Winter roost sites along the coast from Baja California north to Mendocino County. Roosts are wind-protected tree groves, typically of eucalyptus (<i>Eucalyptus</i> spp.), Monterey cypress (<i>Hesperocyparis macrocarpa</i>), and Monterey pine (<i>Pinus radiata</i>).	Unlikely. Although the Study Area contains a blue gum grove, which historically supported this species. However, the structure (open canopy) and orientation (north-facing) likely preclude overwintering habitat for this species. See Attachment E.	Presumed Absent. No further actions are recommended for this species. See Attachment E.
<i>Plebejus icarioides missionensis</i> Mission blue butterfly	FE	Known from Twin Peaks and Marin Headlands. Hosts on three perennial lupines (<i>Lupinus variicolor</i> , <i>L. albifrons</i> , <i>L. formosus</i>). Nectars on a variety of flowers.	No Potential. The Study Area does not contain the host plants (lupines) necessary to support this species.	Not Present. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Speyeria zerene myrtleae</i> Myrtle's silverspot butterfly	FE	Inhabits coastal terrace prairie habitat. Larval plant is dog violet (<i>Viola adunca</i>). Historic populations from Russian River to San Mateo County; currently known only from western Marin County and southwestern Sonoma County.	Unlikely. The Study Area does not contain the host plants (violets) necessary to support this species.	Presumed Absent. No further actions are recommended for this species.
<i>Syncaris pacifica</i> California freshwater shrimp	FE, SE	Endemic to Marin, Napa, and Sonoma counties. Found in low elevation, low gradient streams where riparian cover is moderate to heavy. Shallow pools away from primary stream flow. Winter: undercut banks with exposed roots. Summer: leafy branches touching water.	No Potential. The Study Area does not contain stream or riverine habitats to support this species.	Not Present. No further actions are recommended for this species.

***Key to status codes:**

FC Federal Candidate for Listing

FE Federal Endangered

BGEPA Bald and Golden Eagle Protection Act Species

FT Federal Threatened

SC (E/T) State Candidate for Listing (Endangered/Threatened)

SE State Endangered

SFP State Fully Protected Animal

SR State Rare

SSC State Species of Special Concern

ST State Threatened

CRPR 1A CNPS CRPR 1A: Plants presumed extinct in California

CRPR 1B CNPS CRPR 1B: Plants rare, threatened or endangered in California and elsewhere

CRPR 2A CNPS CRPR 2A: Plants presumed extirpated in California, but more common elsewhere

CRPR 2B CNPS CRPR 2B: Plants rare, threatened, or endangered in California, but more common elsewhere

CRPR 3 CNPS CRPR 3: Plants about which CNPS needs more information (a review list)

CRPR 4 CNPS CRPR 4: Plants of limited distribution (a watch list)

WBWG Western Bat Working Group High or Medium-high Priority Species

Potential to Occur:

No Potential: Habitat on and adjacent to the site is clearly unsuitable for the species requirements (cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).

Unlikely: Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.

Moderate Potential: Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.

High Potential: All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.

Results and Recommendations:

Present: Species was observed on the site or has been recorded (i.e. CNDDDB, other reports) on the site recently.

Assumed Present: Species is assumed to be present on-site based on the presence of key habitat components.

Assumed Present without Impact: Species assumed present; however, project activities will not have an impact on the species.

Presumed Absent: Species is presumed to not be present due to a lack of key habitat components.

Not Present: Species is considered not present due to a clear lack of any suitable habitat and/or local range limitations.

Not Observed: Species was not observed during dedicated/formal surveys.

Presence Unknown: Species has the potential to be present, but no dedicated surveys to determine absence/presence were performed.

Appendix D

Representative Photographs



Understory of blue gum grove with extensive infestation of English ivy (*Hedera helix*) and Cape ivy (*Delairea odorata*)



Ephemeral stream in the blue gum grove adjacent to Terrace Avenue; no characteristic riparian vegetation



Bluff top, approximate/potential location of the Proposed Project



Bluff face with extensive infestation of silver wattle (*Acacia dealbata*), Pride-of-Madeira (*Echium candicans*), and Italian thistle (*Carduus pycnocephalus*)

Appendix E

Monarch Butterfly Assessment

MEMORANDUM

TO:	Zachary Heineman, 20 Ocean Ave LLC	FROM:	Rei Scampavia, PhD, Entomologist
CC:	Matt Richmond, WRA, Inc., Principal	Aaron Arthur, WRA, Inc., Project Manager	
DATE:	September 26, 2024		
SUBJECT:	Monarch Overwintering Habitat Assessment for 20 Ocean Ave, Bolinas, Marin County, California		

