Coastal Act Compliance Report

5720 Highway One
Little River, Mendocino County, California

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1.0 INTRODUCTION

On December 11, 2013 WRA, Inc. (WRA) performed an Environmentally Sensitive Habitat Area (ESHA) assessment at 5720 Highway 1, Little River, Mendocino County, California (Study Area, Figure 1). Additional studies conducted by WRA in the Study Area include rare plant surveys, vegetation mapping, and wetland delineations performed June 11 and July 29, 2012. The approximately 2.12-acre Study Area is located approximately 1.8 aerial miles south of Little River and 1.8 miles north of Albion. The purpose of this study was to identify and map areas within a proposed development that are potential environmentally sensitive habitat areas (ESHA), as defined by the California Coastal Commission (CCC). The proposed project involves the construction of a single-family dwelling, on one parcel. Included herein are the results of the ESHA delineation, an evaluation of potential impacts to ESHA due to construction of the proposed project elements, mitigation measures, and an analysis of ESHA buffers as required by the CCA and Mendocino County Local Coastal Plan (LCP).

2.0 REGULATORY BACKGROUND

The California Coastal Act (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 Mendocino County LCP and California Coastal Commission (CCC) Guidelines contain definitions for specific types of ESHAs, including: wetlands, estuaries, streams and rivers, lakes, open coastal waters and coastal waters, riparian habitats, other resource areas, and special-status species and their habitats. For the purposes of this report, WRA has taken into consideration any areas that may meet the definition of ESHA as defined by the CCA, CCC guidelines, or the Mendocino County LCP.

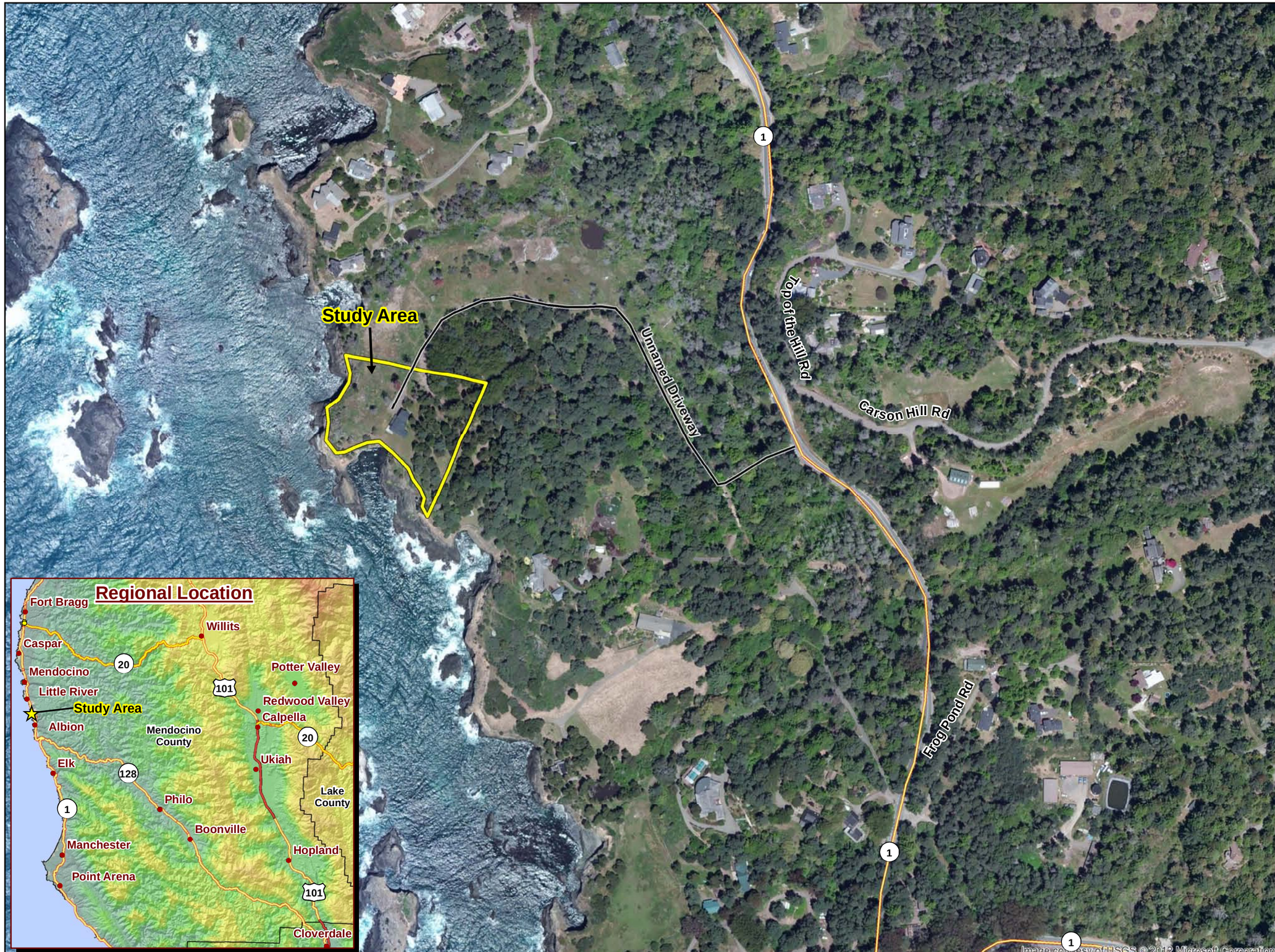
2.1 Wetlands

The California Coastal Act and Mendocino County LCP define wetlands as:

> *Wetland means lands 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 Section 30121

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



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5720 Highway 1
Little River, CA

Figure 1.

Location of the Study Area

N
W E
S

0 125 250 500
Feet

Map Date: September 2012
Map By: Michael Rochelle
Base Source: Bing Maps

Path: L:\Acad 2000 Files\16000\16087\gis\arcmap\2012\Location.mxd

> *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 CCC considers this definition as requiring the observation of one diagnostic feature of a wetland, such as wetland hydrology, dominance by wetland vegetation (hydrophytes), or presence of hydric soils, as a basis for asserting jurisdiction under the CCA.

In addition to the above definition, the *Statewide Interpretive Guidelines for Identifying and Mapping Wetlands and Other Wet Environmentally Sensitive Habitat Areas* (CCC 1981) provide technical criteria for use in identifying and delineating wetlands and other ESHAs within the Coastal Zone. The technical criteria presented in the guidelines are based on the CCA definition and indicate that wetland hydrology is the most important parameter for determining a wetland, recognizing that:

> *". . . the single feature that most wetlands share is soil or substrata that is at least periodically saturated with or covered by water, and this is the feature used to describe wetlands in the Coastal Act. The water creates severe physiological problems for all plants and animals except those that are adapted for life in water or in saturated soil, and therefore only plants adapted to these wet conditions (hydrophytes) could thrive in these wet (hydric) soils. Thus, the presence or absence of hydrophytes and hydric soils make excellent physical parameters upon which to judge the existence of wetland habitat areas for the purposes of the Coastal Act, but they are not the sole criteria."*

The Technical Criteria requires that saturation of soil in a wetland must be at or near the surface continuously for a period of time. The meaning of "at or near the surface" generally is considered to be approximately one-foot from the surface or less (the root zone), and the saturation must be continuously present for a period of time (generally more than two weeks) in order to create the necessary soil reduction (anaerobic) processes that create wetland conditions. For example, water from rain during a storm that causes saturation near the surface but then evaporates or infiltrates to 18 inches or deeper below the surface shortly after the storm does not meet the generally accepted criteria for wetland hydrology.

The presence of wetland classified plants or the presence of hydric soils (generally referred to as the "one parameter approach") can be used to identify an area as a wetland in the Coastal Zone. There is a correlation between the presence of wetland plants, wetland hydrology, and/or hydric soils occurring together, especially in natural undisturbed areas, and in many cases where one of these parameters is found (e.g., wetland plants), the other parameters will also occur. But there are situations which can result in the presence of wetland classified plants without wetland conditions, and these areas are not wetlands. Where these conditions occur, the delineation study must carefully scrutinize whether the wetland classified plants present are growing as hydrophytes, reducing (anaerobic) conditions caused by the presence of wetland hydrology, or for some other (non-wetland) reason. Examples may include wetland-classified

plants which are also salt-tolerant (e.g., alkali heath) that may be responding to either wetland conditions or saline soil conditions, but not necessarily both, and deep-rooted trees (e.g., willows) which are able to tap into deep groundwater sources and can grow in dry surface soils, but are also found in wetland conditions where surface water is present.

Hydric soils can also occur in upland areas, especially in areas where historic disturbances may have exposed substratum, or in densely vegetated grasslands (Mollisols). Similarly, the delineation must determine if the hydric soil indicators are the result of frequent anaerobic conditions or of non-wetland conditions.

2.2 Riparian Habitats

The CCA and Mendocino County LCP define riparian habitats as follows:

> *"A riparian habitat is an area of riparian vegetation. This vegetation is an association of plant species which grows adjacent to freshwater watercourses, including perennial and intermittent streams, lakes, and other bodies of freshwater."*

The Statewide Interpretive Guidelines (CCC 1981) state:

> *"For the purpose of interpreting Coastal Act policies, another important distinction is between "wetland" and "riparian habitat." While the Service's classification system includes riparian areas as a kind of wetland, the intent of the Coastal Act was to distinguish these two areas. "Riparian habitat" in the Coastal Act refers to riparian vegetation and the animal species that require or utilize these plants. The geographic extent of a riparian habitat would be the extent of the riparian vegetation.*
>
> *. . . Unfortunately, a complete and universally acceptable definition of riparian vegetation has not yet been developed, so determining the geographic extent of such vegetation is rather difficult. The special case of determining consistent boundaries of riparian vegetation along watercourses throughout California is particularly difficult. In Southern California these boundaries are usually obvious; the riparian vegetation grows immediately adjacent to watercourses and only extends a short distance away from the watercourse. . .*
>
> *. . . For the purposes of this guideline, riparian vegetation is defined as that association of plant species which grows adjacent to freshwater watercourses, including perennial and intermittent streams, lakes, and other freshwater bodies. Riparian plant species and wetland plant species either require or tolerate a higher level of soil moisture than dryer upland vegetation, and are therefore generally considered hydrophytic. However, riparian vegetation may be distinguished from wetland vegetation by the different kinds of plant species. . ."*

The guidelines include a list of representative riparian plants that are meant to help distinguish wetland areas from riparian areas. Therefore, under the Coastal Act, riparian areas do not have to be wetlands, and are determined based primarily on vegetation and that vegetation's ability to provide habitat for animal species.

2.3 Streams, Rivers, and Anadromous Fish Habitat

The CCA and Mendocino County LCP define Streams, Rivers and Anadromous Fish habitats as follows:

> *"A stream or a river is a natural watercourse as designated by a solid line or dash and three dots symbol shown on the United States Geological Survey map most recently published, or any well-defined channel with distinguishable bed and bank that shows evidence of having contained flowing water as indicated by scour or deposit of rock, sand, gravel, soil, or debris."*
>
> *"Freshwater streams used as migration corridor or spawning or nursery habitat by fish, such as salmon and steelhead trout, that live most of their adult lives in saltwater."*

2.4 Sand Dunes

The CCA and Mendocino County LCP define sand dunes as follows:

> *"Sand formed in hills or ridges by the wind and sometimes stabilized by vegetation. Dunes are distinct ecosystems made up of various community types, ranging from open unvegetated sand hills to stabilized dune forests, that frequently contain rare, endangered, protected, or unusual plant and animal species. This highly specialized habitat can be extremely unstable, sensitive to the continuous interplay of surf, sand, and wind."*

2.5 Coastal Marine Ecosystem

The CCA and Mendocino County LCP define Coastal Marine Ecosystem habitats as follows:

> *"That area and its environs containing a delicately balanced environmental system which provides a suitable habitat for local indigenous and migrating species, including all life forms in the tidal zones seaward. The Coastal Marine Ecosystem also is recognized to contain and provide valuable food resources, economic opportunities, and aesthetic value to shore-side establishments, residents and the public in general."*

2.6 Open Coastal Waters and Coastal Waters

The CCA and Mendocino County LCP define coastal waters as follows:

> *"The term open coastal waters or coastal waters refer to the open ocean overlying the continental shelf and its associated coastline. Salinities exceed 30 parts per thousand with little or no dilution except opposite mouths of estuaries."*

2.7 Pygmy Forests and Pygmy-type Vegetation

The CCC and Mendocino County LCP define pygmy forests and pygmy-type vegetation as follows:

> Pygmy forest: *"A stunted forest, with mature vegetation the majority of which is approximately two to twelve feet in height occurring on soils with conditions which severely limit the growth of vegetation such as Blacklock soils and characterized by*

Mendocino cypresses, Fort Bragg manzanita, Bolander pines, and pygmy Mendocino Bishop pines."

Pygmy-type vegetation: *"A forest occurring south of the Navarro River, mainly on Gualala series soils, characterized by stunted vegetation on sites with low commercial timber value. Plant species include knobcone pines and manzanita."*

2.8 Natural Communities and Other ESHA

The CCA and Mendocino County LCP define other resource areas as follows:

> *"Other designated resource areas include: State parks and reserves, underwater parks and reserves, areas of special biological significance, natural areas, special treatment areas, fishing access points, areas of special biological importance, significant California ecosystems, and coastal marine ecosystems."*

Other resource areas considered ESHA include California Department of Fish and Wildlife (CDFW[1]) rare natural communities ranked as imperiled globally or in California (G2 S2 or rarer), as noted in the California Natural Diversity Database (CNDDB). These communities have been classified and described by various references, including the *List of Vegetation Alliances and Associations* (CDFG 2010), *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986), and *A Manual of California Vegetation, 2nd Edition* (Sawyer et al. 2009).

2.9 Special-status Species

Special-status species and their habitats are defined as ESHA by the CCA and Mendocino County LCP. Special-status species include those species that have been formally listed, are proposed as endangered or threatened, or are candidates for such listing by the U.S. Fish and Wildlife Service (USFWS) or CDFW. In addition, CDFG Species of Special Concern are given special consideration under the California Environmental Quality Act (CEQA). However, these Species of Special Concern may only be protected as ESHAs if they are ranked by CDFG as imperiled globally or in California (G2 S2 or rarer). Plant species on California Native Plant Society (CNPS) Ranks 1 or 2 are also considered special-status species and are protected as ESHA.

3.0 METHODS

Prior to conducting field surveys, available reference materials were reviewed, including the *Soil Survey of Mendocino County, Western Part* (USDA 1999), the Albion 7.5-minute quadrangle topographic map (USGS 1960), and available aerial photographs. A field survey was conducted by WRA December 11, 2013 to identify and delineate potential ESHAs within the Study Area. Previous survey dates include June 11 and July 29, 2012. The methodology of the survey is described below. ESHA boundaries were mapped using sub-meter accuracy Global Positioning

[1] Beginning January 1, 2013, the California Department of Fish and Game (CDFG) officially changed their department to California Department of Fish and Wildlife (CDFW). All publications prior to January 1, 2013 are herein referenced to CDFG, while all post January 1, 2013 references herein are of CDFW.

System (GPS) and/or hand-drawing boundaries on a high-resolution aerial photograph with 5-foot contours. The following sections detail the methods utilized to delineate the potential ESHA within the Study Area; however, methods utilized for delineating ESHA that do not have the potential to occur (e.g. sand dunes in interior settings) or are not located within in the Study Area, are not included herein.

3.1 Wetlands

The CCC uses a broad wetland definition, in which the presence of any one of the wetland parameters may indicate presence of a wetland. The CCC presumes that the area is a wetland if one of the wetland parameters is present. However, there may be exceptions to this presumption if there is strong positive evidence of upland conditions, as opposed to negative evidence of wetland conditions. Positive evidence of upland hydrology might be the observation that a given area saturates only ephemerally following significant rainfall, that the soil is very permeable with no confining layer, or that the land is steep and drains rapidly. Positive evidence of upland conditions should be obtained during the wet season. Based on these facts, when conducting parallel transects, this delineation study identified areas within the Study Area that had wetland plants, hydric soils, or wetland hydrology indicators.

The methodology for identifying wetland indicators followed the one described in the Regional Supplement to the Corps of Engineers Wetland Delineation Manual Western Mountains, Valleys, and Coast Region Version 2.0 (Corps 2010). This document uses several new wetland hydrology indicators not specified in the 1987 Corps Manual (Environmental Laboratory 1987). The Study Area was surveyed for indicators of wetland hydrology. Positive indicators of wetland hydrology can include direct evidence (primary indicators), such as visible inundation or saturation, surface sediment deposits, oxidized root channels, and drift lines, or indirect indicators (secondary indicators) such as algal mats, shallow restrictive layers in the soil, or vegetation meeting the FAC-neutral test. Depressions, seeps, and topographic low areas were examined for these hydrological indicators.

Soils in the Study Area were examined for hydric soil indicators according to Natural Resources Conservation Service guidelines (USDA 2010). Soils formed under wetland (anaerobic) conditions generally have a low chroma matrix color, designated 0, 1, or 2, and contain mottles or other redoximorphic features. Soil profiles were characterized by depth, color, redoximorphic features, and texture. Soil color and chroma were determined using a Munsell soil color chart (Gretag Macbeth 2000) to determine if the soils in a particular area could be considered hydric.

Plant species within potential wetlands were assigned a wetland status according to the Corps list of plant species that occur in wetlands (Lichvar 2012). This wetland plant classification system is based on the expected frequency of occurrence of each species in wetlands. The classification system has the following categories, which determine the frequency with which plants occur in wetlands:

OBL	Obligate, almost always found wetlands	>99% frequency
FACW	Facultative wetland, usually found in wetlands	67-99%
FAC	Facultative, equal in wetland or non-wetlands	34-67%
FACU	Facultative upland, usually found in non-wetlands	1-33%
UPL/NL	Not found in local wetlands	<1%
NI	Wetland preference unknown	

Species with OBL, FACW, and FAC classifications are considered hydrophytic vegetation. If more than 50 percent of the dominant plant species are hydrophytic, the area meets the wetland vegetation criterion and is presumed to be a jurisdictional wetland under the CCA.

Potential wetlands were assessed on June 11 and July 29, 2012 and further refined on December 11, 2013 in the field by Matt Richmond and Aaron Arthur, botanists with 40-hour Corps approved delineation training.

3.2 Natural Communities and Other ESHA

The Study Area was evaluated for the presence of other ESHA as defined in the CCA and the Mendocino County LCP, as well as natural communities designated in the CNDDB as G2 S2 or rarer (CDFG 2010). The presence of rare natural communities was determined by WRA, based on vegetation community classifications given in Holland (1986), Sawyer et al. (2009), and CDFG (2010). Vegetation or biological community boundaries were mapped using a GPS and/or were hand-drawn on high resolution aerial photographs where distinct signatures corresponded with shifts in these vegetation types.

3.3 Special-status Species

Potential occurrence of special-status species in the Study Area was evaluated by first determining which special-status species occur in the vicinity of the Study Area through a literature and database search. Database searches for known occurrences of special-status species focused on the Albion, Annapolis, Bear Harbor, Briceland, Cold Spring, Dutchman's Knoll, Elk, Eureka Hill, Fort Bragg, Fort Ross, Gualala, Hales Grove, Inglenook, Lincoln Ridge, Mallo Pass Creek, Mathison Peak, McGuire Ridge, Mendocino, Mistake Point, Noyo Hill, Piercy, Plantation, Point Arena, Saunders Reef, Shelter Cove, Stewarts Point, and Westport USGS 7.5-minute quadrangles. The following sources were reviewed to determine which special-status plant and wildlife species have been documented to occur in the vicinity of the Study Area:

- California Natural Diversity Database (CNDDB) records (CDFW 2013)
- USFWS quadrangle species lists (USFWS 2013)
- CNPS Electronic Inventory Records (CNPS 2013)
- Consortium of California Herbaria (CCH 2013)

3.3.1 Special-status Plant Species

Protocol-level rare plant surveys were conducted on June 11 and July 29, 2012 by WRA biologists Matt Richmond and Aaron Arthur. A follow-up visit conducted on December 11, 2013 was conducted by Matt Richmond and Aaron Arthur to confirm the presence of those species observed in summer 2012 and/or the presence of their habitat.

Potential occurrence of special-status plants in the Study Area was evaluated by first determining which special-status species occur in the vicinity of the Study Area or in similar biological communities through a literature and database search (Appendix B). A list of target plant species with potential to occur in the Study Area was generated, which guided surveys performed in summer 2012.

The protocol-level rare plant surveys consisted of traversing the entire Study Area. All observed plant species (Appendix C) were identified to the appropriate taxonomic level necessary to

determine their rarity status. Plants were identified using the *Jepson Manual* (Hickam 1993), *Jepson Manual, 2nd Edition* (Baldwin et al. 2012), and *A Flora of Sonoma County* (Best et al. 1996). Nomenclature follows Baldwin et al. (2012) unless otherwise noted.

3.3.2 Special-status Wildlife Species

Potential occurrence of special-status wildlife in the Study Area was evaluated by WRA by determining which special-status species occur in the vicinity of the Study Area or in similar biological communities through a literature and database search. Records from the CNDDB (CDFW 2013) and the USFWS Species list for Mendocino County (USFWS 2013) were reviewed to determine which special-status wildlife species have been documented to occur in the vicinity of the Study Area. A site visit was conducted by WRA biologists Matt Richmond and Aaron Arthur on June 11 and July 29, 2012, with a follow-up visited on December 11, 2013 to characterize if habitat parameters were suitable to support special-status wildlife species in the area and conduct a protocol-level Sonoma tree vole survey.