On September 10, 2024, WRA, Inc. (WRA) entomologist, Dr. Rei Scampavia, conducted a monarch overwintering habitat assessment across two adjacent parcels located at 20 Ocean Avenue, Bolinas, Marin County (Study Area; APN: 193-172-04, 193-162-11; Attachment A). It is WRA's understanding that the Client is proposing to develop a single-family residence with associated infrastructure (i.e., septic system, outbuildings, driveway) at this location, which will involve vegetation clearing and tree removal within the Coastal Zone. A Coastal Development Permit with the County of Marin/State of California may be required for this work. Background information, methods, results, and recommendations of the monarch overwintering habitat assessment are described in the sections below.

1.0 BACKGROUND INFORMATION

This section discusses the habitat and ecology of the monarch butterfly (*Danaus plexippus*, Federal Candidate), with an emphasis on the Bolinas Peninsula, and the current regulatory status of monarch butterflies and overwintering habitat.

1.1 Monarch Butterfly

1.1.1 Habitat and Ecology

The monarch butterfly is a large, showy butterfly found throughout the United States, southern Canada, and Central America. It also occurs in parts of South America and other continents. In North America, this species spends spring and summer months breeding and foraging across much of its range. The monarch butterfly generally uses milkweed (*Asclepias* spp.) for both breeding and nectaring, although nectar may also be obtained from a variety of additional plant species. From August to October, monarchs will migrate thousands of miles to winter roost sites located along the California coast and central Mexico. At roost sites, monarchs will congregate in thousands or millions on a tree or group of trees. Western monarchs prefer overwintering habitat comprised of a relatively dense grove of trees with some understory, located near water and nectar sources and protected from the wind by topographic landforms or trees (Sakai and Calvert 1991). Winter roost sites are often on south, southwest, or west facing slopes which may provide more favorable temperature regimes and wind protection (Leong et al. 2004). Due to

their abundance within the monarch overwintering zone, and their ability to produce the specific microclimate conditions required for overwintering, monarchs typically utilize groves of blue gum (*Eucalyptus globulus*) and red gum (*E. camaldulensis*) (Griffiths and Villablanca 2015, Pelton et al. 2016). However, monarchs disproportionately prefer to overwinter on native trees, relative to their abundance at overwintering sites (Griffiths and Villablanca 2015). Native trees utilized by overwintering monarchs include Monterey pine (*Pinus radiata*), and Monterey cypress (*Hesperocyparis macrocarpa*), western sycamore (*Platanus racemosa*), coast redwood (*Sequoia sempervirens*), and coast live oak (*Quercus agrifolia*) (Pelton et al. 2016). Monarch butterflies typically arrive in mid-October to overwintering sites along the California coast and remain until late February or March (Pelton et al. 2016).

1.1.2 Monarchs Overwintering on the Bolinas Peninsula

Although historically monarch butterflies overwintered as far north as Mendocino, the Bolinas Peninsula is currently the northernmost area in which monarchs are known to overwinter. The Bolinas Peninsula acts as a “meta-roost” site for overwintering monarchs, which move between established roost sites. None of the roost sites in Bolinas appear to have suitable microclimate conditions for monarchs for the entire overwintering period (Weiss 2024). Based on the observed patterns of occupancy throughout the overwintering period, it appears that monarchs aggregate at roost sites when conditions are suitable, scatter across Bolinas when conditions become unfavorable, and re-aggregate when conditions at roost sites are suitable again (Weiss 2024). This cycle repeats itself several times throughout the overwintering period (Weiss 2024). The suitability of monarch overwintering habitat is in decline throughout the western monarch overwintering range (Campbell 2022). This is also the case on the Bolinas Peninsula, where roost sites are primarily composed of aging trees.

1.2 Regulatory Background

1.2.1 Monarch Butterflies

FEDERAL ENDANGERED SPECIES ACT (1973)

The federal Endangered Species Act (ESA) provides formal protection and guidelines for conservation of species listed as endangered or threatened. In 2020, the U.S. Fish and Wildlife Service (USFWS) determined that the listing of the monarch butterfly was “warranted, but precluded” due to other, higher priority actions. The monarch butterfly is currently a candidate species for listing under the ESA; however, as a candidate species, it does not currently receive formal federal protection. The USFWS plans to review the listing of this species again in 2024.

CALIFORNIA ENDANGERED SPECIES ACT (1970)

The California Endangered Species Act (CESA) similarly provides protections for species that are listed as endangered or threatened or that are formal candidates for such listing. The monarch butterfly is currently on the California Department of Fish and Wildlife (CDFW) Special Animals List but, until recently, terrestrial invertebrates could not be listed under CESA. In 2022, the Third Appellate Court District in California ruled that four bumble bee species may be listed under CESA. CDFW therefore may pursue the listing of monarchs in the future.

1.2.2 Monarch Overwintering Habitat

CALIFORNIA FISH AND GAME CODE, SECTIONS 1600-1616

Streams and lakes, as habitat for fish and wildlife species, are subject to jurisdiction by CDFW under Sections 1600-1616 of California Fish and Game Code (CFGF). Alterations to or work within or adjacent to streambeds or lakes generally require a 1602 Lake and Streambed Alteration Agreement (LSAA). CDFW regulates impacts to monarch overwintering sites if a notification of Lake or Streambed Alteration is submitted in association with a project that has potential to impact them.

CALIFORNIA COASTAL ACT (1976)

The California Coastal Act (CCA) Section 30107.5 defines environmentally sensitive habitat areas (ESHAs) as "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." Section 30240 protects ESHAs from "significant disruption of habitat values," limits allowable land uses within ESHAs, and requires adjacent uses to be designed to be compatible with habitat benefits provided by ESHAs. The California Coastal Commission (CCC) often delegates the responsibility for administering the CCA to local municipalities through the approval of Local Coastal Programs (LCPs). Many LCPs provide more specific lists of communities that are considered ESHAs.

The Marin County LCP Land Use Plan (LUP) was adopted by Marin County in 2018 and certified by the CCC on February 6, 2019. C-BIO-1 of the LUP defines monarch overwintering habitat as an ESHA. C-BIO-10 prohibits impacts to monarch overwintering habitat, except "where the trees pose a threat to life or property."

2.0 METHODS

2.1 Background Research

Prior to the site visit, Dr. Scampavia conducted a database search for historic and current monarch overwintering data within and adjacent to the Study Area. Dr. Scampavia accessed the following resources:

- California Natural Diversity Database (CNDDB, CDFW 2024)
- The Western Monarch Count (Xerces 2024)
- *Initial Assessment of Monarch Butterfly Overwintering habitat in Bolinas, California* (Weiss 2024).

2.2 Site Assessment

On September 10, 2024, Dr. Scampavia visited the Study Area and adjacent areas to assess current conditions and suitability of potential monarch overwintering habitat within the Study Area. Suitable monarch overwintering habitat should contain groves or hedgerows of trees with suitable microclimates for overwintering, a water source, and nectar sources.

2.2.1 Overwintering Grove Characteristics

Groves or hedgerows of trees provide shelter from harsh weather conditions, and the specific microclimate characteristics required by overwintering monarchs. In California, blue gum

eucalyptus, Monterey pine (*Pinus radiata*), and Monterey cypress (*Cupressus macrocarpa*) are the most common overwintering trees utilized by monarchs. Red gum eucalyptus (*E. camaldulensis*), sycamore (*Platanus racemosa*), coast redwood (*Sequoia sempervirens*), and coast live oak (*Quercus agrifolia*) are also less frequently utilized. Overwintering habitat typically contains the following characteristics:

- South, southwest, or west-facing slopes;
- Shelter from freezing temperatures and high winds;
- Trees of varying heights and ages, with a brushy understory;
- Dappled sunlight and high humidity in the understory, approximately 6 to 75 feet above ground;
- Windbreak(s) consisting of buffer trees and/or other structures; and
- Small clearing(s) sheltered by trees and/or surrounding topography.

2.2.2 Water Source

Overwintering monarchs require access to a freshwater source, such as bodies of water, morning dew, and/or runoff from sprinklers or other man-made water sources.

2.2.3 Nectar Sources

Although monarchs do not reproduce while overwintering, they still require nectar to fuel flight and other metabolic activities. Monarchs require nectar sources for the duration of the overwintering season, approximately October to late February/March. Examples of potential nectar resources include fall and winter-blooming asters, coyote brush (*Baccharis pilularis*), wild mustards (*Brassica* spp., *Hirschfeldia incana*), bottlebrush (*Callistemon* sp.), and eucalyptus (*Eucalyptus* spp.) trees

3.0 RESULTS

Attachment B includes photographs taken within and adjacent to the Study Area during the September 2024 site visit. Results of the background research and site assessment are described in further detail below.