4.0 STUDY AREA DESCRIPTION

Within a given location, physical characteristics (e.g. topography, soils, climate) and land-use history (e.g. disturbance regime, built environment) influence the distribution and composition of the biotic environment, including the potential presence of sensitive vegetation communities, wetlands and non-wetland water habitats, and special-status plant and wildlife species. Therefore, the following section is a review of the physical conditions and land-use history, as well as the existing vegetation types, within the Study Area necessary to assess the potential for ESHA to be present.

4.1 Land-use History

Currently the Study Area contains a single-family house, and it is likely that recreation and residence was the primary historic and contemporary land use. It is unclear the exact historical use of the Study Area; however, because of the position near the ocean bluff and the presence of trees/shrubs in historical aerial photographs, it is unlikely that the site was utilized for grazing. Likewise, because the existing trees on site are not merchantable species, it is unlikely that timbering was conducted historically.

4.2 Topography and Soils

The Study Area is situated on a marine terrace between Dark Gulch and Little River. This terrace is composed of Tertiary-Cretaceous Period sedimentary rock overlain by terrace soils. As such the topography in the northern and central portions is relatively flat, with a pronounced ocean bluff face in the western and southern portions that falls into the Pacific Ocean, and a gentle hillock on the eastern boundary. A sea cave is situated within the central portion of the Study Area (Figure 2). This cave is not visible from anywhere on the property and currently evidence of collapsing or erosion from the terrace-view is not present (e.g. blowholes); however, rock fall within the cave has been documented (BAI 2014). Elevations range from approximately 40 to 95 feet above sea level. The eastern boundary is located on the lower

slope of an unnamed coastal hill, which recedes to a slightly sloped flat in the western portion of the Study Area.

The *Soil Survey of Mendocino County, Western Part* (USDA 2005) indicates that the Study Area contains one native soil type containing two soil series, Bruhel-Shinglemill complex, described below. This soil type contains approximately 50 percent Bruhel soils, 25 percent Shinglemill soils, and 25 percent other soils. Bruhel and Shinglemill soils are detailed below.

Bruhel loam, 2 to 15 percent slopes. This series consists of deep or very deep loam soils weathered from sandstone located on marine terraces, coastal hills, and coastal mountains at elevations ranging from 50 to 1300 feet. These soils are not considered hydric, and are well drained with slot to very rapid runoff, and moderate permeability. Native and naturalized vegetation associated with these soils include annual and perennial grasses and forbs, with stands of dense shrubs (USDA 2005).

A representative profile of this series contains an A-horizon of moderately acid (pH 5.6) very dark grayish brown (10YR 3/2) moist with no redoximorphic mottling loam from approximately 0 to 4 inches depth. This is underlain by a B-horizon of moderately acid (pH 5.8) very dark grayish brown (10YR 3/2) to brown (7.5YR 4/4) moist clay loam to gravelly clay loam from approximately 4 to 26 inches depth. This is underlain by a C-horizon of fractured soft sandstone with black (10YR 2/1) clay film from approximately 26 to 55 inches depth (USDA 2005).

Shinglemill loam, 2 to 15 percent slopes. This series consists of very deep loam soils formed in marine sediments of mixed rock type located on marine terraces and coastal hills at elevations ranging from 200 to 750 feet. These soils are considered hydric, and are poorly drained with slow to medium runoff, and slow permeability. Native vegetation associated with these soils includes coastal coniferous forest including Bishop pine (*Pinus muricata*), pygmy cypress (*Hesperocyparis pygmaea*), evergreen huckleberry (*Vaccinium ovatum*), glossy-leaf manzanita (*Arctostaphylos nummularia* ssp. *nummularia*), Pacific rhododendron (*Rhododendron macrophyllum*), Labrador tea (*R. columbianum*), and bear grass (*Xerophyllum tenax*) (USDA 2005).

A representative profile of this series contains an O-horizon of duff typically from pine needles, manzanita and rhododendron leaves, and twigs from 2 to 0 inches depth. This is underlain by an E-horizon of very strongly acid (pH 4.5) very pale brown (10YR 7/4) and grayish brown (10YR 5/2) moist loam from 0 to 3 inches depth. This is underlain by a B-horizon of very strongly acid (pH 4.6) yellowish brown (10YR 5/4, 5/6) moist loam to clay with prominent white (10YR 8/1, 8/2) mottles from approximately 3 to 63 inches depth (USDA 2005).

4.3 Climate and Hydrology

The Study Area is located in the coastal fog belt of Mendocino County. Average annual precipitation for Fort Bragg, located approximately 12 aerial miles north, is 41.25 inches, with the majority falling as rain and fog drip in the winter months (December through March). The mean daily low and high temperatures in degrees Fahrenheit range from 39.5 in December to 66.4 in August/September (WRCC 2013).

Although the Study Area experiences substantial rainfall events, evidence of surface ponding, repeated directional flow, perched water table, and/or saturated substrates for extended periods (14 days or greater) are present only in the western portion of the Study Area. Throughout most

of the Study Area, precipitation appears to permeate vegetated areas rapidly, with lower portions in grassland in the western portion experiencing extended saturation.

4.4 Vegetation and Natural Communities

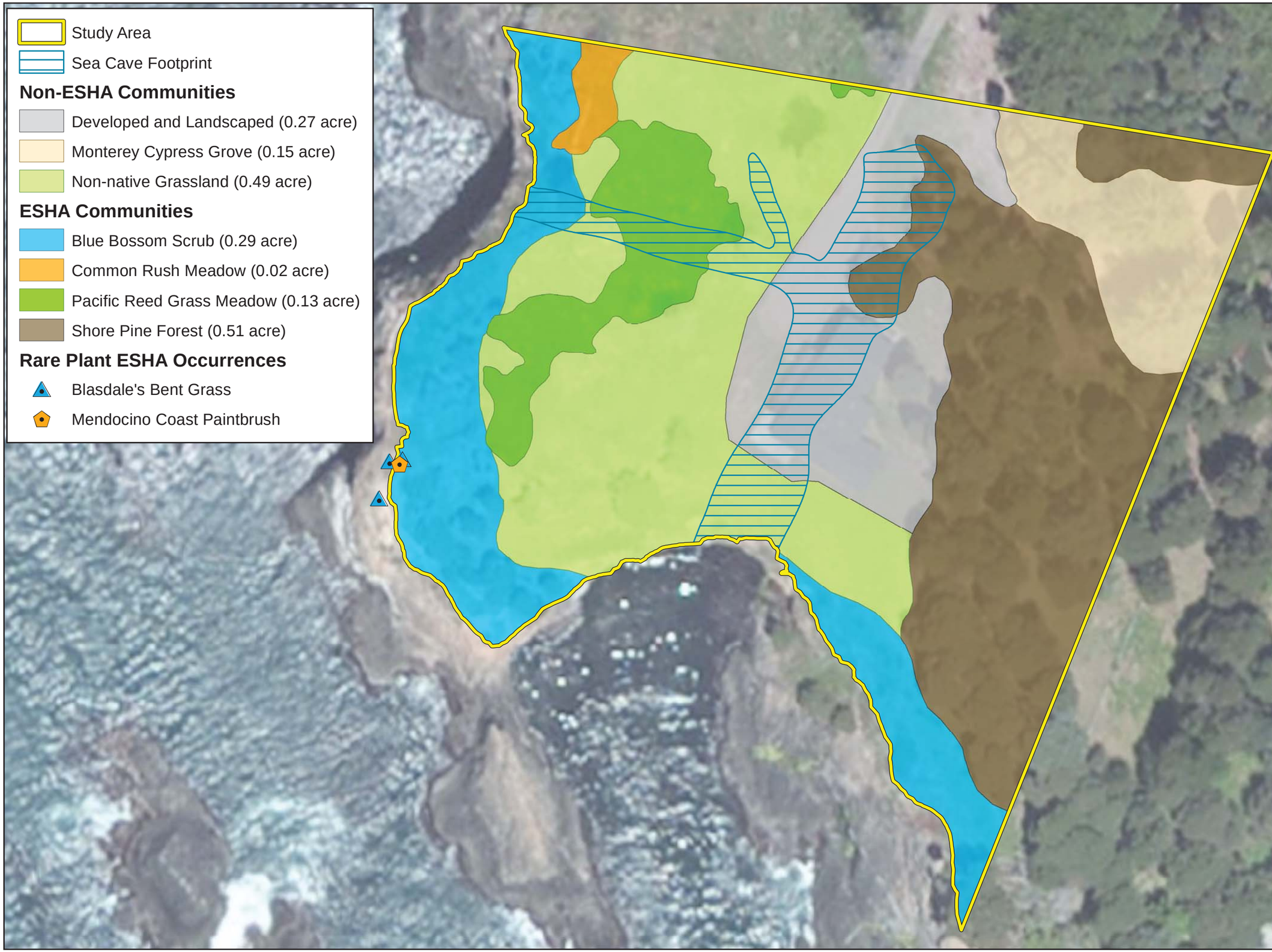
WRA mapped all vegetation communities within the Study Area (Table 1, Figure 2) and recorded all plant species observed (Appendix B). The potential ESHA status of these communities and plant species is discussed in Section 5.0. Vegetation communities and dominant plant species are described below.

Table 1. Summary of biological communities within the Study Area

Community Type[1]	Vegetation Community[2]	Vegetation Alliance[3]	Acreage
Non-ESHA			
Developed & Landscaped	N/A	N/A	0.27
Valley & Foothill Grassland	Non-native Perennial Grassland	Common Velvet Grass Meadow (*Holcus lanatus* Semi-Natural Herbaceous Stands)	0.49
		Sweet Vernal Grass Meadow (*Anthoxanthum odoratum* Semi-Natural Herbaceous Stands)	
Closed-cone Coniferous Forest	Monterey Cypress Grove	Monterey Cypress Grove (*Hesperocyparis macrocarpa* Forest Alliance)	0.15
ESHA			
Closed-cone Coniferous Forest	Shore Pine Forest	Shore Pine Grove (*Pinus contorta* Forest Alliance)	0.51
Coastal Bluff Scrub	Coastal Bluff Scrub	Blue Blossom Scrub (*Ceanothus thyrsiflorus* Shrubland Alliance)	0.29
Meadow and Seep	Freshwater Seep	Common Rush Meadow (*Juncus effusus* Herbaceous Stands)	0.02
	Coastal Terrace Prairie	Pacific Reed Grass Meadow (*Calamagrostis nutkaensis* Herbaceous Alliance)	0.13

[1]CNPS 2013 [2]Holland 1986 [3]Sawyer et al. 2009

Developed and Landscaped: This vegetation community is not described in the literature (Holland 1986, Sawyer et al. 2009). Developed areas are generally composed of species adapted to disturbance, such as nutrient-poor soils, toxic soils, or altered hydrologic regime. Landscaped areas are generally dominated by trees, shrubs, and perennials. The developed areas include one single-family dwelling located in central portion of the Study Area, accompanied by a gravel driveway that enters the property from the north. A narrow band of neglected landscaping surrounds the dwelling and includes lavender cotton (*Santolina chamaecyparissus*), corn daisy (*Glebionis segetum*), rosy iceplant (*Drosanthemum floribundum*), baby's tears (*Soleirolia soleirolii*), Latin American fleabane (*Erigeron karvinskianus*), and calla lily (*Zantedeschia aethiopica*).



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Mendocino County, California

Figure 2.

Biological Communities within the Study Area

N
W
E
S

0 20 40 80
Feet

Map Date: May 2014
Map By: Michael Rochelle
Base Source: ESRI Streaming Imagery, 2010 Microsoft Aerial

Path: L:\Acad 2000 Files\16000\16087-3\gis\arcmap\May 2014\Biological Communities.mxd

Non-native Perennial Grassland (Common Velvet Grass Meadow & Sweet Vernal Grass Meadow): This vegetation community is characteristic of non-native grassland as described in Holland (1986), as well as the common velvet grass grassland (*Holcus lanatus* Semi-Naturalized Stands) and sweet vernal grass grassland (*Anthoxanthum odoratum* Semi-Naturalized Stands) as described in Sawyer et al. (2009). Grasslands within the Study Area were mapped as non-native perennial grassland. Coastal terrace prairies contain the highest plant species diversity of all North American grasslands (Stromberg et al. 2002); however, the grasslands within the Study Area are dominated by non-native perennial and annual grasses, and contain very little native species cover and diversity. Additionally, Kraft et al. indicate that "No sampling and analysis has been done of natural variation along the coast of middle North Coast Ranges north of Point Reyes…There are many transitional types of vegetation, but it is not clear that they meet the criteria of being true coastal terrace prairie" (Kraft et al. 2007). Within the Study Area, non-native perennial grassland is located in relatively flat areas between the coastal bluff and the gravel driveway in the central, southern, and western portions (Figure 2).

The vertical structure of this community is very limited with scattered beach pines (*Pinus contorta* ssp. *contorta*), and occasional individuals of coyote brush (*Baccharis pilularis*). The primary structure of this community is composed of herbs dominated by the perennial non-native grasses of sweet vernal grass (*Anthoxanthum odoratum*), common velvet grass (*Holcus lanatus*), and orchard grass (*Dactylis glomerata*). Subdominants include the non-native annual grasses of Italian rye grass (*Festuca perennis*), rattlesnake grass (*Briza maxima*), and silver hair grass (*Aira caryophyllea*), and patches of the non-native forbs, rough cat's-ear (*Hypochaeris radicata*) and hawkbit (*Leontodon saxatilis*). Native herbaceous species are limited to scattered individuals, including red fescue (*Festuca rubra*), Douglas iris (*Iris douglasiana*), blue-eyed grass (*Sisyrinchium bellum*), and common yarrow (*Achillea millefolium*).

Meadows and Seeps (Common Rush Meadow & Pacific Reed Grass Meadow): This vegetation community is described by Holland (1986) and is composed of the vegetation alliances of common rush meadow (*Juncus effusus* Herbaceous Alliance) and Pacific reed grass meadow (*Calamagrostis nutkaensis*) (Sawyer et al. 2009). Common rush meadows are ranked G4 S4 and Pacific reed grass meadows are ranked G4 S2 (Sawyer et al. 2009, CDFG 2010), and meet the definition of CCA wetlands due to the dominance of perennial hydrophytic species (Appendix A). Within the Study Area, these meadows are situated on flat portions of the coastal terrace between and away from the existing driveway and the coastal bluff in the western portion (Figure 2).

Meadows and seeps contain very little vertical structure with infrequent coyote brush (*Baccharis pilularis*) shrubs. The primary structure of this community is composed of herbs dominated by the native perennial hydrophytes, common rush (*Juncus effusus*) and Pacific reed grass (*Calamagrostis nutkaensis*). Other species include spreading rush (*Juncus patens*), blue-eyed grass (*Sisyrinchium bellum*), slough sedge (*Carex obnupta*), dense sedge (*C. densa*), and hedge nettle (*Stachys ajugoides*).

Coastal Bluff Scrub (Blue Blossom Scrub): This vegetation community is characteristic of the northern coastal bluff scrub as described in Holland (1986), and blue blossom scrub (*Ceanothus thyrsiflorus* Shrubland Alliance) composed of several vegetation associations as described in Sawyer et al. (2009). This community is asterisked (*) (Holland 1986) and is ranked G4 S4 (Sawyer et al. 2009, CDFG 2010). Within the Study Area, coastal bluff scrub is located on the

intersection of the relatively flat non-native perennial grassland on the bluff face, continuing somewhat down the bluff face toward the open rock and Pacific Ocean (Figure 2).

Coastal bluff scrub contains some vertical structure and horizontal diversity, with denser shrub cover on the bluff – flat interface and an increasing forb cover downward on the bluff face. The shrub layer is a mix of native coastal shrubs including blue blossom (*Ceanothus thyrsiflorus* ssp. *griseus*), coyote brush (*Baccharis pilularis*), sticky monkey (*Mimulus aurantiacus*), coast silk tassel (*Garrya elliptica*), California coffeeberry (*Frangula californica*), salal (*Gaultheria shallon*), and California blackberry (*Rubus ursinus*). The herbaceous layer within the denser stands of shrubs includes cow parsnip (*Heracleum maximum*), Henderson's angelica (*Angelica hendersonii*), bracken fern (*Pteridium aquilinum*), and hedge nettle (*Stachys ajugoides*). Continuing downward on the bluff face, the shrub layer becomes very sparse and interstitial herbs on rocky openings increase with dominant species of coastal onion (*Allium dichlamydeum*), seaside fleabane (*Erigeron glaucus*), seaside woolly sunflower (*Eriophyllum staechadifolium*), Oregon gumweed (*Grindelia stricta* var. *platyphylla*), sea bluff lettuce (*Dudleya farinosa*), seashore lupine (*Lupinus littoralis*), many-colored lupine (*L. variicolor*), California seapink (*Armeria maritima* ssp. *californica*), seaside buckwheat (*Eriogonum latifolium*), and beach knotweed (*Polygonum paronychia*). The invasive species, iceplant (*Carpobrotus edulis*), is present throughout this community, with the greatest densities on the bluff – flat interface.

<u>Beach Pine Forest</u>: This vegetation community is characteristic of the beach pine forest as described in Holland (1986), and beach pine forest (*Pinus contorta* ssp. *contorta* Forest Alliance) as described in Sawyer et al. (2009). This community is asterisked (*) (Holland 1986) and is ranked G5 S3 (Sawyer et al. 2009, CDFG 2010). Within the Study Area, beach pine forest is located on the hillslope immediately east of the existing single-family dwelling, and intergrades with Monterey cypress grove, coastal bluff scrub, and non-native perennial grassland habitat (Figure 2).

Within the Study Area, the beach pine forest contains very little vertical structure with a relatively depauperate shrub component and short, dense herbaceous layer. The overstory is dominated by beach pine (*Pinus contorta* ssp. *contorta*), with individuals of Bishop pine (*Pinus muricata*), Monterey pine (*P. radiata*), and Monterey cypress (*Hesperocyparis macrocarpa*). The understory contains several scattered shrubs including evergreen huckleberry (*Vaccinium ovatum*), salal (*Gaultheria shallon*), California blackberry (*Rubus ursinus*), Nootka rose (*Rosa nutkana*), and California coffeeberry (*Frangula californica*). The herbaceous layer is a mix of native forest species and non-native invasive grasses. The native component is dominated by forbs and ferns including sword fern (*Polystichum munitum*), bracken fern (*Pteridium aquilinum*), milk maids (*Cardamine californica*), coast manroot (*Marah oregana*), Pacific pea (*Lathyrus vestitus*), and yerba buena (*Clinopodium douglasii*). Invasive grasses include common velvet grass (*Holcus lanatus*), rescue grass (*Bromus carinatus*), annual dogtail grass (*Cynosurus echinatus*), and sweet vernal grass (*Anthoxanthum odoratum*).

<u>Monterey Cypress Grove</u>: This vegetation community is somewhat characteristic of the Monterey cypress forest as described in Holland (1986), and Monterey cypress forest (*Hesperocyparis macrocarpa* Forest Alliance) as described in Sawyer et al. (2009); however, this community type is not native to the Mendocino Coast. Although this community is asterisked (*) (Holland 1986) and is ranked G5 S3 (Sawyer et al. 2009, CDFG 2010), rarity rankings are only applied to native stands on the Central Coast (Sawyer et al. 2009, CNPS 2012). Within the Study Area, the Monterey cypress grove is located on the hillslope

immediately southeast of the existing single-family dwelling, and intergrades with Monterey cypress grove and non-native perennial grassland habitat (Figure 2).

Within the Study Area, the Monterey cypress grove contains very little vertical structure with a relatively depauperate shrub and herbaceous understory due to a dense overstory canopy. The overstory is dominated by Monterey cypress (*Hesperocyparis macrocarpa*), with few individuals of beach pine (*Pinus contorta* ssp. *contorta*). The understory contains a few, suppressed scattered shrubs including evergreen huckleberry (*Vaccinium ovatum*), salal (*Gaultheria shallon*), and California blackberry (*Rubus ursinus*). The herbaceous layer is extremely sparse composed of common velvet grass (*Holcus lanatus*), sweet vernal grass (*Anthoxanthum odoratum*), and bracken fern (*Pteridium aquilinum*).

5.0 RESULTS

The following sections contain a description of ESHA documented during WRA's assessments and surveys. Figure 2 illustrates all ESHA observed in the Study Area. A list of all plant species observed within the Study Area is included in Appendix C. Representative photographs of the Study Area are included in Appendix D.

5.1 Wetlands

A routine CCC/WMVC wetland delineation determined 0.15 acre (6,534 square feet) of wetlands. These features include the vegetation alliances Common Rush Meadow and Pacific Reed Grass Meadow described in Section 4.5 above.

5.2 Natural Communities and Other ESHA

In addition to the wetlands described above in Section 5.1, the Shore Pine Forest and Coastal Bluff Scrub described in Section 4.5 above are potential sensitive natural community ESHA. These potential ESHAs occupy approximately 0.49 and 0.29 acres (21,345 and 12,632 square feet), respectively within the Study Area.