3.1 Background Research

The CNDDDB indicates that a monarch roost site has been documented within the Study Area (CDFW 2024). This site has been monitored by the Xerces Society for Invertebrate Conservation (Xerces Society), which has designated it as Terrace Ave (Site 2901) (Xerces 2024). In the 1990s and early 2000s, Terrace Ave hosted large numbers of overwintering monarchs, but no monarchs have been observed at this site since 2004. In recent years, only six roost sites have been utilized by monarchs on the Bolinas Peninsula: BPUD North and South (Sites 2915 and 3163); Purple Gate (Site 2899), Juniper & Kale (Site 3227), Alder Road (Site 2912), Agate Beach/Alder Vortex (Site 2912), and Mesa Road (Site 2913) (Weiss 2024, Xerces 2024). Other sites that were historically utilized, such as Terrace Ave (Site 2901), Hawthorne (Site 2917), and Grove and Alder (Site 2900), are no longer in use, presumably due to the aging of the tree stands and subsequent degradation of overwintering habitat quality at these locations (Weiss 2024).

3.2 Site Assessment

3.2.1 Overwintering Grove Characteristics

The tree grove within the Study Area occurs on a relatively steep north-facing slope. It is protected from winds originating along the coast by a steep cliffside to the south, and mature trees growing along Ocean Avenue. Mature blue gum eucalyptus trees compose the majority of tree cover within the Study Area. Monterey cypress has also been planted along Ocean Avenue and Terrace Avenue, as well as some smaller red gum eucalyptus trees and coast redwoods, and one coast live oak grows on the top of the hillside. The canopy is fairly dense, as the mature blue gum eucalyptus exhibit robust lateral branching. The understory is relatively open and devoid of brush or saplings. Invasive perennial vines provide dense groundcover. Cape ivy (*Delairea odorata*) is the dominant understory species and is also present in the lower canopy, where it has climbed the trunks of mature blue gum eucalyptus trees. Garden nasturtium (*Tropaeolum majus*) is also abundant in the understory.

Tree removal, to accommodate the installation of a power line running from Terrace Avenue to Ocean Avenue, has created a linear clearing in the tree canopy; however, this clearing is not sheltered by buffer trees or structures to the north or south. Below the power line, the understory is dominated by non-native grasses and native ferns, such as sword fern (*Polystichum munitum*) and western brackenfern (*Polystichum munitum*).

Currently, the grove within the Study Area does not appear to provide suitable overwintering habitat for monarch butterflies. While it is well-sheltered in general, the grove lacks sheltered openings for overwintering monarchs to aggregate. Dense canopy growth of mature trees, and the extensive infestation of Cape ivy, are unlikely to allow sufficient insolation and microclimate variation for overwintering monarchs. This is further compounded by the orientation of the slope (north-facing), which may further block insolation to the site.

3.2.2 Water Source

An ephemeral drainage flows parallel to Terrace Avenue, at the toe of the hillside that supports the eucalyptus grove. While no water was flowing at the time of the September 2024 site visit, this feature may contain pools of water following precipitation events during the rainy season (approximately mid-October to mid-April), which could be utilized by overwintering monarchs.

3.2.3 Nectar Sources

Non-native invasive species comprise the majority of potential nectar sources for monarchs within and adjacent to the Study Area. Blue gum eucalyptus trees and Cape ivy bloom during the monarch overwintering period. Scattered coyote brush also grows on the cliffside and along the road.

4.0 HABITAT ENHANCEMENT OPPORTUNITIES

Restoration of the Terrace Avenue overwintering site is likely to be unfeasible for a private homeowner due to cost, scale, and duration. However, the following recommendations may be implemented to enhance habitat for overwintering monarchs on the Bolinas Peninsula:

- Invasive understory species, such as Cape ivy, could be removed to provide opportunities for the growth of a native understory.

- Native species that are attractive to monarchs and bloom from October to March could be planted to provide nectar to overwintering monarchs in transit between roost sites. Ideally, at least three different nectar species should be in bloom at any given time during the overwintering season. Examples of appropriate nectar plants could include coyote brush, salt marsh baccharis (*Baccharis glutinosa*), gumweed (*Grindelia camporum*), golden yarrow (*Eriophyllum confertiflorum*), western goldentop (*Euthamia occidentalis*), and California goldenrod (*Solidago velutina* ssp. *californica*).
- If tree removal is proposed, eucalyptus duff, and possibly some soil, may need to be removed from the understory in these areas to remove allelopathic chemicals that could prevent native plant growth.
- Non-native trees could be replaced with native roost trees, such as coast live oak, and sheltering understory shrubs, such as toyon (*Heteromeles arbutifolia*). If appropriately spaced, these plantings may provide shelter for monarchs in transit between established overwintering sites.

5.0 SUMMARY

It is WRA's professional opinion that, despite hosting overwintering monarchs in the past, the Study Area currently does not support suitable overwintering habitat for monarch butterflies, due to the aging of the eucalyptus stand and dominance by Cape ivy in the understory. WRA does not anticipate environmental constraints related to monarch butterflies for the proposed development of the site.