5.3 Special-status Species

5.3.1 Special-status Plant Species

A total of 36 special-status plant species have been documented within the greater vicinity of the Study Area, of which 18 have the potential to occur within the Study Area (Figure 3). The potential for these species to occur within the Study Area are summarized in Appendix B. Of the 36 special-status plant species that have been documented, 18 do not have the potential to occur within the Study Area due to one or more of the following reasons:

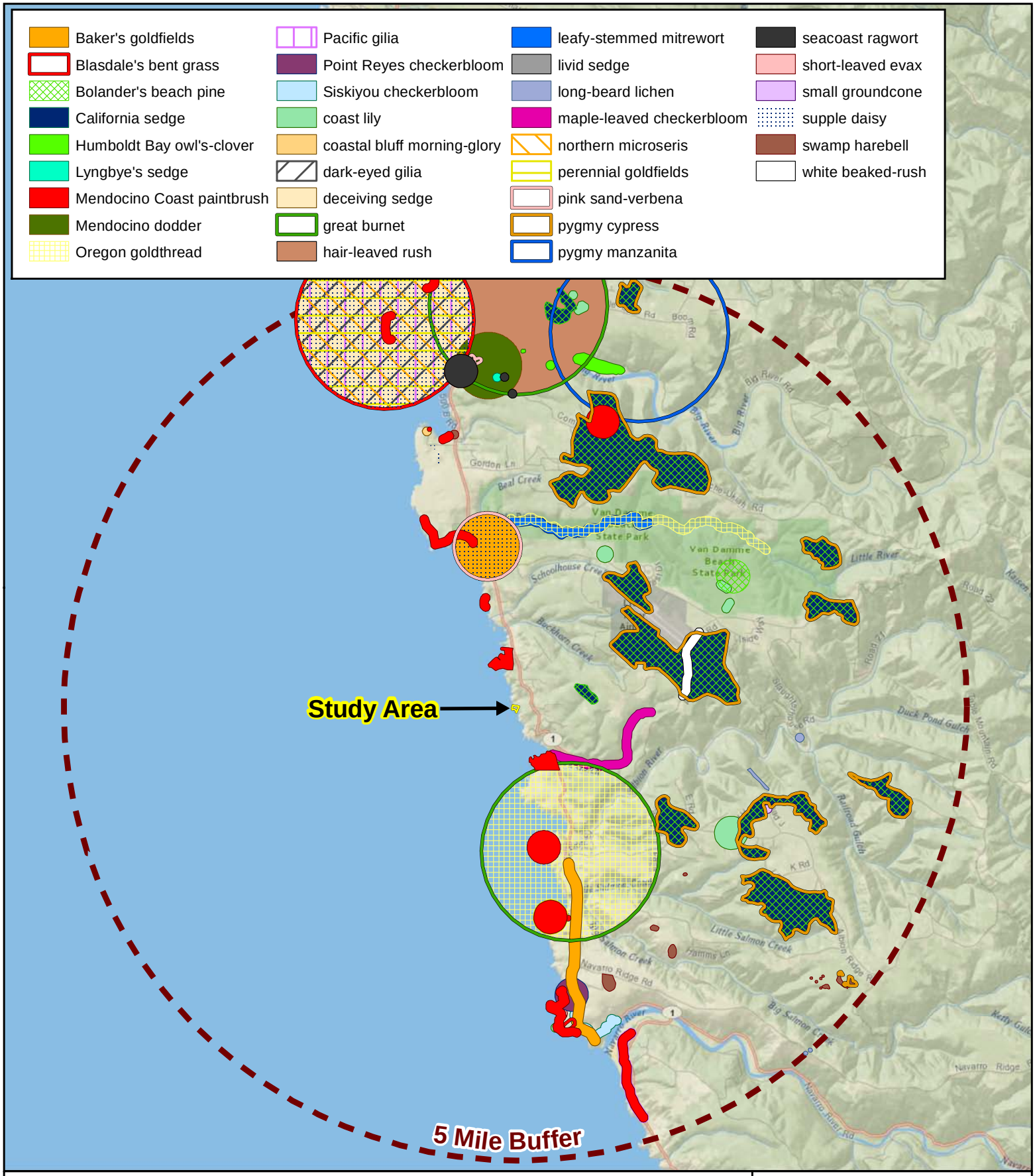

Figure 3. Special-status Plant Species within 5 Miles of the Study Area

5270 Highway 1
Little River, California

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Miles

wra
ENVIRONMENTAL CONSULTANTS

Date: September 2012
Map By: Michael Rochelle
Base Source: National Geographic

Path: <dyn type="document" property="path"/>

- 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) necessary to support the special-status plant species are not present in the Study Area;
- Associated vegetation 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.

The remaining 18 special-status plant species were assessed to have a moderate to high potential to occur within the Study Area, and formed the target species list for the rare plant surveys performed on June 11 and July 29, 2012. Protocol-level rare plant surveys resulted in positive findings of two special-status plant species including Blasdale's bentgrass (*Agrostis blasdalei*, CNPS Rank 1B) and Mendocino paintbrush (*Castilleja mendocinensis*, CNPS Rank 1B). All species with the potential to occur within the Study Area are described below.

Blasdale's bentgrass (*Agrostis blasdalei*). CNPS Rank 1B. High Potential (Present). Blasdale's bentgrass is a perennial graminoid in the grass family (Poaceae) that blooms from May to July. It typically occurs in bare or sparsely vegetated areas in coastal dune, coastal bluff scrub, and coastal prairie habitat at elevations ranging from 15 to 490 feet (CDFW 2013, CNPS 2013). Soil survey data at known locations suggest that this species is typically located on moderately strongly acid (pH 5.0) to slightly acid sandy (pH 6.5) loams and sands derived from sedimentary rock (CDFW 2013, CSRL 2013). Observed associated species include sweet vernal grass (*Anthoxanthum odoratum*), velvet grass (*Holcus lanatus*), tree lupine (*Lupinus arboreus*), many-colored lupine (*L. variicolor*), bracken fern (*Pteridium aquilinum*), seaside fleabane (*Erigeron glaucus*), sea lettuce (*Dudleya farinosa*), sea pink (*Armeria maritima*), and common yarrow (*Achillea millefolium*) (CDFW 2013). Blasdale's bentgrass was initially evaluated to have a high potential to occur within the Study Area due the presence of coastal bluff and sandy substrates. Blasdale's bentgrass was observed in the southwestern portion of the Study Area on the ocean bluff within coastal bluff scrub habitat (Figure 2).

Coastal bluff morning-glory (*Calystegia purpurata* ssp. *saxicola*). CNPS Rank 1B. High Potential (Not Observed). Coastal bluff morning-glory is a perennial forb in the morning-glory family (Convolvulaceae) that blooms from May to September. It typically occurs on bluffs within coastal dune and coastal scrub habitat at elevations ranging from 30 to 330 feet (CDFW 2013, CNPS 2013). Observed associated species include Bishop pine (*Pinus muricata*), shore pine (*Pinus contorta* ssp. *contorta*), coyote brush (*Baccharis pilularis*), tree lupine (*Lupinus arboreus*), poison oak (*Toxicodendron diversilobum*), Douglas iris (*Iris douglasiana*), California blackberry (*Rubus ursinus*), sea lettuce (*Dudleya farinosa*), bracken fern (*Pteridium aquilinum*), ice plant (*Carpobrotus edulis*), seaside woolly sunflower (*Eriophyllum staechadifolium*), common velvet grass (*Holcus lanatus*), sweet vernal grass (*Anthoxanthum odoratum*), and little rattlesnake grass (*Briza maxima*) (CDFW 2013, personal observation 2010, 2013). Coastal bluff morning-glory was initially evaluated to have a moderate potential to occur within the Study Area due to

the presence of coastal scrub habitat and several associated species; however, this species was not observed during protocol-level rare plant surveys.

Swamp harebell (*Campanula californica*). CNPS Rank 1B. Moderate Potential (Not Observed). Swamp harebell is a perennial forb in the harebell family (Campanulaceae) that blooms from June to October. It typically occurs on mesic sites in bog, fen, closed-cone coniferous forest, coastal prairie, meadow, seep, freshwater marsh, and North Coast coniferous forest habitat at elevations ranging from 5 to 1330 feet (CDFW 2013, CNPS 2013). Soil survey data at known locations suggest that this species is typically located on moderately acid to neutral (pH 5.6 to 6.7) loams to sandy loams derived from sandstone (CDFW 2013, CSRL 2013). This species has a wetland indicator status of obligate (OBL) on the National Wetland Plant List (Lichvar 2012). Observed associated species include Douglas fir, coast redwood (*Sequoia sempervirens*), arroyo willow (*Salix lasiolepis*), rushes, sedges, water parsley, nootka rose (*Rosa nutkana*), California blackberry (*Rubus ursinus*), musk monkeyflower (*Mimulus guttatus*), coastal hedgenettle (*Stachys chamissonis*), common velvet grass (*Holcus lanatus*), and tinker's penny (*Hypericum anagalloides*) (CDFW 2013). Swamp harebell was initially evaluated to have a moderate potential to occur in the Study Area due to the presence of associated species and vegetation communities; however, it was not observed during protocol-level rare plant surveys conducted in summer 2012.

California sedge (*Carex californica*). CNPS Rank 2B. Moderate Potential (Not Observed). California sedge is perennial rhizomatous graminoid in the sedge family (Cyperaceae) that blooms from May to August, but is identifiable into fall based on fruit structures. It typically occurs in wet meadows and drier margins of marshes underlain by acidic soils with cemented hardpans (e.g. Blacklock soil series) in bog, fen, meadow, coastal prairie, meadow, marsh, and closed-cone coniferous forest (pygmy forest) habitat at elevations ranging from 290 to 1090 feet (CNPS 2013, CDFW 2013). This species has a wetland indicator status of facultative wetland (FACW) on the National Wetland Plant List (Lichvar 2012). Observed associated species include pygmy cypress (*Hesperocyparis pygmaea*), Bolander's pine (*Pinus contorta* ssp. *bolanderi*), Bishop pine (*Pinus muricata*), Labrador tea (*Rhododendron diversilobum*), wax myrtle (*Morella californica*), Mendocino manzanita (*Arctostaphylos nummularia* ssp. *mendocinensis*), evergreen huckleberry (*Vaccinium ovatum*), bunchberry (*Cornus canadensis*), bracken fern (*Pteridium aquilinum*), and coast lily (*Lilium maritimum*) (CDFW 2013, personal observation 2012). California sedge was initially evaluated to have a moderate potential to occur in the Study Area due to the presence of associated species and vegetation communities; however, it was not observed during protocol-level rare plant surveys conducted in summer 2012.

Deceiving sedge (*Carex saliniformis*). CNPS Rank 1B. Moderate Potential (Not Observed). Deceiving sedge is a perennial graminoid in the sedge family (Cyperaceae) that blooms from June to July, but is identifiable into August based on fruit and vegetative characters. It typically occurs in mesic areas of coastal prairie, coastal scrub, meadows, seeps, and coastal salt marsh habitat at elevations ranging from 10 to 750 feet (CDFW 2013, CNPS 2013). This species has a wetland indicator status of facultative wetland (FACW) on the National Wetland Plant List (Lichvar 2012). Observed associated species include marsh sandwort (*Arenaria paludicola*), slough sedge (*Carex obnupta*), witch grass (*Panicum acuminatum*), low bulrush (*Isolepis cernua*), golden-eyed grass (*Sisyrinchium californicum*), blue-eyed grass (*S. bellum*), bracken fern (*Pteridium aquilinum*), common velvet grass (*Holcus lanatus*), coastal tufted hair grass (*Deschampsia cespitosa* ssp. *holciformis*), California oat grass (*Danthonia californica*), beach

strawberry (*Fragaria chiloensis*), hawkbit (*Leontodon saxatilis*), and Douglas iris (*Iris douglasiana*) (CDFW 2013, personal observation 2013). Deceiving sedge was initially evaluated to have a moderate potential to occur within the Study Area due to the presence of associated species and vegetation communities; however, it was not observed during protocol-level rare plant surveys conducted in summer 2012.

Oregon coast paintbrush (*Castilleja affinis* ssp. *littoralis*). CNPS Rank 1B. High Potential (Not Observed). Coast paintbrush is a perennial hemiparastic forb in the broomrape family (Orobanchaceae) that blooms in June. It typically occurs on sandy substrates within coastal bluff scrub, coastal scrub, and coastal dune habitat at elevations ranging from 45 to 325 feet (CDFW 2013, CNPS 2013). Observed associated species include Sitka spruce (*Picea sitchensis*), red alder (*Alnus rubra*), coyote brush (*Baccharis pilularis*), California blackberry (*Rubus ursinus*), twinberry (*Lonicera involucrata*), wax myrtle (*Morella californica*), salal (*Gaultheria shallon*), sticky monkey (*Mimulus aurantiacus*), common yarrow (*Achillea millefolium*), leafy reed grass (*Calamagrostis foliosa*), pearly everlasting (*Anaphalis margaritacea*), horsetails (*Equisetum* sp.), Douglas iris (*Iris douglasiana*), tough-leaf iris (*I. tenax*), and coastal mugwort (*Artemisia suksdorfii*) (CDFW 2013). Oregon coast paintbrush was initially evaluated to have a high potential to occur within the Study Area due to presence of coastal bluffs, associated species and vegetation communities; however it was not observed during protocol-level rare plant surveys conducted in summer 2012.

Mendocino paintbrush (*Castilleja mendocinensis*). CNPS Rank 1B. High Potential (Present). Mendocino paintbrush is a perennial hemiparasitic forb in the broomrape family (Orobanchaceae) that blooms from April to August. It typically occurs on coastal bluff faces and near bluff edges within coastal bluff scrub, closed-cone coniferous forest, coastal dune, coastal prairie, and coastal scrub habitat at elevations ranging from 0 to 520 feet (CDFW 2013, CNPS 2013). Observed associated species include shore pine (*Pinus contorta* ssp. *contorta*), Bishop pine (*P. muricata*), coyote brush (*Baccharis pilularis*), blue blossom (*Ceanothus thyrsiflorus* var. *thyrsiflorus*), sticky monkey (*Mimulus aurantiacus*), poison oak (*Toxicodendron diversilobum*), common yarrow (*Achillea millefolium*), coast angelica (*Angelica hendersonii*), varied lupine (*Lupinus variicolor*), sea lettuce (*Dudleya farinosa*), sea pink (*Armeria maritima* ssp. *californica*), coastal buckwheat (*Eriogonum latifolium*), Blasdale's bentgrass (*Agrostis blasdalei*), coast onion (*Allium dichlamydeum*), beach knotweed (*Polygonum paronychia*), seaside daisy (*Erigeron glaucus*), beach strawberry (*Fragaria chiloensis*), and common woolly sunflower (*Eriophyllum lanatum* var. *arachnoideum*) (CDFW 2013, personal observations 2010, 2012, 2013). Mendocino paintbrush was initially evaluated to have a high potential to occur within the Study Area due to presence of coastal bluff, as well as associated species and vegetation communities. Mendocino paintbrush individuals were observed on the coastal bluff in the southwestern portion of the Study Area (Figure 2).

Howell's spineflower (*Chorizanthe howellii*). Federal Endangered, State Threatened, CNPS Rank 1B. Moderate Potential (Not Observed). Howell's spineflower is an annual forb in the knotweed family (Polygonaceae) that blooms from May to July. It typically occurs dunes, slopes, and grassy areas underlain by sandy substrates in coastal dune, coastal prairie, and coastal scrub habitat at elevations ranging from 0 to 115 feet (CNPS 2013, CDFW 2013). Observed associated species include beach suncup (*Camissoniopsis cheiranthifolia*), beach sage (*Artemisia pycnocephala*), round-headed Chinese houses (*Collinsia corymbosa*), Menzies' wallflower (*Erysimum menziesii* ssp. *menziesii*), dwarf plantain (*Plantago erecta*), European hair grass (*Aira caryophyllea*), rattlesnake grass (*Briza maxima*), and maritime brome (*Bromus*

maritimus) (CDFW 2013, personal observation 2012, 2013). Howell's spineflower was initially evaluated to have a moderate potential to occur within the Study Area due to the presence of coastal prairie underlain by sandy substrate; however, this species was not observed during protocol-level rare plant surveys conducted in summer 2012.

Supple daisy (*Erigeron supplex*). CNPS Rank 1B. High Potential (Not Observed). Supple daisy in a perennial forb in the sunflower family (Asteraceae) that blooms from May to July. It typically occurs in grassy, open areas in coastal bluff scrub and coastal prairie habitat at elevations ranging from 30 to 165 feet (CDFW 2013, CNPS 2013). Observed associated species include Bishop pine (*Pinus muricata*), glory bush (*Ceanothus gloriosus*), coyote brush (*Baccharis pilularis*), Douglas iris (*Iris douglasiana*), dwarf brodiaea (*Brodiaea terrestris*), Pacific reed grass (*Calamagrostis nutkaensis*), common velvet grass (*Holcus lanatus*), dune goldenrod (*Solidago spathulata*), coast coyote thistle (*Eryngium armatum*), California oat grass (*Danthonia californica*), blue-eyed grass (*Sisyrinchium bellum*), wood rush (*Luzula comosa*), silver hair grass (*Aira caryophyllea*), and dog violet (*Viola adunca*) (CDFW 2013). Supple daisy was initially evaluated to have a high potential to occur within the Study Area due to the presence of coastal prairie and associated species; however, this species was not observed during protocol-level rare plant surveys conducted in summer 2012.

Pacific gilia (*Gilia capitata* ssp. *pacifica*). CNPS Rank 1B. High Potential (Not Observed). Pacific gilia is an annual forb in the phlox family (Polemoniaceae) that blooms from April to August. It typically occurs in ravines, steep slopes, and open flats in coastal dune, coastal bluff scrub, coastal prairie, and valley and foothill grassland habitat at elevations ranging from 15 to 3,090 feet (CDFW 2013, CNPS 2013, Baldwin et al. 2012). Observed associated species include tanoak (*Notholithocarpus densiflorus*), Douglas fir (*Pseudotsuga menziesii*), poison oak (*Toxicodendron diversilobum*), California blackberry (*Rubus ursinus*), cow parsnip (*Heracleum maximum*), California oat grass (*Danthonia californica*), Italian rye grass (*Festuca perennis*), dogtail grass (*Cynosurus echinatus*), ripgut brome (*Bromus diandrus*), little rattlesnake grass (*Briza minor*), big rattlesnake grass (*B. maxima*), wild oats (*Avena barbata*, *A. fatua*), bentgrass (*Agrostis* sp.), blue wild rye (*Elymus glaucus*), soap plant (*Chlorogalum pomeridianum*), bracken fern (*Pteridium aquilinum*), bee plant (*Scrophularia californica*), rough cat's-ear (*Hypochaeris radicata*), English plantain (*Plantago lanceolata*), Canada thistle (*Cirsium arvense*), and silver hair grass (*Aira caryophyllea*) (CDFW 2013). Pacific gilia was initially evaluated to have a high potential to occur within the Study Area due to the presence of coastal prairie underlain by sandy substrate and associated species; however, this species was not observed during protocol-level rare plant surveys conducted in summer 2012.

Short-leaved evax (*Hesperevax sparsiflora* var. *brevifolia*). CNPS Rank 1B. High Potential (Not Observed). Short-leaved evax is an annual forb in the sunflower family (Asteraceae) that germinates and leafs-out in late winter, blooms from March to June, and senesces in late summer. It typically occurs on sandy substrate on bluffs and flats in coastal bluff scrub and coastal dune habitat at elevations ranging from 0 to 700 feet (CNPS 2013, CDFW 2013). Observed associated species include round-head Chinese houses (*Collinsia corymbosa*), beach suncup (*Camissoniopsis cheiranthifolia*), North Coast phacelia (*Phacelia insularis* var. *continentis*), seacoast angelica (*Angelica lucida*), beach sage (*Artemisia pycnocephala*), Howell's spineflower (*Chorizanthe howellii*), Mendocino paintbrush (*Castilleja mendocinensis*), seaside buckwheat (*Eriogonum latifolium*), and seaside daisy (*Erigeron glaucus*) (CDFW 2013, personal observations 2009, 2010, 2011, 2013). Short-leaved evax was initially evaluated to have a high potential to occur within the Study Area due to the presence of coastal prairie

underlain by sandy substrate and associated species; however, this species was not observed during protocol-level rare plant surveys conducted in summer 2012.

Harlequin lotus (*Hosackia gracilis*), CNPS Rank 4. High Potential (Not Observed). Harlequin lotus is a perennial forb in the pea family (Fabaceae) that blooms from March to July. It typically occurs in wetlands or ditches in broadleaf upland forest, coastal scrub, closed-cone coniferous forest, cismontane woodland, coastal prairie, meadow and seep, marsh and swamp, North Coast coniferous forest, and valley and foothill grassland habitat at elevations ranging from 0 to 2275 feet (CNPS 2014). Observed associated species include coyote brush (*Baccharis pilularis*), California coffeeberry (*Frangula californica*), Pacific reed grass (*Calamagrostis nutkaensis*), slough sedge (*Carex obnupta*), Hall's bentgrass (*Agrostis hallii*), colonial bentgrass (*A. capillaris*), California oat grass (*Danthonia californica*), purple awned Wallaby Grass (*Rytidosperma penicillatum*), common velvet grass (*Holcus lanatus*), sweet vernal grass (*Anthoxanthum odoratum*), blue-eyed grass (*Sisyrinchium bellum*), Douglas iris (*Iris douglasiana*), and dog violet (*Viola adunca*) (personal observations 2010, 2012, 2013). Harlequin lotus was initially evaluated to have a high potential to occur within the Study Area due to the presence of associated species and vegetation communities; however, Pacific gilia was initially evaluated to have a high potential to occur within the Study Area due to the presence of coastal prairie underlain by sandy substrate and associated species; however, this species was not observed during protocol-level rare plant surveys conducted in summer 2012.

Baker's goldfields (*Lasthenia californica* ssp. *bakeri*). CNPS Rank 1B. High Potential (Not Observed). Baker's goldfields are an annual forb in the sunflower family (Asteraceae) that blooms from April to October. It typically occurs in openings of woody areas in closed-cone coniferous forest and coastal scrub habitat at elevations ranging from 195 to 1,690 feet (CDFW 2013, CNPS 2013). Observed associated species include Bishop pine (*Pinus muricata*), shore pine (*P. contorta* ssp. *contorta*), coyote brush (*Baccharis pilularis*), common velvet grass (*Holcus lanatus*), sweet vernal grass (*Anthoxanthum odoratum*), and Pacific reed grass (*Calamagrostis nutkaensis*) (CDFW 2013). Baker's goldfields was initially evaluated to have a high potential to occur within the Study Area due to the presence of associated species and vegetation communities; however, this species was not observed during protocol-level rare plant surveys conducted in summer 2012.

Perennial goldfields (*Lasthenia californica* ssp. *macrantha*). CNPS Rank 1B. High Potential (Not Observed). Perennial goldfields are annual to perennial forbs in the sunflower family (Asteraceae) that bloom from January to February. It typically occurs on mesas, benches, and bluff faces in coastal bluff scrub, coastal dune, and coastal scrub at elevations from 15 to 1,690 (CDFW 2013, CNPS 2013). Observed associated species include coyote brush (*Baccharis pilularis*), poison oak (*Toxicodendron diversilobum*), California blackberry (*Rubus ursinus*), brownie thistle (*Cirsium quercetorum*), Douglas iris (*Iris douglasiana*), sea lettuce (*Dudleya farinosa*), California buttercup (*Ranunculus californicus*), Pacific reed grass (*Calamagrostis nutkaensis*), Italian rye grass (*Festuca perennis*), selfheal (*Prunella vulgaris*), English plantain (*Plantago lanceolata*), dwarf checkerbloom (*Sidalcea malviflora*), beach strawberry (*Fragaria chiloensis*), narrow-leaf mule's-ears (*Wyethia angustifolia*), coast angelica (*Angelica hendersonii*), soap plant (*Chlorogalum pomeridianum*), and coast coyote thistle (*Eryngium armatum*) (CDFW 2013, personal observations 2008, 2009). Perennial goldfields was initially evaluated to have a high potential to occur within the Study Area due to the presence of

associated species and vegetation communities; however, this species was not observed during protocol-level rare plant surveys conducted in summer 2012.

Coast lily (*Lilium maritimum*). CNPS Rank 1B. Moderate Potential (Not Observed). Coast lily is a bulbiferous perennial forb in the lily family (Liliaceae) that blooms from May to August. It typically occurs on sandy, acidic often hummocky substrates derived from marine sediments and sedimentary rock in bogs, closed-cone coniferous forest (e.g. Bishop pine, pygmy cypress), coastal prairie, coastal scrub, broadleaf upland forest, and North Coast coniferous forest habitat at elevations ranging from 15 to 1550 feet (CNPS 2013, CDFW 2013, CSRL 2013). Observed associated species include pygmy cypress (*Hesperocyparis pygmaea*), Bishop pine (*Pinus muricata*), Bolander's pine (*P. contorta* ssp. *bolanderi*), coast redwood (*Sequoia sempervirens*), wax myrtle (*Morella californica*), evergreen huckleberry (*Vaccinium ovatum*), salal (*Gaultheria shallon*), Pacific rhododendron (*Rhododendron macrophyllum*), Labrador tea (*R. columbianum*), slough sedge (*Carex obnupta*), California sedge (*C. californica*), Pacific reed grass (*Calamagrostis nutkaensis*), and bracken fern (*Pteridium aquilinum*) (CDFW 2013, personal observations 2010, 2011, 2012, 2013). Coast lily was initially evaluated to have a moderate potential to occur within the Study Area due to the presence of associated species and vegetation communities; however, this species was not observed during protocol-level rare plant surveys conducted in summer 2012.

Siskiyou checkerbloom (*Sidalcea malviflora* ssp. *patula*). CNPS Rank 1B. High Potential (Not Observed). Siskiyou checkerbloom is a perennial forb in the mallow family (Malvaceae) that blooms from May to August. It typically occurs in openings and roadcuts within coastal prairie and broadleaf upland forest at elevations ranging from 45 to 2,860 feet (CDFW 2013, CNPS 2013). Observed associated species include coast redwood (*Sequoia sempervirens*), Douglas fir (*Pseudotsuga menziesii*), coyote brush (*Baccharis pilularis*), poison oak (*Toxicodendron diversilobum*), naked rose (*Rosa gymnocarpa*), ocean spray (*Holodiscus discolor*), service berry (*Amelanchier* sp.), California blackberry (*Rubus ursinus*), sheep sorrel (*Rumex acetosella*), California poppy (*Eschscholzia californica*), common yarrow (*Achillea millefolium*), small burnet (*Sanguisorba minor*), soft chess (*Bromus hordeaceus*), ripgut brome (*B. diandrus*), sweet vernal grass (*Anthoxanthum odoratum*), dogtail grass (*Cynosurus echinatus*), and bracken fern (*Pteridium aquilinum*) (CDFW 2013). Siskiyou checkerbloom was initially evaluated to have a high potential to occur within the Study Area due to the presence of associated species and vegetation communities; however, this species was not observed during protocol-level rare plant surveys conducted in summer 2012,

Purple-stemmed checkerbloom (*Sidalcea malviflora* ssp. *purpurea*). CNPS Rank 1B. High Potential (Not Observed). Purple-stemmed checkerbloom is a perennial forb in the mallow family (Malvaceae) that blooms from May to June. It typically occurs in openings, meadows, and prairies within broadleaf upland forest and coastal scrub habitat at elevations ranging from 45 to 280 feet (CDFW 2013, CNPS 2013). This species has a wetland indicator status of facultative wetland (FACW) species on the National Wetland Plant List (Lichvar 2012). Observed associated species include varied lupine (*Lupinus variicolor*), Blasdale's bentgrass (*Agrostis blasdalei*), sea pink (*Armeria maritima*), English daisy (*Bellis perennis*), rough cat's-ear (*Hypochaeris radicata*), tufted hair grass (*Deschampsia cespitosa*), hillside suncups (*Taraxia ovata*), sheep sorrel (*Rumex acetosella*), dog violet (*Viola adunca*), soap plant (*Chlorogalum pomeridianum*), Pacific false bindweed (*Calystegia purpurata*), perennial goldfields (*Lasthenia californica* ssp. *macrantha*), coast coyote thistle (*Eryngium armatum*), dwarf plantain (*Plantago erecta*), English plantain (*P. lanceolata*), featherweed (*Gamochaeta ustulata*), seaside daisy

(*Erigeron glaucus*), Wight's paintbrush (*Castilleja wightii*), common yarrow (*Achillea millefolium*), common velvet grass (*Holcus lanatus*), big rattlesnake grass (*Briza maxima*), and sweet vernal grass (*Anthoxanthum odoratum*) (CDFW 2013, personal observation 2013). Purple-stemmed checkerbloom was initially evaluated as high potential to occur within the Study Area due to the presence of associated vegetation communities and species; however, this species was not observed during protocol-level rare plant surveys conducted in summer 2012.

Dog violet (*Viola adunca*). No Rank. High Potential (Not Observed). Dog violet is a perennial forb in the violet family (Violaceae) that blooms from April to August. It typically occurs in moist meadows and openings, on meadow edges, and along damp streambanks in coastal prairie, coastal scrub, coastal bluff scrub, lower montane coniferous forest, and North Coast coniferous forest habitat at elevations ranging from 3 to 11,600 feet (Baldwin et al. 2012, Best et al. 1996). This species has a wetland indicator status of facultative (FAC) species on the National Wetland Plant List (Lichvar 2012). Observed associated species include Bishop pine (*Pinus muricata*), shore pine (*Pinus contorta* var. *contorta*), coyote thistle (*Baccharis pilularis*), California coffeeberry (*Frangula californica*), common velvet grass (*Holcus lanatus*), sweet vernal grass (*Anthoxanthum odoratum*), big rattlesnake grass (*Briza maxima*), tufted hair grass (*Deschampsia cespitosa*), California oat grass (*Danthonia californica*), red fescue (*Festuca rubra*), blue-eyed grass (*Sisyrinchium bellum*), yellow-eyed grass (*S. californicum*), tinker's penny (*Hypericum anagalloides*), and scarlet pimpernel (*Anagallis arvensis*) (personal observation 2011, 2012, 2013). Dog violet was initially evaluated to have a high potential to occur within the Study Area due to the presence associated species and vegetation communities; however, this species was not observed during protocol-level rare plant surveys conducted in summer 2012.

5.3.2 Special-status Wildlife Species

A total of 42 special-status wildlife species have been documented within the greater vicinity of the Study Area, of which two have the potential to occur within the Study Area (Figure 4). The potential for these species to occur within the Study Area are summarized in Appendix B. Forty of the 42 special-status wildlife species do not have the potential to occur within the Study Area due to one or more of the following reasons:

- Aquatic habitats (e.g. rivers, ponds, estuaries) necessary to support the special-status wildlife species are not present in the Study Area;
- Vegetation habitats (e.g. oak woodlands, old-growth Douglas fir-coast redwood) that provide nesting and/or foraging resources necessary support the special-status wildlife species are not present in the Study Area;
- Structures or vegetation (e.g. caves, old-growth trees) necessary to provide nesting or cover 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.

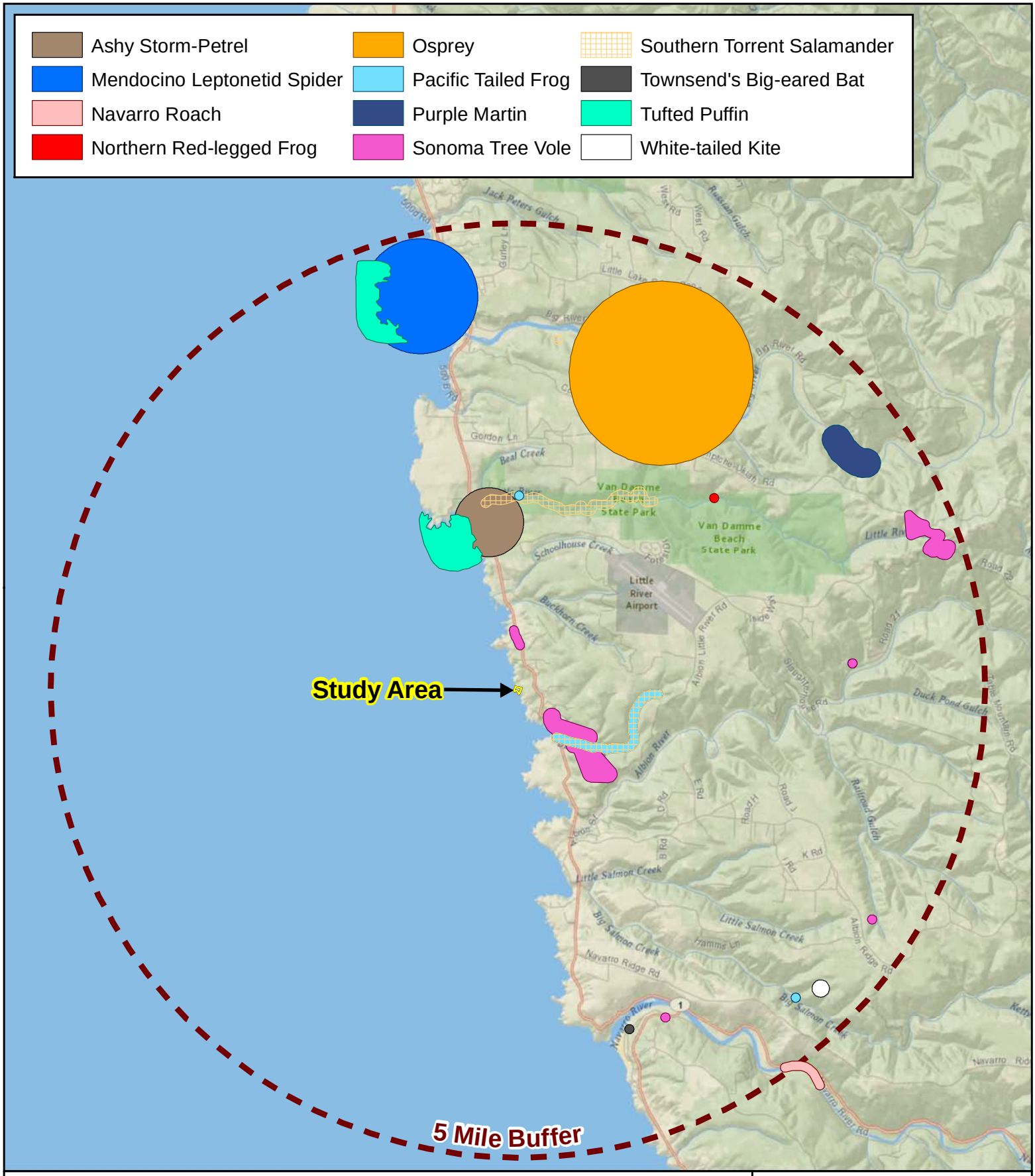

Figure 4. Special-status Wildlife Species within 5 Miles of the Study Area

5270 Highway 1
Little River, California

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Miles

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Date: September 2012
Map By: Michael Rochelle
Base Source: National Geographic

Path: L:\Acad 2000 Files\16000\16087\gis\arcmap\2012\CNDDB_Wildlife.mxd

Sonoma tree vole and white-tailed kite were evaluated to have a high and moderate potential, respectively, to occur within the Study Area due to the presence of habitat parameters sufficient populations of these species. Protocol-level surveys for Sonoma tree vole were conducted June 11 and July 29, 2012, but surveys for white-tailed kite were not conducted. These species are detailed below.

Sonoma tree vole (*Arborimus pomo*). CDFW Species of Special Concern. High Potential (Not Observed). The Sonoma tree vole is distributed along the northern California coast from Sonoma County to the Oregon border. It occurs in old-growth and other forest types of Douglas and other conifers, including stands of Bishop pine. This species breeds year-round, but most often from February through September. Nests are constructed preferentially in tall trees, and may be situated on a whorl of limbs against the trunk, or at the outer limits of branches. Males nest most frequently in a tree nest constructed of needles, or less frequently in shallow burrows at the base of the tree, beneath litter. Females tend to spend most of their lives in trees, constructing large, domed nursery nests of needles at six to 150 feet above the ground (Howell 1926). In young second-growth Douglas-fir, nests are often placed on broken tops of trees (Maser et al. 1981), although old-growth Douglas fir stands likely provide the optimal structural components for nest-building (BLM 2002). The Sonoma tree vole is a coniferous needle specialist; needles and twigs are gathered primarily during the night, and may be consumed where found or brought to the nest. Needle resin ducts are removed. The remaining part is eaten, and the resin ducts may be used to line the nest cup. This unique nest lining is an identifying characteristic of STV nests. Sonoma tree vole has a high potential to occur within the Study Area due to the presence of nest and forage habitat and documented occurrences within five miles; however, evident of this species was not observed during protocol-level surveys conducted in summer 2012 concurrent with special-status plant surveys.

White-tailed kite (*Elanus leucurus*). California Fully Protected Species. Moderate Potential. The white-tailed kite is resident in open to semi-open habitats throughout the lower elevations of California, including grasslands, savannahs, woodlands, agricultural areas and wetlands. Vegetative structure and prey availability seem to be more important habitat elements than associations with specific plants or vegetative communities (Dunk 1995). Nests are constructed mostly of twigs and placed in trees, often at habitat edges; nests trees are highly variable in size, structure, and immediate surroundings (Dunk 1995). This species preys upon a variety of small mammals, as well as other vertebrates and invertebrates. White-tailed kite has a moderate potential to nest and forage within the Study Area due to the presence open grassland, and trees and shrubs. Breeding bird surveys should be conducted to determine the absence or presence of this species prior to construction related activities.

6.0 LEAST DAMAGING ALTERNATIVE LOCATION

The least damaging alternative location is situated in the center of the Study Area, based on the presence of on-site ESHA (e.g. wetlands, shore pine forest) and existing conditions (e.g. driveway, house) (Figure 5). The entire two-acre property is situated within the 100-foot ESHA buffer, and only a small portion of the Study Area is outside of the 50-foot ESHA buffer (Figure 5). The existing residence resides immediately above the sea cave and requires retrofitting and relocation of the existing foundation to span the sea cave to be anchored into stable geology. A residence can be constructed that spans the sea cave with foundation anchors on either side of the sea cave wall; it is recommended that the anchors be situated at least 15 feet outward from

the sea cave wall (BAI 2014). It is technically feasible to relocate (replace) the foundation and avoid the literal extent of the on-site ESHA; however, it would reside entirely within the 100-foot ESHA buffer and much of it would be situated within the 50-foot ESHA buffer. This location takes advantage of existing developed surfaces (e.g. driveway, landscaped areas, house) as well as non-native grassland (non-ESHA) away from Pacific reed grass meadow (ESHA).

Siting a residence away from the sea cave within non-native grassland habitat (non-ESHA) or the Monterey cypress grove (non-ESHA) is not the least damaging alternative for several reasons. To site a residence in the northwestern portion of the non-native grassland would likely interrupt subsurface and surface flow of waters to the Pacific reed grass meadow (ESHA) and would not take advantage of existing developed surfaces (e.g. existing foundation, driveway, landscaped areas). Likewise, the southwestern portion of the non-native grassland would not take advantage of existing developed surfaces and move the residence closer to ocean bluff. A residence situated within the Monterey cypress grove is not the least damaging alternative due to the presence of, substantial grading because of the existing hillock, and would encroach on the literal extent of the shore pine forest (ESHA) boundary, requiring removal of individual shore pines and posing potential damage to tree roots.

7.0 PROPOSED PROJECT DESCRIPTION

The proposed project involves updating the existing single-family dwelling to protect from potential collapse of the existing sea cave. The updated residence will be sited on the approximately 2,940 square foot existing footprint, but will be expanded to the west to account for the cave, for a total footprint of 6,425 square feet including a pier and post deck as well as a courtyard. The updated design calls for “straddling” the sea cave with foundational anchor points situated on either side of the cave at least 15 feet outward from the cave walls (Figure 5).

As noted above, the entire two-acre property is within the 100-foot ESHA buffers and the majority of the property is situated within the 50-foot buffer. The proposed footprint would be entirely within developed/landscaped and non-native grassland areas including part of the existing residence’s footprint and the existing driveway. Additionally, the footprint would be sited entirely outside of the literal extent of all on-site ESHA. An updated leach field would be sited within the Monterey cypress grove to the northeast of the residence with a closed pipe pressure line running from on the eastern side of the driveway. Approximately 140 linear feet of a two rail, split-rail fence in two sections will be installed. Posts will be wood, on 10-foot centers, and back-filled with native soil with no concrete. One section will emerge from the northwestern corner of the proposed residence and run northward to the parcel-line, while the second section will emerge from the southwestern corner and run southward to the bluff face. These fences will serve to prevent access to the on-site ESHA westward of the proposed residence. Additionally, utilities (i.e., well, electrical) and access (i.e., driveway) are existing and therefore would not require additional installation and attendant potential impacts to on-site ESHA.

To be considered the least damaging alternative, the footprint of the residence and attendant landscaping, decks, walkways, etc. should be designed to meet the requirements of the sea cave and sea bluff setback, but be limited to the minimum extent to avoid on-site ESHA and their buffers. Currently, the proposed design is situated entirely within the literal extent of non-ESHA. There are no other building sites on the parcel.

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Mendocino County, California

Figure 5.

Study Area ESHA and Proposed Residence

Map Date: May 2014
Map By: Michael Rochelle
Base Source: ESRI Streaming Imagery, 2010 Microsoft Aerial

Path: L:\Acad 2000 Files\16000\16087-3\gis\arcmap\May 2014\Proposed Residence.mxd

8.0 ESHA IMPACTS ANALYSIS

The proposed project involves the replacement of an existing single-family dwelling situated above a sea cave. To avoid damage from a potential collapse of the sea cave, the updated residence will be anchored at a minimum of 15 feet to either side of the sea cave walls. The updated residence will be supported entirely by the foundation constructed on either side of the sea cave wall, effectively creating a bridge across it. The central portion of the Study Area is the least damaging alternative location due to the presence of non-ESHA including non-native grassland and existing developed and landscaped areas. The entire Study Area is located within the 100-foot ESHA buffer, and the majority is within the 50-foot buffer. The current updated residence has been designed to avoid the literal extent of all on-site ESHA, take advantage of existing non-ESHA, and meet the requirements of setbacks (e.g. property, sea bluff, sea cave).

Projects that propose construction with a buffer of less than 100 feet from an ESHA must provide information that indicates a lesser buffer distance will not have a significant adverse impact on the habitat. The buffer zone analysis utilizing Mendocino LCP Zoning Ordinance 20.496.020(A) [(1) through (4)(k)] is described below in Table 2.

Table 2. ESHA Development Criteria Analysis
Mendocino County Coastal Zoning Code Section 20.496.020

(A) Buffer Areas. A buffer are shall be established adjacent to all environmentally sensitive habitat areas. The purpose of this buffer area shall be to provide for a sufficient area to protect the environmentally sensitive habitat from degradation resulting from developments and shall be compatible with the continuance of such areas.	
Sections 1-3: Development between 50 and 100 feet from ESHA	
1. Width. The width of the buffer area shall be a minimum of one hundred feet, unless an applicant can demonstrate, after consultation and agreement with the California Department of Fish and Game [Wildlife], and County Planning staff, that one hundred feet is not necessary to protect the resources of that particular habitat area from possible significant disruption caused by the proposed development. The buffer areas shall be measured from the outside edge of the Environmentally Sensitive Habitat Areas (ESHAs) and shall not be less than fifty feet in width. New land division shall not be allowed which will create new parcels entirely within a buffer area. Developments permitted within a buffer area shall generally be the same as those uses permitted in the adjacent ESHA.	The updated residence is entirely within the 100-foot buffer of the on-site ESHAs and only a portion is outside of the 50-foot buffer (Figure 5). No new land division is proposed.