Restoration of historic overwintering habitat within the Study Area may not be feasible, and the buildup of eucalyptus duff may pose a challenge to habitat enhancement efforts. If possible, removal of Cape ivy and other invasive understory species, and the planting of native nectar plants that bloom from October to March, could provide nectar opportunities for overwintering monarchs in transit between established overwintering sites on the Bolinas Peninsula. If tree removal is proposed, planting of native roost trees and sheltering understory shrubs may also provide shelter for transient monarchs.

6.0 REFERENCES

- California Department of Fish and Wildlife (CDFW). 2024. California Natural Diversity Database (CNDDB), Wildlife and Habitat Data Analysis Branch. Sacramento, CA. Accessed: September 2024.
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Attachments

Attachment A. Aerial View of the Study Area

Attachment B. Site Photographs

Path: C:\Users\Arthur\Desktop\GIS\340000\340286\Fig A-2+_Landscape.mxd



Sources: DigitalGlobe 2016 Aerial, WRA | Prepared By: Arthur, 8/22/2024

Attachment A. Aerial View of the Study Area

20 Ocean Ave
Marin County, CA

0 50 100
Feet



Attachment B.

Site Photographs





Photograph 1. View of eucalyptus grove within the Study Area, taken from the ridgetop, facing northwest.



Photograph 1. View of eucalyptus grove within the Study Area, taken from the ridgetop, facing north.



Photograph 3. View of eucalyptus canopy cover, taken within the southern edge of the eucalyptus grove.



Photograph 4. View of eucalyptus grove understory within the Study Area, facing north.



Photograph 5. View of eucalyptus grove understory and Cape ivy infestation within the Study Area, facing northeast.



Photograph 6. View of eucalyptus grove canopy within the Study Area, in the vicinity of the power line.



Photograph 7. View of eucalyptus grove understory within the Study Area, in the vicinity of the power line.



Photograph 8. View of ephemeral drainage within the Study Area, taken from Terrace Avenue, facing south.

Appendix F

Statement of Qualifications



STATEMENT OF QUALIFICATIONS

WRA is an environmental consulting firm with over 30 years of experience conducting biological resources assessments, wetland delineations, protocol-level rare plant surveys, special-status wildlife assessments and species-specific surveys, as well as preparing applications with state and federal natural resource agencies for avoiding, minimizing, and mitigating impacts to sensitive natural resources. Other services and products with which WRA has expertise include preparation of CEQA/NEPA documents, habitat mitigation and monitoring plans, natural resource management plans, mitigation and conservation bank enabling instruments, grazing management plans, and wetland and other natural resources restoration plans.

Aaron Arthur, MS, Senior Associate Plant Biologist with WRA, has nearly 20 years performing vegetation & habitat mapping, rare plant surveys, botanical assessments, vegetation change analysis, and wetland delineations. His project focus is vineyard development, timber resources, coastal development permits, habitat mitigation and monitoring plans, conservation and mitigation banking, and long-term management plans in Sonoma, Marin, Napa, and Mendocino counties. Mr. Arthur's technical training includes the flora of Northern California, the flora of the Pacific Northwest, agrostology, aquatic botany, plant ecology, forest ecology, and soil science. Additionally, he has completed the 40-hour Corps wetland delineation course, holds 2081(a) Plant Voucher Permit, and is Certified California Consulting Botanist #0016 from the California Native Plant Society. Mr. Arthur received his Bachelor of Arts in Geography from U.C. Berkeley and received his Master of Science in Physical Geography from Oregon State University, where his research focused on forest floristics and vegetation change.

Rei Scampavia, PhD, Associate Wildlife Biologist with WRA, has over 10 years conducting invertebrate surveys, special-status plant surveys, biological assessments, invasive weed management, wetland delineation, and environmental permitting. Her project focus is residential development, infrastructural and commercial development, government compliance surveys, habitat conservation plans, and mitigation monitoring throughout California with a particular focus in the Bay Area, Central Valley, and Sierra Nevada Foothills. Ms. Scampavia's technical training includes entomology, invertebrate ecology, plant ecology, and the flora of California. Additionally, she has completed the 40-hour Corps wetland delineation course, California Rapid Assessment Method (CRAM), and holds a USFWS 10(a)(1)(A) Recovery Permit for Listed Large Branchiopod Species. Ms. Scampavia received her Bachelor of Science in Biology from Mills College and received her PhD in Entomology from U.C. Davis, where her research focused on bee reproduction in the Central Valley.