1 (a). Biological Significance of Adjacent Lands. The degree of significance depends upon the habitat requirements of the species in the habitat area. Where a significant functional relationship exists, the land adjacent to a wetland, stream, or riparian habitat area shall also be considered to be part of the ESHA, and the buffer zone shall be measured from the edge of these lands and be sufficiently wide to protect these functional relationships.	The updated residence footprint is entirely outside of the literal extent of ESHA (i.e., within landscaped/developed and non-native grassland). The ESHA on-site appear to not have been affected by the existing residence with a diversity of plant species typical of similar habitats situated away from development. Special-status plant ESHA are situated on the very edge of the coastal bluff and greater than 100 feet from the proposed residence; therefore, affects to their ordinary function are not anticipated.
1 (b). Sensitivity of Species to Disturbance. The width of the buffer zone shall be based, in part, on the distance necessary to ensure that the most sensitive species of plants and animals will not be disturbed significantly by the permitted development. Such a determination shall be based on the following: (i). Nesting, feeding, breeding, resting, or other habitat requirements of both resident and migratory fish and wildlife species; (ii). An assessment of the short-term and long-term adaptability of various species to human disturbance; (iii). An assessment of the impact and activity levels of the proposed development on the resource.	(i) Botanical surveys concluded that special-status plant species are present outside of the 100-foot buffer and situated on the extreme edge of coastal bluff. Sonoma tree vole and white-tailed kite are the only special-status wildlife with the potential to occur within the Study Area. Sonoma tree vole surveys resulted in negative findings. No trees will be removed as part of the updated residence. (ii) The continued use of the Study Area by common species is expected to continue following the updating of the residence. The common plant species that compose the ESHA and non-ESHA vegetation communities will continue to persist following the update of the existing residence. Common wildlife species that currently frequent the site likely frequent neighboring rural residential parcels with little interruption to their routine functions. (iii) The updated residence will share much of the footprint of the existing residence. Activity associated with a single-family dwelling is unlikely to negatively affect the on-site ESHA.
1 (c). Susceptibility of Parcel to Erosion. The width of the buffer zone shall be based, in part, on an assessment of the slope, soils, impervious surface coverage, runoff characteristics, and vegetative cover of the parcel and to what degree the development will change the potential for erosion. A sufficient buffer to allow for the interception of any additional material eroded as a result of the proposed development should be provided.	The existing and proposed updated dwellings are situated on relatively flat areas where persistent soil erosion is unlikely. Standard best management practices (BMP) will be deployed during construction/remodeling efforts to further mitigate potential soil erosion. The residence will rely on the existing driveway.

1 (d). Use of Natural Topographic Features to Locate Development. Hills and bluffs adjacent to ESHAs shall be used, where feasible, to buffer habitat areas. Where otherwise permitted, development should be located on the sides of hills away from ESHAs. Similarly, bluff faces should not be developed, but shall be included in the buffer zone.	The updated residence will share much of the existing dwelling's footprint. The existing driveway will continue be utilized as access to the updated residence. The coastal bluff face will not be developed.
1 (e). Use of Existing Cultural Features to Locate Buffer Zones. Cultural features (e.g. roads and dikes) shall be used, where feasible, to buffer habitat areas. Where feasible, development shall be located on the side of roads, dikes, irrigation canals, flood control channels, etc. away from the ESHA.	The updated residence will share much of the existing dwelling's footprint. The existing driveway will continue be utilized as access to the updated residence.
1 (f). Lot Configuration and Location of Existing Development. Where an existing subdivision or other development is largely built-out and the buildings are a uniform distance from a habitat area, at least that same distance shall be required as a buffer zone for any new development permitted. However, if that distance is less than one hundred feet, additional mitigation measures (e.g. planting of native vegetation) shall be provided to ensure additional protection. Where development is proposed in an area that is largely undeveloped, the widest and most protective buffer zone feasible shall be required.	The proposed updated residence will reside on much of the existing residence footprint. The existing and proposed updated residences are situated approximately within the center of the Study Area. The nearest neighboring residences are greater than 350 feet away from the proposed updated residence. Natural vegetation screening shelters the existing and proposed updated residences from HWY 1, the neighboring residence to the southeast, and much of the neighboring residence to the north. A vegetation planting plan will further screen the residence to the north.
1 (g). Type and Scale of Development Proposed. The type and scale of the proposed development will, to a large degree, determine the size of the buffer zone necessary to protect the ESHA. Such evaluations will be made on a case-by-case basis depending upon the resources involved, the degree to which adjacent lands have been developed, and the type of development in the area.	The proposed updated residence is similar in size and design as other neighboring residences which are situated in similar habitats and topographic positions (i.e. flat terrace with adjacent coastal bluff).
2. Configuration. The buffer area shall be measured from the nearest outside edge of the ESHA (e.g. for a wetland from the landward edge of the wetland; for a stream from the landward edge of the riparian vegetation or the top of bank).	The proposed buffer areas are measured from the delineated outermost extent of the several on-site ESHAs including wetland ESHA, natural community ESHA, and special-status plant ESHA.

3. Land Division. New subdivisions or boundary line adjustments shall not be allowed which will create or provide for new parcels entirely within a buffer area.	Not applicable: the property owner does not propose to subdivide the parcel.
Section 4: Development within 50 feet of ESHA	
4. Permitted Development. Development permitted within the buffer area shall comply at a minimum with the following standards: **4 (a).** Development shall be compatible with the continuance of the adjacent habitat area by maintaining the functional capacity, their ability to be self-sustaining and maintain natural species diversity.	The proposed updated residence will take advantage of the existing residence's footprint to reduce the amount of vegetation removal. The majority of vegetation removed is non-native in origin and does not constitute a natural community ESHA. Additionally, a vegetation planting plan for visual screening will incorporate native species to enhance existing habitats on-site.
4 (b). Structures will be allowed within the buffer area only if there is no other feasible site available on the parcel.	The proposed updated residence has been situated in the least environmentally damaging location within the Study Area, and relies heavily on an existing dwelling footprint. The proposed updated footprint is entirely within the literal extent of non-ESHA. The existing and proposed updated residence footprints are approximately located within the center of the parcel, thereby avoiding the maximum extent possible both the on-site ESHA and property boundaries. The existing and proposed updated residence footprints are situated greater than 30 feet from the coastal bluff.
4 (c). Development shall be sited and designed to prevent impacts which would degrade adjacent habitat areas. The determination of the best site shall include consideration of drainage, access, soil type, vegetation, hydrological characteristics, elevation, topography, and distance from the natural stream channels.	The proposed updated residence may interrupt the flow of surface hydrology shunting waters toward or away from on-site ESHA that could be deleteriously affected. Alterations to surface flow may be mitigated by the installation of French drains, LID standards in hardscaping/landscaping, or other designs that migrate waters around house on its course. Temporary impacts may include grading, shaping, cut-and-fill, and lay-down of soils. These should be minimized and sited locations where standard BMPs can be applied to minimize effects.
4 (d). Same as 4 (a).	See above.
4 (e). Structures will be allowed within the buffer area only if there is no other feasible site available on the parcel. Mitigation measures, such as planting riparian vegetation, shall be required to replace the protective values of the buffer area on the parcel, at a minimum ratio of 1:1, which are lost as a result of development under this solution.	The proposed updated residence is situated in the least environmentally damaging area within the Study Area. A vegetation planting plan will be developed to provide both enhanced habitat and visual screening. Immediate vegetation impacts are overwhelmingly to non-native species.

4 (f). Development shall minimize the following: impervious surfaces, removal of vegetation, amount of bare soil, noise, dust, artificial light, nutrient runoff, air pollution, and human intrusion into the wetland, and minimize alteration of natural landforms.	The proposed updated residence will reside on an existing footprint, and the expansion of footprint will be within existing landscaped/developed and non-native grassland areas which frequently consist of non-native fill soils and areas of existing bare ground.
4 (g). Where riparian vegetation is lost due to development, such vegetation shall be replaced at a minimum ratio of 1:1 to restore the protective values of the buffer area.	Not applicable: no riparian vegetation is present within the Study Area.
4 (h). Aboveground structures shall allow peak surface water flows from a 100 year flood to pass with no significant impediment.	Not applicable: no streams are present within the Study Area.
4 (i). Hydraulic capacity, subsurface flow patterns, biological diversity, and/or biological or hydrological processes, either terrestrial or aquatic, shall be protected.	The proposed updated residence would not have a significant impact on the biological diversity of the Study Area. The buffer shall be enhanced with native plant species and prepared by a licensed landscape architect with habitat coast respiration experience (see mitigation measure 1-4).
4 (j). Priority for drainage conveyance from a development site shall be through the natural stream environment zones, if any exist in the development area. In the drainage system design report or development plan, the capacity of natural stream environment zones to convey runoff from the completed development shall be evaluated and integrated with the drainage system whenever possible. No structure shall interrupt the flow of groundwater within a buffer strip. Foundations shall be situated with the long axis of interrupted impermeable vertical surfaces oriented parallel to the groundwater flow direction.	The proposed updated residence will be partially situated on an existing foundation. There are no streams near the Proposed Residence or Study Area.
4 (k). If findings are made that the effects of developing an ESHA buffer area may result in significant adverse impacts to the ESHA, mitigation measures will be required as a condition of project approval. Noise barriers, buffer areas in permanent open space, land dedication for erosion control, and wetland restoration, including off-site drainage improvements, may be required as mitigation measures for developments adjacent to environmentally sensitive habitats.	Impacts to the ESHA buffer will not have a long-term negative effect on the ESHA. The proposed updated residence is entirely within the 100-foot buffer of several on-site ESHA, and majority within the 50-foot buffer. Vegetation management around the proposed updated residence as well as proposed mitigation will offset impacts to the ESHA buffer and should follow the guidance of a landscaping plan.

9.0 MITIGATION MEASURES

The following mitigation measures are recommended to compensate for development within the 100- and 50-foot buffer of ESHA, including measures that will also serve to prevent impacts to protected resources located greater than 100 feet from the proposed development.

Potential Impact 1: The proposed development would result in a loss of approximately 1,480 square feet of 100-foot buffered ESHA habitat, predominantly composed of bare ground, structures, and non-native vegetation. Potential direct impacts include the removal of native herbaceous species, the removal/displacement of soil, and localized soil erosion.

> **Mitigation Measure 1-1:** Targeted removal of only those species that are within the footprint of the proposed updated residence. Erect and maintain high-visibility construction fencing delineating the boundary between selected vegetation removal/ground-disturbance and non-removal areas throughout the construction period.
>
> **Mitigation Measure 1-2:** Where feasible, utilize the existing landscaped/developed areas for staging and laydown area for all construction materials and planning.
>
> **Mitigation Measure 1-3:** Reseed and/or replant with fast-growing native herbaceous species to reinforce areas of loosened soil.
>
> **Mitigation Measure 1-4:** Develop a native plant landscaping plan prior to construction to address compensation for impacts to and enhances the 100 and 50-foot ESHA buffer. The plan should include selected sites for planting native trees, shrubs, and herbs that will enhance the shore pine forest and coastal terrace prairie (wetland) ESHA on-site; as well as provide visual screening from neighboring properties. Locally sourced beach pine and Pacific reed grass have been procured to be planted in these areas (Figure 5). Planting areas total approximately 0.32 acre. Plant spacing, irrigation, maintenance, site preparation, etc. will be addressed under a separate landscape plan document.
>
> **Mitigation Measure 1-5:** A split-rail fence will be erected that extends from the northwestern and southwestern corners of the updated residence to prevent access into the literal extent of the on-site ESHA (Figure 5).

Potential Impact 2: Construction associated with the updated residence, and septic and leach line improvements has the potential to remove vegetation which buffer soil migration and erosion.

> **Mitigation Measure 2-1:** Implementation of standard erosion best management practices such as straw waddles, silt fencing, etc. to prevent sediment migration. Where feasible, conduct work during the dry season to reduce sediment migration.
>
> **Mitigation Measure 2-2:** Reseed and/or replant with fast-growing, native herbaceous species atop the septic and leach lines.
>
> **Mitigation Measure 2-3:** During construction, materials, including but not limited to lumber, concrete, finishwares, hand tools, power tools, generators, vehicles, heavy equipment, should be lain down in non-ESHAs such as the existing driveway which are clearly designated by high visibility construction fencing or other signage. Spill

prevention devices should be utilized for all toxic liquids including but not limited to gasoline, diesel, motor oil, solvents, paints, and herbicides.

Mitigation Measure 2-4: The septic pressure line will be sited to the eastern side of the driveway and the driveway shall act as a buffer. The leach lines will be hand dug to avoid impacts to tree roots.

Potential Impact 3: Construction associated with the proposed updated residence has the potential to impact breeding birds during the nesting season. Impacts to breeding birds are prohibited by the Migratory Bird Treaty Act (MBTA).

Mitigation Measure 3-1: The bird breeding season typically extends from February to August. Ideally, the clearing of vegetation and the initiation of construction can be done in the non-breeding season between September and January. If these activities cannot be done in the non-breeding season, a qualified biologist shall perform pre-construction breeding bird surveys within 14 days of the onset of construction or clearing of vegetation. If active breeding bird nests are observed, no ground disturbance activities shall occur within a minimum 100-foot exclusion zone. These exclusion zones may vary depending on species, habitat and level of disturbance. The exclusion zone shall remain in place around the active nest until all young are no longer dependent upon the nest. A biologist should monitor the nest site weekly during the breeding season to ensure the buffer is sufficient to protect the nest site from potential disturbances.

10.0 REFERENCES

Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken (eds.). 2012. The Jepson Manual: Vascular Plants of California, 2nd Edition. University of California Press, Berkeley, CA. 1568 pp.

Best, C., J.T. Howell, W. & I. Knight, and M. Wells. 1996. A Flora of Sonoma County. California Native Plant Society, Sacramento, CA. 347 pp.

Brunsing Associates, Inc. (BAI). 2014. Geotechnical Investigation: Taber Residence, 5720 North Highway 1, Little River, California.

Bureau of Land Management (BLM). 2002. Survey protocol for the Red Tree Vole *Arborimus longicaudus* (= *Phenacomys longicaudus* in the Record of Decision of the Northwest Forest Plan), Version 2.1, Revision. October.

California Coastal Commission (CCC). 1981. Statewide interpretive guidelines for wetlands and other wet environmentally sensitive habitat areas.

California Department of Fish and Game (CDFG). Environmental Services Division (ESD). 1994. A Field Guide to Lake and Streambed Alteration Agreements, Sections 1600-1607, California Fish and Game Code.

California Department of Fish and Game (CDFG). 2010. List of Vegetation Alliances and Associations. Vegetation Classification and Mapping Program, California Department of Fish and Game, Sacramento, CA. September 2010.

California Department of Fish and Wildlife (CDFW). 2013. California Natural Diversity Database (CNDDB), Wildlife and Habitat Data Analysis Branch. Sacramento, CA. Accessed: December 2013.

California Native Plant Society (CNPS). 2013. Inventory of Rare and Endangered Plants. California Native Plant Society, Sacramento, California. Available at: www.cnps.org/inventory. Accessed: December 2013.

Consortium of California Herbaria (CCH). 2013. Data provided by the participants of the Consortium of California Herbaria. Available at: http://ucjeps.berkeley.edu/consortium. Accessed: December 2013.

Dunk, J.R. 1995. White-tailed kite (*Elanus leucurus*), The Birds of North America Online (A. Poole, ed.). Ithaca: Cornell Lab of Ornithology. Available at http://bna.birds.cornell.edu/bna/species/178. Accessed: December 2013.

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Department of the Army, Waterways Experiment Station, Vicksburg, Mississippi 39180-0631.

GretagMacBeth. 2000. Munsell Soil Color Charts, revised washable edition.

Holland, R. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. California Department of Fish and Game, Sacramento, CA. 156 pp.

Howell, A. B. 1926. Voles of the genus *Phenacomys*. II. Life history of the red tree mouse *Phenacomys longicaudus*. USDA, North Am. Fauna Ser. No. 48:39-64.

Lichvar, R.W. 2012. The National Wetland Plant List. Cold Regions Research and Engineering Laboratory. U.S. Army Corps of Engineers Research and Development Center. Hanover, NH. October 2012.

Maser, C., B. R. Mate, J. F. Franklin, and C. T. Dyrness. 1981. Natural history of Oregon coast mammals. Pac. Northwest For. And Range Exp. Sta., USDA, For. Serv., Gen. Tech. Rep., PNW-133. 496 pp.

Sawyer, J.O., T. Keeler-Wolf, and J. Evens. 2009. A Manual of California Vegetation, 2nd Edition. California Native Plant Society in collaboration with California Department of Fish and Game, Sacramento, CA.1300 pp.

U.S. Army Corps of Engineers (Corps). 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0). U.S. Army Corps of Engineers, Engineer Research and Development Center, Vicksburg, MS. May 2010.

U.S. Department of Agriculture (USDA). 1999. Soil Survey of Mendocino County, Western Part, California. In cooperation with UC Agricultural Experiment Station and U.S. Department of the Interior, Bureau of Land Management.

U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS). 2010. Field Indicators of Hydric Soils in the United States, Version 7.0. G. W. Hurt and L. M. Vasilas (eds.). In cooperation with the National Technical Committee for Hydric Soils.

U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS). 2012. Climate Information for Mendocino County in the State of California. Available at: http://www.wcc.nrcs.usda.gov/. Accessed: December 2013.

U.S. Fish and Wildlife Service (USFWS). 2013. List of Federal Endangered and Threatened Species that Occur in Mendocino County, California. Available at: http://www.fws.gov/sacramento/es/. Accessed: December 2013.

U.S. Geological Survey (USGS). 1960. Albion, California 7.5-minute quadrangle topographic map.

Western Regional Climate Center (WRCC). 2013. Western U.S. Climate Summaries – NOAA Cooperative Stations, Desert Research Institute. Available at: http://www.wrcc.dri.edu/. Accessed: December 2013.

Appendix A

CCA Wetland Datasheets

California Coastal Act Wetland Data Sheet

Project Name:	5720 Highway One	County:	Mendocino
City/Location:	Fort Bragg, CA	LCP (if applicable):	Mendocino County
Applicant/Owner:	Bret Taber	☑ LRR A (Western Mts., Valley, and Coast [WMVC])	
WRA Investigator(s):	Matt Richmond, Aaron Arthur	☐ LRR C (Arid West)	
Date:	12/11/2013	**SAMPLE POINT ID:**	P1
		HABITAT:	coastal terrace prairie

CCC/LCP WETLAND DETERMINATION

Meets CCC or LCP vegetation criteria?	☐ Yes	☑ No
Meets CCC or LCP hydric soil criteria?	☐ Yes	☑ No
Meets CCC or LCP hydrology criteria?	☐ Yes	☑ No
CCC/LCP WETLAND?	☐ Yes	☑ No

Comments: The sample point was taken on flat area within coastal terrace prairie The vegetation is not dominated by hydrophytes, and no hydric soils or evidence of primary/secondary hydrology were observed.

VEGETATION

*indicator status from the USFWS 1996 National List of wetland species

TREES - Plot size:	% Cover	Status*	Dominant?
TOTAL			
50% of stratum cover =		*20% =*	

SAPLING/SHRUBS - Plot size: 20	% Cover	Status*	Dominant?
Rubus ursinus	10	FACU	yes
TOTAL	10.0		1
50% of stratum cover =	*5.0*	*20% =*	*2.0*

HERBACEOUS - Plot size: 10	% Cover	Status*	Dominant?
Holcus lanatus	65	FAC	yes
Anthoxanthum odoratum	40	FACU	yes
Dactylis glomerata	10	FACU	no
Iris douglasiana	2	NL	no
Rumex acetosella	2	FACU	no
Achillea millefolium	2	FACU	no
Carex tumulicola	2	FACU	no
Stachys adjugoides	1	OBL	no
Cirsium vulgare	1	FACU	no
TOTAL	125.0		2
50% of stratum cover =	*62.5*	*20% =*	*25.0*

Dominance Test:

Total # of dominant species across all strata: 3

Total # of dominants that are hydrophytic (status of OBL, FACW, or FAC): 1

Percentage of dominants that are hydrophytic: 33%

[Meets dominance test if >50%]

Prevalence Index:

Total % cover of species across all strata:

OBL:		x 1 =	
FACW:		x 2 =	
FAC:		x 3 =	
FACU:		x 4 =	
UPL:		x 5 =	
Total:	(A)		(B)

Prevalence Index (B/A) =

[Hydrophytic vegetation dominant if B/A ≤ 3.0]

Meets CCC or LCP hydrophytic vegetation criteria? ☐ Yes ☑ No

Comments: The sample point does not meet the hydrophytic vegetation criteria.

Project Name: 5720 Highway One | Sample Point ID: P1

SOILS Slope (%): 2-3% Soil map unit: Bruhel-Shinglemill complex, 2-25% slopes

SOIL PROFILE

Depth	Matrix Color	Redox Color	% and contrast	Redox type	Texture	Comments
0-8	10YR 3/2				sandy loam	
8-12	10YR 6/2				sandy loam	
	10YR 3/2				sandy loam	

All soils:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) *[Arid West only]*
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ **Other (explain below)**

Loamy and clayey soils only:

- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9) *[Arid West only]*

Sandy soils only:

- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)

Meets CCC or LCP hydric soil criteria? ☐ Yes ☑ No

Comments: Does not meet any of the NRCS hydric soil indicators

HYDROLOGY (indicators from Corps Regional Supplements, applicable to coastal California only)

Primary indicators (only 1 needed to meet criteria):

- ☐ Surface water (A1) *Depth (in.):* _____
- ☐ High water table (A2) *Depth (in.):* _____
- ☐ Soil saturation (A3) *Depth (in.):* _____
- ☐ Water marks (B1) *[if in Arid West: Nonriverine only]*
- ☐ Sediment deposits (B2) *[if in Arid West: Nonriverine only]*
- ☐ Drift deposits (B3) *[if in Arid West: Nonriverine only]*
- ☐ Algal mat or crust (B4) *[WMVC only; see B12]*
- ☐ Iron deposits (B5) *[WMVC only]*
- ☐ Surface soil cracks (B6)
- ☐ Inundation visible on aerial imagery (B7)
- ☐ Sparsely vegetated concave surface (B8) *[WMVC only]*
- ☐ Water-stained leaves (B9) *[Arid West and MLRA 5 only]*
- ☐ Salt crust (B11)
- ☐ Biotic Crust (B12) *[Arid West only; see B4]*
- ☐ Aquatic invertebrates (B13)
- ☐ Hydrogen sulfide odor (C1)
- ☐ Oxidized rhizospheres (C3)
- ☐ Presence of reduced iron (C4)
- ☐ Recent iron reduction in tilled soils (C6)
- ☐ Stunted or stressed plants (D1) *[WMVC only]*

Secondary indicators (need 2+ to meet criteria):

- ☐ Water marks (B1) *[Arid West riverine only]*
- ☐ Sediment deposits (B2) *[Arid West riverine only]*
- ☐ Drift deposits (B3) *[Arid West riverine only]*
- ☐ Water-stained leaves (B9) *[WMVC:MLRA 4B only]*
- ☐ Drainage patterns (B10)
- ☐ Dry-season water table (C2)
- ☐ Thin muck surface (C7) *[Arid West only]*
- ☐ Crayfish burrows (C8) *[Arid West only]*
- ☐ Saturation visible on aerial imagery (C9)
- ☐ Geomorphic position (D2) *[WMVC only]*
- ☐ Shallow aquitard (D3)
- ☐ Frost-heave hummocks (D4) *[WMVC only]*
- ☐ Raised ant mounds (D6) *[WMVC only]*
- ☐ **FAC-neutral test (D5)** ☐ (Does not meet test)
- ☐ **Other (explain below)**

Meets CCC or LCP wetland hydrology criteria? ☐ Yes ☑ N

Comments: Does not meet any of the the wetland hydrology indicators.

California Coastal Act Wetland Data Sheet

Project Name:	5720 Highway One	County:	Mendocino
City/Location:	Fort Bragg, CA	LCP (if applicable):	Mendocino County
Applicant/Owner:	Bret Taber	☑ LRR A (Western Mts., Valley, and Coast [WMVC])	
WRA Investigator(s):	Matt Richmond, Aaron Arthur	☐ LRR C (Arid West)	
Date:	12/11/2013	**SAMPLE POINT ID:**	P2
		HABITAT:	Bishop pine forest

CCC/LCP WETLAND DETERMINATION

Meets CCC or LCP vegetation criteria?	☑ Yes	☐ No
Meets CCC or LCP hydric soil criteria?	☐ Yes	☑ No
Meets CCC or LCP hydrology criteria?	☐ Yes	☑ No
CCC/LCP WETLAND?	☑ Yes	☐ No

Comments: The sample point was taken in a coastal terrace prairie dominated by Pacific reed grass. The sample point contains hydrophytic vegetation, but hydric soils and wetland hydrology indicators are lacking. The soils contain substantial redoximorphic features in the lower profile.

VEGETATION

*indicator status from the USFWS 1996 National List of wetland species

TREES - Plot size:	% Cover	Status*	Dominant?
TOTAL			
50% of stratum cover =		*20% =*	

SAPLING/SHRUBS - Plot size: 20	% Cover	Status*	Dominant?
Baccharis pilularis	1	NL	yes
TOTAL	1.0		1
50% of stratum cover =	*0.5*	*20% =*	*0.2*

HERBACEOUS - Plot size: 10	% Cover	Status*	Dominant?
Calamagrostis nutkaensis	60	FACW	yes
Holcus lanatus	25	FAC	yes
Stachy ajugoides	5	OBL	no
Juncus effusus	5	FACW	no
Carex densa	3	FACW	no
Juncus occidentalis	3	FACW	no
Iris douglasiana	3	NL	no
Lotus corniculatus	1	FAC	no
Sysrinchium bellum	1	FACW	no
Achillea millefolium	1	FACU	no
Anthoxanthum odoratum	1	FACU	no
Carex obnupta	1	OBL	no
TOTAL	109.0		2
50% of stratum cover =	*54.5*	*20% =*	*21.8*

Dominance Test:

Total # of dominant species across all strata: 3

Total # of dominants that are hydrophytic (status of OBL, FACW, or FAC): 2

Percentage of dominants that are hydrophytic: 67%

[Meets dominance test if >50%]

Prevalence Index:

Total % cover of species across all strata:

OBL:		x 1 =	
FACW:		x 2 =	
FAC:		x 3 =	
FACU:		x 4 =	
UPL:		x 5 =	
Total:	(A)		(B)

Prevalence Index (B/A) =

[Hydrophytic vegetation dominant if B/A ≤ 3.0]

Meets CCC or LCP hydrophytic vegetation criteria? ☑ Yes ☐ No

Comments: The sample point meets the hydrophytic vegetation criteria.

Project Name: 5720 Highway One | Sample Point ID: P2

SOILS Slope (%): 2-3% Soil map unit: Bruhel-Shinglemill complex, 2-15% slopes

SOIL PROFILE

Depth	Matrix Color	Redox Color	% and contrast	Redox type	Texture	Comments
0-12	10YR 3/2	7.5YR 4/6	2	RC	fine sandy loam	
12-15	10YR 3/2	7.5YR 4/6	5	RC, M	fine sandy loam	
16-18	10YR 3/2 (40%)	7.5YR 4/6	10	RC, M	sandy clay loam	
	10YR 4/2 (60%)					
18-20	10YR 6/2 (30%)	7.5YR 4/6	10	M	sandy clay loam	
	10YR 4/2 (70%)					

All soils:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) *[Arid West only]*
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ **Other (explain below)**

Loamy and clayey soils only:

- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9) *[Arid West only]*

Sandy soils only:

- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)

Meets CCC or LCP hydric soil criteria? ☐ Yes ☑ No

Comments: Does not meet any of the NRCS hydric soil indicators

HYDROLOGY (indicators from Corps Regional Supplements, applicable to coastal California only)

Primary indicators (only 1 needed to meet criteria):

- ☐ Surface water (A1) *Depth (in.):* _____
- ☐ High water table (A2) *Depth (in.):* _____
- ☐ Soil saturation (A3) *Depth (in.):* _____
- ☐ Water marks (B1) *[if in Arid West: Nonriverine only]*
- ☐ Sediment deposits (B2) *[if in Arid West: Nonriverine only]*
- ☐ Drift deposits (B3) *[if in Arid West: Nonriverine only]*
- ☐ Algal mat or crust (B4) *[WMVC only; see B12]*
- ☐ Iron deposits (B5) *[WMVC only]*
- ☐ Surface soil cracks (B6)
- ☐ Inundation visible on aerial imagery (B7)
- ☐ Sparsely vegetated concave surface (B8) *[WMVC only]*
- ☐ Water-stained leaves (B9) *[Arid West and MLRA 5 only]*
- ☐ Salt crust (B11)
- ☐ Biotic Crust (B12) *[Arid West only; see B4]*
- ☐ Aquatic invertebrates (B13)
- ☐ Hydrogen sulfide odor (C1)
- ☐ Oxidized rhizospheres (C3)
- ☐ Presence of reduced iron (C4)
- ☐ Recent iron reduction in tilled soils (C6)
- ☐ Stunted or stressed plants (D1) *[WMVC only]*

Secondary indicators (need 2+ to meet criteria):

- ☐ Water marks (B1) *[Arid West riverine only]*
- ☐ Sediment deposits (B2) *[Arid West riverine only]*
- ☐ Drift deposits (B3) *[Arid West riverine only]*
- ☐ Water-stained leaves (B9) *[WMVC:MLRA 4B only]*
- ☐ Drainage patterns (B10)
- ☐ Dry-season water table (C2)
- ☐ Thin muck surface (C7) *[Arid West only]*
- ☐ Crayfish burrows (C8) *[Arid West only]*
- ☐ Saturation visible on aerial imagery (C9)
- ☐ Geomorphic position (D2) *[WMVC only]*
- ☐ Shallow aquitard (D3)
- ☐ Frost-heave hummocks (D4) *[WMVC only]*
- ☐ Raised ant mounds (D6) *[WMVC only]*
- ☐ **FAC-neutral test (D5)** ☐ (Does not meet test)
- ☐ **Other (explain below)**

Meets CCC or LCP wetland hydrology criteria? ☐ Yes ☑ N

Comments: Does not meet any of the the wetland hydrology indicators.

Appendix B

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

Table B-1. Special-status plant and wildlife species habitat suitability and survey results for 5720 Highway One (Study Area). List compiled from California Department of Fish and Game (CDFG) Natural Diversity Database (CNDDB) and California Native Plant Society (CNPS) Electronic Inventory searches (May 2012) of the Albion, Elk, Mallo Pass Creek, Mathison Peak, and Mendocino USGS 7.5' quadrangles. Several additional regionally significant species are listed based on potential to occur in coastal Mendocino.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN STUDY AREA	SURVEY RESULTS
Plants				
pink sand verbena *Abronia umbellata* var. *breviflora*	Rank 1B	Coastal dune, coastal strand; located on foredunes and interdunes with low vegetation cover. Elevation range: 0 – 35 feet. Blooms: June – October.	**No Potential.** The Study Area does not contain coastal dune habitat necessary to support this species.	**Not Present.** No suitable habitat present.
Blasdale's bent grass *Agrostis blasdalei*	Rank 1B	Coastal dune, coastal bluff scrub, coastal prairie; located on sandy to gravelly substrate close to rocks of bluff faces; typically located in nutrient poor areas with sparse vegetation cover. Elevation range: 15 – 490 feet. Blooms: May – July.	**High Potential.** The Study Area contains coastal bluff scrub and coastal prairie habitat sufficient to support this species.	**Present.** Several individuals observed on the coastal bluff in open scrub habitat during the June rare plant survey.
pygmy manzanita *Arctostaphylos nummularia* ssp. *mendocinensis*	Rank 1B	Closed-cone coniferous forest; located acidic, sandy clay substrate in pygmy forest stands. Elevation range: 290 – 600 feet. Blooms: January.	**No Potential.** The Study Area does not contain pygmy forest or podzol soils necessary to support this species.	**Not Present.** No suitable habitat present.
coastal bluff morning-glory *Calystegia purpurata* ssp. *saxicola*	Rank 1B	Coastal dunes, coastal scrub; located on coastal bluffs. Elevation range: 30 – 330 feet. Blooms: May – September.	**High Potential.** The Study Area contains coastal bluff scrub habitat sufficient to support this species.	**Not Observed.** This species not observed during the June rare plant survey.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN STUDY AREA	SURVEY RESULTS
swamp harebell *Campanula californica*	Rank 1B	Bogs and fens, closed-cone coniferous forest, coastal prairie, meadows, freshwater marsh, North Coast coniferous forest; typically located in wetlands within a variety of surrounding habitats. Elevation range: 3 – 1320 feet. Blooms: June – October.	**Moderate Potential.** The Study Area contains seasonal wetland habitat within coastal terrace prairie habitat that may support this species; however, this species typically occurs in areas with a longer hydro-period.	**Not Observed.** This species not observed during the June rare plant survey.
California sedge *Carex californica*	Rank 2	Bogs and fens, closed-cone coniferous forest, coastal prairie, meadows, marshes and swamps; located in drier areas of swamps, bogs, and marsh margins. Elevation range: 290 – 1090 feet. Blooms: May – August.	**Moderate Potential.** The Study Area contains seasonal wetland habitat within coastal terrace prairie habitat that may support this species; however, this species typically occurs in areas with a longer hydro-period.	**Not Observed.** This species not observed during the June rare plant survey.
livid sedge *Carex livida*	Rank 1A	Bogs and fens; historically known from sphagnum bogs. Elevation range: unknown. Blooms: June.	**Unlikely.** Although the Study Area contains wetland habitat, this species is closely associated with perennial, highly acidic wetlands not present in the Study Area.	**Not Present.** No suitable habitat present.
Lyngbye's sedge *Carex lyngbyei*	Rank 2	Marshes and swamps; brackish to freshwater. Elevation range: 0 – 35 feet. Blooms: April – August.	**No Potential.** The Study Area does not contain marsh habitat necessary to support this species.	**Not Present.** No suitable habitat present.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN STUDY AREA	SURVEY RESULTS
deceiving sedge *Carex saliniformis*	Rank 1B	Coastal prairie, coastal scrub, meadows and seeps, coastal salt marshes and swamps; located in mesic sites. Elevation range: 10 – 750 feet. Blooms: June – July.	**Moderate Potential.** The Study Area contains seasonal wetland habitat within coastal terrace prairie habitat that may support this species; however, this species typically occurs in areas with a longer hydro-period.	**Not Observed.** This species not observed during the June rare plant survey.
Oregon coast paintbrush *Castilleja affinis* ssp. *littoralis*	Rank 2B	Coastal bluff scrub, coastal dune, coastal scrub; located on sandy substrate. Elevation range: 45 – 325 feet. Blooms: June.	**High Potential.** The Study Area contains coastal bluff scrub habitat that may support this species.	**Not Observed.** This species not observed during the June rare plant survey.
Humboldt Bay owl's-clover *Castilleja ambigua* ssp. *humboldtiensis*	Rank 1B	Coastal salt marsh; located in marshes associated with salt grass, cordgrass, pickleweed, and jaumea. Elevation range: 0 – 10 feet. Blooms: April – August.	**No Potential.** The Study Area does not contain coastal salt marsh habitat necessary to support this species.	**Not Present.** No suitable habitat present.
Mendocino Coast paintbrush *Castilleja mendocinensis*	Rank 1B	Coastal bluff scrub, coastal scrub, coastal prairie, closed-cone coniferous forest, coastal dune; typically located on open sea bluffs and cliffs. Elevation range: 0 – 520 feet. Blooms: April – August.	**High Potential.** The Study Area contains coastal bluff scrub habitat that may support this species.	**Present.** Several individuals observed on the coastal bluff in open scrub habitat during the June rare plant survey.
Howell's spineflower *Chorizanthe howellii*	FE; ST; Rank 1B	Coastal dunes, coastal prairie, coastal scrub; located on sand dunes, sandy slopes, and sandy areas in coastal prairie. Elevation range: 0 – 115 feet. Blooms: May – July.	**Moderate Potential.** The Study Area contains coastal prairie habitat; however, this species is typically located on looser sands and more open areas than are present in the Study Area.	**Not Observed.** This species not observed during the June rare plant survey.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN STUDY AREA	SURVEY RESULTS
Oregon goldthread *Coptis laciniata*	Rank 2	North Coast coniferous forest, meadows and seeps; located in mesic sites, roadsides, and streamsides. Elevation range: 0 – 3250 feet. Blooms: March – April.	**No Potential.** The Study Area does not contain coast redwood-Douglas fir forest necessary to support this species.	**Not Present.** No suitable habitat present.
Mendocino dodder *Cuscuta pacifica* var. *papillata*	Rank 1B	Coastal dunes; located in interdune depressions; likely hosts on lupines, catchflies, and cudweeds. Elevation range: 0 – 165 feet. Blooms: July – October.	**No Potential.** The Study Area does not contain coastal dune habitat necessary to support this species.	**Not Present.** No suitable habitat present.
supple daisy *Erigeron supplex*	Rank 1B	Coastal bluff scrub, coastal prairie; typically located in grassy sites along the coastline. Elevation range: 30 – 165 feet. Blooms: May – July.	**High Potential.** The Study Area contains coastal bluff scrub and coastal prairie that may support this species.	**Not Observed.** This species not observed during the June rare plant survey.
Pacific gilia *Gilia capitata* ssp. *pacifica*	Rank 1B	Coastal bluff scrub, coastal prairie, valley and foothill grassland. Elevation range: 15 – 3090 feet. Blooms: April – August.	**High Potential.** The Study Area contains coastal bluff scrub and coastal prairie that may support this species.	**Not Observed.** This species not observed during the June rare plant survey.
dark-eyed gilia *Gilia millefoliata*	Rank 1B	Coastal dune. Elevation range: 5 – 100 feet. Blooms: April – July.	**No Potential.** The Study Area does not contain coastal dune habitat necessary to support this species.	**Not Present.** No suitable habitat present.
short-leaved evax *Hesperevax sparsiflora* var. *brevifolia*	Rank 1B	Coastal bluff scrub, coastal dune; located on sandy bluffs and flats near the immediate coastline. Elevation range: 0 – 700 feet. Blooms: March – June.	**High Potential.** The Study Area contains coastal bluff scrub that may support this species.	**Not Observed.** This species not observed during the June rare plant survey.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN STUDY AREA	SURVEY RESULTS
pygmy cypress *Hesperocyparis pygmaea*	Rank 1B	Closed-cone coniferous forest; located on podzol-like soils (Blacklock series). Elevation range: 100 – 1950 feet.	**No Potential.** The Study Area does not contain pygmy forest or podzol-like soils necessary to support this species.	**Not Present.** No suitable habitat present.
harlequin lotus *Hosackia gracilis*	Rank 4; (butterfly host plant)	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 along roadsides, particularly in ditches. Elevation range: 0 – 2275 feet. Blooms: March – July.	**High Potential.** The Study Area contains multiple habitat types and wetlands associated with this species.	**Not Observed.** This species not observed during the June rare plant survey.
hair-leaved rush *Juncus supiniformis*	Rank 2	Marshes and swamps, bogs and fens; located in sites near the coast. Elevation range: 65 – 325 feet. Blooms: April – June.	**Unlikely.** Although the Study Area contains wetland habitat, this species is closely associated with highly acidic, nutrient-poor perennial wetlands not present.	**Not Present.** No suitable habitat present.
small groundcone *Kopsiopsis hookeri*	Rank 2	North Coast coniferous forest; located in open woods, shrublands, generally hosts on salal (*Gaultheria shallon*). Elevation range: 290 – 2880 feet. Blooms: April – August.	**Unlikely.** This species is closely associated with Douglas fir-coast redwood forests, and the host plant, although present, is not located in a forested environment.	**Not Present.** No suitable habitat present.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN STUDY AREA	SURVEY RESULTS
Baker's goldfields *Lasthenia californica* ssp. *bakeri*	Rank 1B	Closed-cone coniferous forest, coastal scrub; located in openings in scrub and coastal forest habitat. Elevation range: 195 – 1690 feet. Blooms: April – October.	**High Potential.** The Study Area contains coastal scrub and forested habitat that may support this species.	**Not Observed.** This species not observed during the June rare plant survey.
perennial goldfields *Lasthenia californica* ssp. *macrantha*	Rank 1B	Coastal bluff scrub, coastal dune, coastal scrub. Elevation range: 15 – 1690 feet. Blooms: January – November.	**High Potential.** The Study Area contains coastal bluff scrub habitat that may support this species.	**Not Observed.** This species not observed during the June rare plant survey.
coast lily *Lilium maritimum*	Rank 1B	Closed-cone coniferous forest, coastal prairie, coastal scrub, broadleaf upland forest, North Coast coniferous forest; typically located on sandy soils, often in raised hummocks or bogs, and roadside ditches. Elevation range: 15 – 1545 feet. Blooms: May – August.	**Moderate Potential.** The Study Area contains coastal prairie and coniferous forest habitat that may support this species; however, the seasonal hydro-period in the Study Area reduces the potential of this species.	**Not Observed.** This species not observed during the June rare plant survey.
northern microseris *Microseris borealis*	Rank 2	Bogs and fens, meadows and seeps, lower montane coniferous forest. Elevation range: 3250 – 6500 feet. Blooms: June – September.	**No Potential.** The Study Area does not contain perennial wetland habitat necessary to support this species. Additionally, the Study Area is well below the documented elevation range of this species.	**Not Present.** No suitable habitat present.
seacoast ragwort *Packera bolanderi* var. *bolanderi*	Rank 2	Coastal scrub, North Coast coniferous forest. Elevation range: 100 – 2115 feet. Blooms: January – July.	**Unlikely.** Although the Study Area contains scrub and forested habitat, this species is closely associated with coast redwood-Douglas fir forest not present.	**Not Present.** No suitable habitat present.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN STUDY AREA	SURVEY RESULTS
Bolander's pine *Pinus contorta* ssp. *bolanderi*	Rank 1B	Closed-cone coniferous forest; located on podzol-like soils (Blacklock series), closely associated with Bishop pine and pygmy cypress. Elevation range: 240 – 815 feet.	**No Potential.** The Study Area does not contain pygmy forest or podzol-like soils necessary to support this species.	**Not Present.** No suitable habitat present.
white beaked-rush *Rhynchospora alba*	Rank 2	Bogs and fens, meadows and seeps, marshes and swamps; located in freshwater perennial wetlands and sphagnum bogs. Elevation range: 195 – 6630 feet. Blooms: July – August.	**No Potential.** The Study Area does not contain acidic perennial wetland habitat necessary to support this species.	**Not Present.** No suitable habitat present.
great burnet *Sanguisorba officinalis*	Rank 2	Bogs and fens, meadows and seeps, broadleaf upland forest, marshes and swamps, North Coast coniferous forest, riparian forest; located on rocky serpentine seeps and streams. Elevation range: 195 – 4550 feet. Blooms: July – October.	**No Potential.** The Study Area does not contain serpentine wetland habitat necessary to support this species.	**Not Present.** No suitable habitat present.
Point Reyes checkerbloom *Sidalcea calycosa* ssp. *rhizomata*	Rank 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 freshwater marsh habitat necessary to support this species.	**Not Present.** No suitable habitat present.
Siskiyou checkerbloom *Sidalcea malviflora* ssp. *patula*	Rank 1B	Coastal prairie, broadleaf upland forest; located in open coastal forest habitat, often roadcuts. Elevation range: 45 – 2860 feet. Blooms: May – August.	**High Potential.** The Study Area contains coastal prairie habitat that may support this species.	**Not Observed.** This species not observed during the June rare plant survey.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN STUDY AREA	SURVEY RESULTS
purple-stemmed checkerbloom *Sidalcea malviflora* ssp. *purpurea*	Rank 1B	Broadleaf upland forest, coastal scrub. Elevation range: 45 – 280 feet. Blooms: May – June.	**High Potential.** The Study Area contains coastal scrub habitat that may support this species.	**Not Observed.** This species not observed during the June rare plant survey.
Monterey clover *Trifolium trichocalyx*	FE; SE; Rank 1B	Closed-cone coniferous forest; located on poorly drained, nutrient-deficient soils with a hardpan; often in openings and burned areas. Elevation range: 95 – 780 feet. Blooms: April – June.	**No Potential.** The Study Area does not contain pygmy forest or podzol-like soils necessary to support this species.	**Not Present.** No suitable habitat present.
western dog violet *Viola adunca*	none; (butterfly host plant)	Streambanks, coastal prairie, meadow-forest edges in a wide variety of forest types; typically located in mesic areas. Host plant for Behren's silverspot butterfly (*Speyeria zerene behrensii*). Elevation range: 10 – 11605 feet. Blooms: April – August.	**High Potential.** The Study Area contains coastal prairie habitat that may support this species.	**Not Observed.** This species not observed during the June rare plant survey.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN STUDY AREA
Mammals			
Pale big-eared bat *Corynorhinus townsendii pallenscens*	SSC	Roosts in caves, lava tubes, and abandoned mines. Feeds near forested areas, gleaning insects off plant leaves or in flight.	**Unlikely.** The Study Area does not provide any typical roosting habitat for this species; the sea cave is too moist and wet to allow for roosting. May occasionally forage over the Study Area.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN STUDY AREA
Townsend's western big-eared bat *Corynorhinus townsendii townsendii*	SSC	Primarily found in rural settings in a wide variety of habitats including oak woodlands and mixed coniferous-deciduous forest. Day roosts highly associated with caves and mines. Very sensitive to human disturbance.	**Unlikely.** The Study Area does not provide any typical roosting habitat for this species; the sea cave is too moist and wet to allow for roosting. May occasionally forage over the Study Area.
Fringed myotis *Myotis thysanodes*	WBGB High Priority	Associated with a wide variety of habitats including mixed coniferous-deciduous forest and redwood/sequoia groves. Buildings, mines and large snags are important day and night roosts.	**Unlikely.** The Study Area does not provide any typical roosting habitat for this species. May occasionally forage over the Study Area.
Long-legged myotis *Myotis volans*	WBGB High Priority	Generally associated with woodlands and forested habitats. Large hollow trees, rock crevices and buildings are important day roosts. Other roosts include caves, mines and buildings.	**Unlikely.** The Study Area does not provide any typical roosting habitat for this species; the sea cave is too moist and wet to allow for roosting. May occasionally forage over the Study Area.
Pallid bat *Antrozous pallidus*	SSC	Found in deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	**Unlikely.** The Study Area contains no rockpiles or similar substrates and thus provides no typical roost habitat for this species. May occasionally forage over the Study Area.
Sonoma tree vole *Arborimus pomo*	SSC	Occurs in old-growth and other forests, mainly those of Douglas-fir, redwood, and montane hardwood-conifer. Closely associated with Douglas fir; however, recent observations from the North Coast have documented this species in other coniferous forests.	**Moderate Potential.** The Study Area contains coniferous forest species that may provide nesting habitat and forage resources for this species.
Point Arena mountain beaver *Aplodontia rufa nigra*	FE, SSC	Coastal areas in the vicinity of Point Arena with springs or seepages. Utilizes north-facing slopes of ridges and gullies with friable soils and thickets of undergrowth.	**No Potential.** The Study Area is not within the documented range of this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN STUDY AREA
Pacific fisher *Martes pennanti pacifica*	FC, SSC	Intermediate to large-tree stages of coniferous forests and deciduous-riparian areas with high percent canopy closure. Use cavities, snags, logs and rocky areas for cover and denning. Need large areas of mature, dense forest.	**Unlikely.** Coniferous forest habitat within and adjacent to the Study Area is comprised primarily of younger trees, and is thus generally unsuitable for this species.
American badger *Taxidea taxus*	SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Requires friable soils and open, uncultivated ground. Preys on burrowing rodents.	**Unlikely.** Although the Study Area contains friable soils in grassland habitat, large burrows were not observed during the site assessment.
Birds			
Common loon *Gavia immer*	SSC	Winter visitor to coastal marine, estuarine and some expansive freshwater habitats.	**No Potential.** Although this species may occur adjacent to the Study Area, the Study Area does not include marine waters and thus provides no suitable habitat.
Short-tailed albatross *Diomedea albatrus*	FE	Pelagic, nesting on remote Pacific Ocean islands. Rare along California coast. Feeds on small animals and carrion at water's surface.	**No Potential.** The Study Area provides no suitable habitat for this species.
Ashy storm-petrel *Oceanodroma homochroa*	SSC	Pelagic; nests on offshore and coastal islands and sea stacks. Breeding in Mendocino County is limited to very few sites.	**No Potential.** The Study Area does not provide any habitat for this species.
California brown pelican *Pelecanus occidentalis californicus*	FE, SE, CFP	Found in estuarine, marine subtidal, and marine pelagic waters along the coast. Nests colonially on rocky or low brushy slopes of undisturbed islands; does not breed north of the Channel Islands.	**Unlikely.** This species may roost on the cliff adjacent to the Study Area; however, utilization of the Study Area itself is unlikely. May occasionally fly over the area.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN STUDY AREA
Harlequin duck *Histrionicus histrionicus*	SSC	Winter visitor to coastal habitats, usually along turbulent, rocky shores. Breeds in inland streams.	**No Potential.** The Study Area does not provide any habitat for this species.
Golden eagle *Aquila chrysaetos*	SSC, CFP	Found in rolling foothill and mountain areas, sage-juniper flats, dessert. Cliff-walled canyons provide nesting habitat in most parts of range; also nests in larger trees.	**Unlikely.** The Study Area does not provide any typical nesting habitat. May occasionally fly-over the Study Area while foraging.
White-tailed kite *Elanus leucurus*	CFP	Resident in coastal and valley lowlands, including wetland and agricultural areas. Preys on small diurnal mammals and occasional birds, insects, reptiles, and amphibians.	**Moderate Potential.** The Study Area and surrounds provide open habitat of moderate quality for this species.
Northern goshawk *Accipiter gentilis*	SC, SSC	Resident in and on the edges of mixed and coniferous forests. Hunts medium sized birds.	**Unlikely.** Coniferous forest habitat within the Study Area is comprised mostly of younger, smaller trees, and this species range in most of Mendocino County does not extend to the coast.
Bald eagle *Haliaeetus leucocephalus*	FD, SE, CFP	Requires large bodies of water, or free-flowing rivers with abundant fish adjacent snags or other perches. Nests in large, old-growth, or dominant live tree with open branch work.	**Unlikely.** The Study Area does not contain large, old-growth or large open crowned trees for nesting habitat. May occasionally fly-over the Study Area.
Northern harrier *Circus cyaneus*	SSC	Largely resident in open, moist habitats including marshes, grasslands and prairies. Nests on the ground in densely vegetated habitats, usually near water.	**Unlikely.** The Study Area lacks the expanses of open habitat favored by this species, and provides no typical nesting habitat.
American peregrine falcon *Falco peregrinus anatum*	FD, SE, CFP	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.** The Study Area itself does not provide any suitable nesting habitat. May occasionally forage over the area.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN STUDY AREA
Western snowy plover *Charadrius alexandrinus nivosus*	FT, SSC	Found on sandy beaches, salt pond levees and shores of large alkali lakes. Need sandy gravelly or friable soils for nesting.	**No Potential.** The Study Area does not contain sand beaches, lake shores, or levees to support this species.
Cassin's auklet *Cerorhinca monocerata*	SSC	Pelagic species, nesting colonially in burrows or crevices on offshore and coastal islands and rocks.	**No Potential.** The Study Area does not provide any habitat for this species.
Tufted puffin *Fratercula cirrhata*	SSC	Pelagic species, nesting on offshore and coastal islands, islets, and sea stacks. Requires sod or earth into which the birds can burrow.	**No Potential.** The Study Area does not provide any habitat for this species.
Marbled murrelet *Brachyramphus marmoratus*	FT, SE	Primarily coastal marine, but breeds in old-growth redwood stands containing platform-like branches along the coast.	**Unlikely.** The Study Area does not contain old-growth coniferous forest habitat that is necessary for nesting. May occasionally fly over the Study Area.
Short-eared owl *Asio flammeus*	SSC	Resident and winter visitor. Found in open, treeless areas such as grasslands and marshes. Requires elevated sites perches for foraging, and dense vegetation for roosting and nesting.	**Unlikely.** The Study Area does not provide the expanses of marsh and/or grassland habitat favored by this species.
Northern spotted owl *Strix occidentalis caurina*	FT	Resident in large patches of old-growth forest which are used hunting, roosting and nesting. Forest types are typically within the North Coast coniferous forest habitat designation. Nests on the tops of broken trees and other platform-like areas in the canopy.	**No Potential.** The Study Area does not contain old-growth North Coast coniferous forest habitat.
Vaux's swift *Chaetura vauxi*	SSC	Summer resident, typically nesting and roosting in the cavities of large, hollowed-out trees. Forages high in the air, generally over or near lakes and rivers.	**Unlikely.** Coniferous forest habitat within the Study Area consists of younger trees lacking cavities. May occur over the Study Area during migration.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN STUDY AREA
Olive-sided flycatcher *Contopus cooperi*	SSC	Summer resident, typically breeding in montane, late-successional coniferous forests where tall trees overlook canyons, meadows, lakes or other open terrain. Also breeds in coastal habitats at lower elevations.	**Unlikely.** Coniferous forest habitat within the Study Area is comprised primarily of early successional, smaller trees. May occur occasionally during migration.
Purple martin *Progne subis*	SSC	Summer resident, breeding in coniferous and mixed forest and woodland habitats. Along the north coast, associated with redwoods. Nests in tree cavities as well as cavities in man-made structures.	**Unlikely.** Coniferous forest habitat within the Study Area consists of younger trees lacking cavities. May occur over the Study Area during migration.
Bank swallow *Riparia riparia*	ST	Summer resident, breeding colonially in riparian and other lowland habitats in western California. Nests in riparian areas with vertical cliffs and bands with fine-textured or sandy soils in which to construct nesting burrows.	**Unlikely.** The Study Area does not provide any suitable habitat for this species. Historical breeding range within Mendocino County very limited, and well south of the Study Area.
Yellow warbler *Dendroica petechia*	SSC	Summer resident, nesting in riparian stands of willows, cottonwoods, aspens, sycamores, and alders. Also nests in montane shrubbery in open coniferous forests. Widespread during migration.	**Unlikely.** The Study Area does not contain suitable riparian habitat to support this species. May occasionally occur in the Study Area during migration.
Grasshopper sparrow *Ammodramus savannarum*	SSC	Summer resident, nesting in dense grasslands on rolling hills, lowland plains, in valleys and on hillsides on lower mountain slopes.	**Unlikely.** The Study does not contain suitably large areas of grassland habitat.
Bryant's savannah sparrow *Passerculus sandwichensis alaudinus*	SSC	Resident along the northern to central California coast, in association with the coastal fog belt. Occupies low tidally-influenced habitats and adjacent grasslands. Builds nests in taller grasses and rushes along roads, levees, and water conveyance canals.	**Unlikely.** The Study Area does not contain tidal marsh or adjacent habitats to support this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN STUDY AREA
Reptiles and Amphibians			
Northern Pacific pond turtle *Actinemys marmorata marmorata*	SSC	Occurs in perennial ponds, lakes, rivers and streams with suitable basking habitat (mud banks, mats of floating vegetation, partially submerged logs) and submerged shelter.	**No Potential.** The Study Area does not contain suitable aquatic habitat for this species.
Coastal tailed frog *Ascaphus truei*	SSC	Requires permanent streams of low temperature in forested areas of high precipitation (>=100cm). Individuals have been collected up to 12 m (40 ft) from streams during moist periods. The normal home range has a long dimension that rarely exceeds 24 m (80 ft).	**No Potential.** The Study Area does not contain stream habitat necessary for this species.
Northern red-legged frog *Rana aurora*	SSC	Occurs in the vicinity of quiet, permanent pools of streams, marshes, and occasionally ponds. Prefers shorelines with extensive vegetation.	**Unlikely.** The Study Area does not contain suitable breeding habitat, and does not lie within any logical dispersal corridor for this species.
Foothill yellow-legged frog *Rana boylii*	SSC	Found in or near sunny, rocky streams in a variety of habitats. Strongly associated with water.	**No Potential.** The Study Area does not contain stream habitat to support this species.
Southern torrent salamander *Rhyacotriton variegatus*	SSC	Cold, permanent seeps and small streams with rocky substrate in forested areas.	**No Potential.** The Study Area does not contain streams or seeps to support this species.
Del Norte salamander *Plethodon elongatus*	SSC	Redwood and North Coast forests with talus slopes and hardwood understories.	**No Potential.** The Study Area does not contain North Coast coniferous forest or talus slopes to support this species.
Fish			

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN STUDY AREA
Navarro roach *Lavinia symmetricus navarroensis*	SSC	Found in warm, intermittent streams as well as cold, well-aerated streams.	**No Potential.** The Study Area does not contain stream habitat.
Invertebrates			
lotis blue butterfly *Lycaedes argyrognomon lotis*	FE	Sphagum-willow bogs at coastal prairie and Bishop pine-and fir-Bolander's pine forest transitional zones. *Hosackia gracilis* is suspected host plants.	**Unlikely.** The Study Area does not contain sphagnum the bog-prairie-Bishop pine forest intergrade habitat necessary to support this species. The host plant was not observed during protocol-level rare plant surveys.
Behren's silverspot butterfly *Speyeria zerene behrensii*	FE	Inhabits coastal terrace prairie habitat. Larval plant is *Viola adunca.*	**Unlikely.** Although the Study Area contains grassland habitat, the host plant was not observed during protocol-level rare plant surveys.

*** Key to status codes:**

FE	Federal Endangered
FT	Federal Threatened
FC	Federal Candidate
FD	Federal De-listed
BCC	USFWS Birds of Conservation Concern
SE	State Endangered
SD	State Delisted
ST	State Threatened
SR	State Rare
SSC	CDFG Species of Special Concern
CFP	CDFG Fully Protected Animal
WBWG	Western Bat Working Group High or Medium Priority species
Rank 1A	CNPS Rank 1A: Plants presumed extinct in California
Rank 1B	CNPS Rank 1B: Plants rare, threatened, or endangered in California and elsewhere
Rank 2A	CNPS Rank 2A: Plants presumed extirpated in California, but more common elsewhere
Rank 2B	CNPS Rank 2B: Plants rare, threatened, or endangered in California, but more common elsewhere

Occurrence Potential:

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.

Survey Results:

Not Present. The species does not have the potential to occur on-site; therefore, it is considered not present.

Not Observed. The species has the potential to occur on-site, but was not observed during protocol-level surveys.

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

Appendix C

Plant Species Observed in the Study Area

Table C-1. Plant species observed in the Study Area, June 11 and July 29, 2012, and December 11, 2013

Family	Scientific name	Common name	Life form	Origin	Rare Status[1]	Invasive Status[2]	Wetland indicator[3]
Aizoaceae	*Carpobrotus edulis*	iceplant	perennial forb	non-native	--	high	NL
Aizoaceae	*Drosanthemum floribundum*	rosy iceplant	perennial forb	non-native	--	--	NL
Alliaceae	*Allium dichlamydeum*	coastal onion	perennial forb	native	--	--	NL
Anacardiaceae	*Toxicodendron diversilobum*	poison oak	deciduous shrub	native	--	--	NL
Apiaceae	*Angelica hendersonii*	Henderson's angelica	perennial forb	native	--	--	NL
Apiaceae	*Daucus pusillus*	American wild carrot	annual forb	native	--	--	NL
Apiaceae	*Heracleum maximum*	cow parsnip	perennial forb	native	--	--	FAC
Apiaceae	*Sanicula crassicaulis*	Gamble weed	perennial forb	native	--	--	NL
Aquifoliaceae	*Ilex aquifolium*	English holly	evergreen tree	non-native	--	moderate	NL
Araceae	*Zantedeschia aethiopica*	calla lily	perennial forb	non-native	--	limited	OBL
Asteraceae	*Achillea millefolium*	common yarrow	perenial forb	native	--	--	FACU
Asteraceae	*Baccharis pilularis*	coyote brush	evergreen shrub	native	--	--	NL
Asteraceae	*Cirsium vulgare*	bull thistle	perennial forb	non-native	--	moderate	FACU
Asteraceae	*Delairea odorata*	Cape ivy	perennial forb	non-native	--	high	NL
Asteraceae	*Erigeron glaucus*	seaside fleabane	perennial forb	native	--	--	FACU
Asteraceae	*Erigeron karvinskianus*	Latin American fleabane	perennial forb	non-native	--	assessed	NL
Asteraceae	*Eriophyllum staechadifolium*	seaside woolly sunflower	perennial forb	native	--	--	NL
Asteraceae	*Gamochaeta ustulata*	featherweed	perennial forb	native	--	--	FACW
Asteraceae	*Glebionis segetum*	corn daisy	annual forb	non-native	--	--	NL
Asteraceae	*Grindelia stricta* var. *platyphylla*	Oregon gumweed	perennial forb	native	--	--	NL
Asteraceae	*Hypochaeris radicata*	rough cat's-ear	perennial forb	non-native	--	moderate	FACU
Asteraceae	*Leontodon saxatilis*	hawkbit	annual forb	non-native	--	--	NL
Asteraceae	*Leucanthemum vulgare*	ox-eye daisy	perennial forb	non-native	--	moderate	FACU
Asteraceae	*Santolina chamaecyparissus*	lavender cotton	evergreen shrub	non-native	--	--	NL
Asteraceae	*Senecio jacobaea*	tansy ragwort	perennial forb	non-native	--	limited	FACU
Asteraceae	*Senecio minimus*	coastal burnweed	annual forb	non-native	--	moderate	NL
Berberidaceae	*Berberis nervosa*	Cascades Oregon grape	evergreen shrub	native	--	--	NL

Family	Scientific name	Common name	Life form	Origin	Rare Status[1]	Invasive Status[2]	Wetland indicator[3]
Brassicaceae	*Cardamine californica*	milk maids	perennial forb	native	--	--	NL
Caprifoliaceae	*Lonicera hispidula*	pink honeysuckle	evergreen shrub	native	--	--	FACU
Caryophyllaceae	*Silene gallica*	windmill pink	annual forb	non-native	--	--	NL
Caryophyllaceae	*Spergularia bocconi*	Boccon's sandspurry	annual forb	non-native	--	--	FAC
Caryophyllaceae	*Spergularia rubra*	red sandspurry	perennial forb	non-native	--	--	FAC
Convolvulaceae	*Calystegia purpurata* ssp. *purpurata*	Pacific false bindweed	perennial vine	native	--	--	NL
Crassulaceae	*Dudleya farinosa*	sea bluff lettuce	perennial forb	native	--	--	NL
Cucurbitaceae	*Marah oregana*	coast manroot	perennival vine	native	--	--	NL
Cupressaceae	*Hesperocyparis macrocarpa*	Monterey cypress	evergreen tree	native	Rank 1B*	--	NL
Cyperaceae	*Carex densa*	dense sedge	perennial graminoid	native	--	--	OBL
Cyperaceae	*Carex obnupta*	slough sedge	perennial graminoid	native	--	--	OBL
Cyperaceae	*Carex tumulicola*	slender sedge	perennial graminoid	native	--	--	FACU
Cyperaceae	*Isolepis carinata*	keeled bulrush	annual graminoid	native	--	--	OBL
Dennstaedtiaceae	*Pteridium aquilinum* var. *pubescens*	bracken fern	perennial fern	native	--	--	FACU
Dryopteridaceae	*Polystichum munitum*	sword fern	perennial fern	native	--	--	FACU
Ericaceae	*Gaultheria shallon*	salal	evergreen shrub	native	--	--	FACU
Ericaceae	*Vaccinium ovatum*	evergreen huckleberry	evergreen shrub	native	--	--	FACU
Fabaceae	*Astragalus nuttallii* var. *virgatus*	ocean bluff milk-vetch	perennial forb	native	--	--	NL
Fabaceae	*Lathyrus vestitus*	Pacific pea	perennial forb	native	--	--	NL
Fabaceae	*Lotus corniculatus*	bird's-foot trefoil	perennial forb	non-native	--	assessed	FAC
Fabaceae	*Lupinus littoralis*	seashore lupine	perennial forb	native	--	--	NL
Fabaceae	*Lupinus variicolor*	many-colored lupine	evergreen shrub	native	--	--	NL
Fabaceae	*Medicago polymorpha*	bur medic	annual forb	non-native	--	--	FACU
Fabaceae	*Melilotus indicus*	yellow sweetclover	annual forb	non-native	--	limited	FACU
Fabaceae	*Trifolium fragiferum*	strawberry clover	perennial forb	non-native	--	--	FACU
Fabaceae	*Trifolium wormskioldii*	cows clover	perennial forb	native	--	--	FACW
Fabaceae	*Vicia sativa*	garden vetch	annual forb	non-native	--	--	UPL
Fagaceae	*Notholithocarpus densiflorus*	tanoak	evergreen tree	native	--	--	NL
Garryaceae	*Garrya elliptica*	coast silk tassel	evergreen shrub	native	--	--	NL

Family	Scientific name	Common name	Life form	Origin	Rare Status[1]	Invasive Status[2]	Wetland indicator[3]
Geraniaceae	*Geranium dissectum*	cutleaf geranium	annual forb	non-native	--	moderate	NL
Iridaceae	*Iris douglasiana*	Douglas' iris	perennial forb	native	--	--	NL
Iridaceae	*Sisyrinchium bellum*	blue-eyed grass	perennial forb	native	--	--	FACW
Juncaceae	*Juncus effusus* ssp. *pacificus*	common rush	perennial graminoid	native	--	--	FACW
Juncaceae	*Juncus occidentalis*	western rush	perennial graminoid	native	--	--	FACW
Juncaceae	*Juncus patens*	spreading rush	perennial graminoid	native	--	--	FACW
Lamiaceae	*Clinopodium douglasii*	yerba buena	perennial forb	native	--	--	NL
Lamiaceae	*Prunella vulgaris*	lance-leaf selfheal	perennial forb	native	--	--	FACU
Lamiaceae	*Stachys ajugoides*	hedge nettle	perennial forb	native	--	--	OBL
Lamiaceae	*Stachys rigida var. quercetorum*	rough hedge nettle	perennial forb	native	--	--	FACW
Liliaceae	*Prosartes hookeri*	drops of gold	perennial forb	native	--	--	NL
Melanthiaceae	*Toxicoscordion fremontii*	Fremont's star lily	perennial forb	native	--	--	NL
Montiaceae	*Claytonia perfoliata*	miner's lettuce	annual forb	native	--	--	FAC
Montiaceae	*Claytonia sibirica*	Siberian spring beauty	perennial forb	native	--	--	FAC
Moraceae	*Morella californica*	California wax myrtle	evergreen shrub	native	--	--	FACW
Myrsinaceae	*Anagallis arvensis*	pimpernel	annual forb	non-native	--	--	NL
Orobanchaceae	*Castilleja mendocinensis*	Mendocino coast paintbrush	perennial forb	native	Rank 1B	--	NL
Orobanchaceae	*Castilleja wightii*	Wight's paintbrush	perennial forb	native	--	--	NL
Phrymaceae	*Mimulus aurantiacus*	sticky monkey	evergreen shrub	native	--	--	NL
Pinaceae	*Pinus contorta* ssp. *contorta*	beach pine	evergreen tree	native	--	--	FAC
Pinaceae	*Pinus muricata*	Bishop pine	evergreen tree	native	--	--	NL
Pinaceae	*Pinus radiata*	Monterey pine	evergreen tree	native	Rank 1B*	limited	NL
Plantaginaceae	*Plantago lanceolata*	English plantain	perennial forb	non-native	--	limited	FACU
Plantaginaceae	*Plantago major*	common plantain	perennial forb	non-native	--	--	FAC
Plantaginaceae	*Plantago maritima*	maritime plantain	perennial forb	native	--	--	FACW
Plantaginaceae	*Veronica americana*	brooklime	perennial forb	native	--	--	OBL
Plumbaginaceae	*Armeria maritima* ssp. *californica*	California seapink	perennial forb	native	--	--	FAC
Poaceae	*Agrostis blasdalei*	Blasdale’s bent grass	perennial graminoid	native	Rank 1B	--	NL

Family	Scientific name	Common name	Life form	Origin	Rare Status[1]	Invasive Status[2]	Wetland indicator[3]
Poaceae	*Aira caryophyllea*	silver hair grass	annual graminoid	non-native	--	assessed	FACU
Poaceae	*Anthoxanthum odoratum*	sweet vernal grass	perennial graminoid	non-native	--	moderate	FACU
Poaceae	*Avena barbata*	slender oat	perennial graminoid	non-native	--	moderate	NL
Poaceae	*Briza maxima*	rattlesnake grass	annual graminoid	non-native	--	limited	NL
Poaceae	*Briza minor*	little rattlesnake grass	annual graminoid	non-native	--	--	FAC
Poaceae	*Bromus catharticus*	rescue grass	perennial graminoid	non-native	--	--	NL
Poaceae	*Bromus diandrus*	ripgut brome	annual graminoid	non-native	--	moderate	NL
Poaceae	*Bromus laevipes*	Chinook brome	perennial graminoid	native	--	--	NL
Poaceae	*Calamagrostis nutkaensis*	Pacific reed grass	perennial graminoid	native	--	--	FACW
Poaceae	*Cynosurus echinatus*	annual dogtail grass	annual graminoid	non-native	--	moderate	NL
Poaceae	*Dactylis glomerata*	orchard grass	perennial graminoid	non-native	--	limited	FACU
Poaceae	*Danthonia californica*	California oat grass	perennial graminoid	native	--	--	FAC
Poaceae	*Festuca bromoides*	brome fescue	perennial graminoid	non-native	--	--	FACU
Poaceae	*Festuca idahoensis*	Idaho fescue	perennial graminoid	native	--	--	NL
Poaceae	*Festuca myuros*	rattail fescue	perennial graminoid	non-native	--	moderate	FACU
Poaceae	*Festuca perennis*	Italian rye grass	annual graminoid	non-native	--	moderate	FAC
Poaceae	*Festuca rubra*	red fescue	perennial graminoid	native	--	--	FAC
Poaceae	*Holcus lanatus*	common velvet grass	perennial graminoid	non-native	--	moderate	FAC
Poaceae	*Hordeum murinum*	mouse barley	annual graminoid	non-native	--	moderate	FAC
Poaceae	*Poa annua*	annual bluegrass	annual graminoid	non-native	--	--	FAC
Poaceae	*Polypogon monspeliensis*	rabbit's-foot grass	annual graminoid	non-native	--	limited	FACW
Polygonaceae	*Eriogonum latifolium*	seaside buckwheat	perennial forb	native	--	--	NL
Polygonaceae	*Polygonum paronychia*	beach knotweed	perennial forb	native	--	--	NL
Polygonaceae	*Rumex acetosella*	common sheep sorrel	perennial forb	non-native	--	moderate	FACU
Polypodiaceae	*Polypodium californicum*	California polypody	perennial fern	native	--	--	NL
Ranunculaceae	*Aquilegia formosa*	red columbine	perennial forb	native	--	--	FAC
Rhamnaceae	*Ceanothus thyrsiflorus* var. *griseus*	blue blossom	evergreen shrub	native	--	--	NL
Rhamnaceae	*Frangula californica*	California coffeeberry	evergreen shrub	native	--	--	NL
Rosaceae	*Fragaria chiloensis*	beach strawberry	perennial forb	native	--	--	NL
Rosaceae	*Fragaria vesca*	woodland strawberry	perennial forb	native	--	--	FACU

Family	Scientific name	Common name	Life form	Origin	Rare Status[1]	Invasive Status[2]	Wetland indicator[3]
Rosaceae	*Rosa nutkana*	Nootka rose	evergreen shrub	native	--	--	FAC
Rosaceae	*Rubus ursinus*	California blackberry	evergreen shrub	native	--	--	FACU
Rubiaceae	*Galium aparine*	common bedstraw	annual forb	native	--	--	FACU
Rubiaceae	*Galium californicum*	California bedstraw	perennial forb	native	--	--	NL
Rubiaceae	*Galium trifidum ssp. columbianum*	three-petal bedstraw	perennial forb	native	--	--	FACW
Urticaceae	*Soleirolia soleirolii*	baby's tears	annual forb	non-native	--	--	NL
Urticaceae	*Urtica dioica*	stinging nettle	perennial forb	native	--	--	FAC

- All species identified using the *Jepson Manual* (Hickman 1993), *Jepson Manual II: Vascular Plants of California* (Baldwin et al. 2012) and *A Flora of Sonoma County* (Best et al. 1996)
- Nomenclature follows *Jepson Manual II: Vascular Plants of California* (Baldwin et al. 2012)

[1]Rare Status: The CNPS Inventory of Rare and Endangered Plants (CNPS 2012)

*Considered rare only in native stands on the Central Coast

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

[3]Wetland Status: National List of Plant Species that Occur in Wetlands, Western Mountains, Valleys, and Coast Region of California (Lichvar and Kartesz 2009)

Appendix D

Representative Photographs of the Study Area

Top: Not an ESHA: developed and landscaped, single-family dwelling in center of Study Area (view: northeast).

Bottom: Not an ESHA: non-native perennial grassland in central portion of the Study Area (view: north).

Photographs taken June 11, 2012

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Top: Potential ESHA: wetland meadow in central-western portion of the Study Area (view: north).

Bottom: Potential ESHA: coastal bluff scrub in southern portion of the Study Area (view: south east).

Photographs taken June 11, 2012

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Top: Potential ESHA: shore pine forest in eastern portion of the Study Area (view: southeast)

Bottom: Not an ESHA: Monterey cypress grove in northern portion of the Study Area (view: north)

Photographs taken June 11, 2012

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December 29, 2014

Bret Taber
5366 Stonehurst Drive
Martinez, CA 94553

RE: 5720 Highway One Response Letter to Coastal Commission Comments, Amendment to Coastal Act Compliance Report, WRA, Inc. June 2014

Mr. Taber,

The following letter is an amendment to the Coastal Act Compliance Report dated June 2014 produced by our office and submitted to the County of Mendocino. In response to our report, the Coastal Commission issued several comments regarding the on-site ESHA. We have addressed these comments, which are included here. Pending further comments from the County of Mendocino, Coastal Commission, or other interested parties, WRA will amend the report in its entirety at your request.

The inconsistencies between figures developed by BAI, DTA, and WRA are largely an artifact of the iterative process between client and consultant. WRA has updated their figures with the latest information and requests from the Coastal Commission, and therefore should now be consistent with all other figures, measurements, and data amended herein. Specific discrepancies cited by the Coastal Commission include the location of the septic area as illustrated in the WRA report and the DTA drawings; these have been amended for continuity and are accurately illustrated in Figure 1. Likewise it was unclear to the Coastal Commission from WRA's report where the foundational bridge abutments would be sited vis-à-vis ESHA boundaries; these will be sited entirely outside of the literal extent of all on-site ESHA, but will be within the 50-foot buffer of several ESHAs (Figure 1). Additionally, the Coastal Commission cited WRA's report lacking analysis regarding driveway improvements, turnouts, and a rock-lined swale; these have since been removed from the proposed project and therefore do not require such analysis.

In addition to the clarifications enumerated above, WRA has updated figures to include the extent, approximate location, and type of restoration activities that have been conducted on the subject property as required in the Mendocino County Coastal Development Permit (CDP) 71-2007. The final site visit as required by the permit and requested by Mendocino County was conducted on October 17, 2014. In attendance were Scott Perkins with the County of Mendocino, Angela Liebenberg with the California Department of Fish and Wildlife (CDFW), and the landowners Bret and Valerie Taber. In response to the visit, the CDFW issued an electronic correspondence with the County of Mendocino within which they determined that the restoration success criteria were met thereby meeting the obligation of the property owners. Specifically, the CDFW noted that the native plants were establishing successfully, that non-native and

invasive plants were being managed appropriately and kept in control, and that the wetland vegetation was dominated by native perennial hydrophytes and surviving despite recent drought effects.

Likewise, WRA has recommended mitigation restoration efforts for impacts created by the proposed project. The Coastal Commission correctly cited that these actions would occur in the previous restoration area per CDP 71-2007, as well as within and outside of existing ESHA. WRA proposed these locations because they were likely candidates for successful restoration to mitigate for the proposed project impacts. The understory of the Shore Pine Forest ESHA located east of the single-family dwelling is neither diverse nor native-dominated, and as such seemed to WRA to be a good location for mitigation restoration activities. The Pacific Reed Grass Meadow ESHA, portions of which were previously part of the restoration effort required by CDP 71-2007, situated west of the single-family dwelling does contain substantial diversity, but would benefit from removal / reduction of non-native invasive species, particularly common velvet grass (*Holcus lanatus*) and bull thistle (*Cirsium vulgare*), and likewise, appears to be a good location for mitigation restoration activities. To meet the Coastal Commission's request, the restoration activities within the Shore Pine Forest and Pacific Reed Grass Meadow ESHA have been removed with the exception of proposed enhancement of Shore Pine Forest. In its stead, mitigation restoration has been proposed in portions of the Developed / Landscaped areas and Non-native Grassland Non-ESHA community (Figure 1). Mitigation restoration activities will focus primarily on native species plantings and removal / control of non-native species, and will create and/or enhance Coastal Bluff Scrub (i.e., Blue Blossom Shrubland Alliance), Coastal Terrace Prairie (i.e., several native Herbaceous Alliances), and Shore Pine Forest. A final habitat mitigation and monitoring plan (HMMP) will be developed by WRA which will include location and extent of mitigation restoration areas, target non-native species to control, target native species to plant / seed, methods of weed control and plant installation, and success criteria. Concurrent with this plan, WRA will update the restoration plan and activities for the restoration areas required by CDP 71-2007. WRA has delayed the development of such a plan until the County and Coastal Commission have been able to comment on the proposed CDP for the updated single-family dwelling.

Finally, WRA reiterates and/or updates its analysis of the seven standards or items (a) through (g) of subsection (A)(1) of Section CZC Section 20.496.020.

(a) The biological significance of adjacent lands:	The habitats, both ESHA and non-ESHA, are contiguous with and common to those immediately adjacent to the property and the Mendocino coastline. Neighboring parcels appear to contain non-native grassland, coastal prairie, coastal bluff scrub, and closed-cone coniferous forest, the very same habitats present in the subject property. Likewise, the adjacent parcels are developed including single-family dwellings, access roads, fences, utility lines, and other associated infrastructure with residences. The adjacent properties are not particularly unique and none are preserved open space such as parks or beach access for the general public, nor are they designated wildlife or natural preserves.

(b) Sensitivity of species to disturbance:	The species composing the on-site ESHAs vary in their sensitivity to disturbance. Shore pine (*Pinus contorta* ssp. *contorta*) are relatively tolerant to nearby development, particularly if that development does not directly impact the root zone and is located downhill from the trees where normal hydrologic function is not interrupted. Generally, the lack of fire and/or anthropogenic disturbance mimicking fire is likely the biggest culprits for a decline in the health of closed-cone pines in Coastal California. Consequently, development adjacent to, but not within, the on-site Shore Pine Forest is unlikely to affect the health of these species. Furthermore, active management on the part of the property owners would likely sustain the existing forest, creating opportunities for natural recruitment of native species in the understory thereby increasing species diverse and vertical heterogeneity. Pacific reed grass (*Calamagrostis nutkaensis*), common rush (*Juncus patens*), and Pacific rush (*J. patens*), the dominant native species in the on-site wetland ESHA, are robust tussocked perennials with extensive root systems which are generally resistance to invasive plant species. The spaces interstitial to these tussocks can be susceptible to invasion by non-native species, and indeed bull thistle and common velvet grass occupy these areas. Changes in the normal hydrologic function and increased sedimentation can interrupt the health of wetland ESHA. However, the presence of existing development, re-siting proposed development on the existing footprint, and the location of the proposed/existing development away from the natural flow of surface and sub-surface hydrology suggest that interruption of the wetland's hydrology is unlikely to occur. Likewise deploying standard best management practices (e.g., silt fencing, exclusion fencing, straw waddles) will minimize sediment migration into the wetland ESHA. And development of an HMMP will detail management guidelines to decrease the presence of non-native species.
(c) Susceptibility of parcel to erosion:	The coastal bluff face and sea cave are susceptible to erosion, but the development is intentionally designed to account for such susceptibility. The location of the existing/proposed development is flat with slopes of 0 to 2 percent and underlain by fine sandy loams. Although these are friable soils, the low slope gradient reduces the potential for sediment migration and site-wide erosion. Likewise, the deployment of standard best management practices will reduce the threat of erosion.

(d) Use of natural topographic features to locate development:	The very flat topography of the existing/proposed development is ideal for ground-breaking activities as it is highly unlikely for sediment migration and site-wide erosion to occur. A small hillock situated immediately to the east and northeast of the existing/proposed development buffers visual effects from Highway 1 and neighboring parcels. Likewise, the development is situated parallel to, rather than crossing the natural, very shallow swale topography that provides the surface and subsurface hydrology to the on-site wetland ESHA and therefore will not disturb its ordinary hydrologic function.
(e) Use of existing cultural features to locate buffer zones:	The presence of existing development will be utilized to the fullest extent feasible for updating the single-family dwelling. Other cultural features to act as a buffer are not present.
(f) Lot configuration and location of existing development:	The parcel is approximately 2 acres and has existing developed areas, including a single-family home. The parcel is limited in development opportunities due to the presence of a coastal bluff face and several on-site ESHA. Therefore, the proposed development takes advantage of the existing developed areas and does not encroach on the literal extent of on-site ESHA.
(g) Type and scale of the development proposed:	The proposed development is an update to a single-family dwelling including updates to associated infrastructure. The update will increase the footprint of the existing dwelling; however, this is to meet engineering standards to span a sea cave and prevent future damage to the proposed structure. The proposed development is consistent in type and size with parcels in the immediate and general vicinity of the subject property.

Should you have any questions or comments, please do not hesitate to contact me. Again, WRA, Inc. will amend the Coastal Compliance Act Report upon receipt of all County, Commission, or other interested party comments.

Matt Richmond
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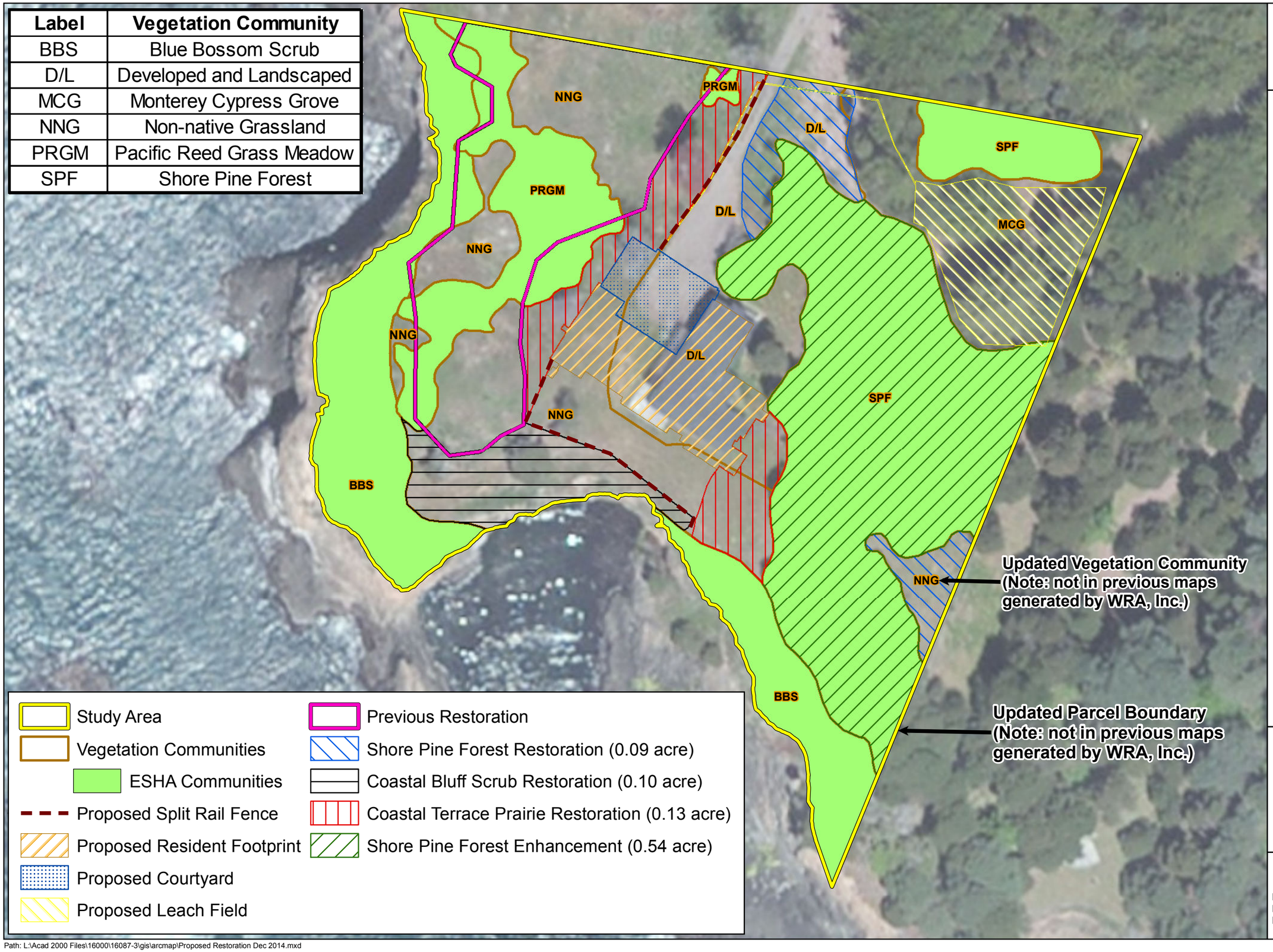
Attachments:
Figure 1. Proposed Footprint, Restoration, and Enhancement Areas



Label	Vegetation Community
BBS	Blue Bossom Scrub
D/L	Developed and Landscaped
MCG	Monterey Cypress Grove
NNG	Non-native Grassland
PRGM	Pacific Reed Grass Meadow
SPF	Shore Pine Forest

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Figure x.

Proposed Footprint, Restoration, and Enhancement Areas

Map Date: December 2014
Map By: Michael Rochelle
Base Source: ESRI Streaming Imagery, 2010 Microsoft Aerial

Path: L:\Acad 2000 Files\16000\16087-3\gis\arcmap\Proposed Restoration Dec 2014.mxd