BIOLOGICAL ASSESSMENT

The Boathouse
12856 Sir Francis Drake Boulevard

Inverness, California

Prepared for:

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Rana Creek Habitat Restoration

July 17, 2019

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July 17, 2019

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1.0 Introduction

The purpose of this Biological Assessment is to evaluate the potential effects of a proposed development on protected species and/or their habitats that occur or have the potential to occur within or near the project site. We have provided recommended avoidance and/or minimization measures designed to reduce project impacts on natural resources to a less than significant level.

1.1 Regional Context

Tomales Bay is a narrow, 15-mile-long tidal estuary along the San Andreas Fault on the northeast side of Point Reyes. It is situated between Bodega Bay towards the north, Bolinas Lagoon towards the south, and Drake's Estero towards the east. All of these waters are critical estuaries of the Point Reyes region. Most of the tidal marsh and mudflat habitat forms at the south end of Tomales Bay, near the village of Inverness, near the project location. The south side of the bay gradually transitions into an extensive freshwater marsh/riparian corridor, including Olema Marsh, and is surrounded by humid coniferous forests in the uplands.

The Inverness shoreline is lined with both commercial and residential dwellings and businesses. The adjacent properties include the Yacht Club, which is located immediately south of the property, and visitor serving hotels.

1.2 The Property

The property is located at 12856 Sir Francis Drake, Inverness, Marin County, California and is a two-story single-family residence. Otherwise known as the Boathouse, the historic property once operated as a commercial boat building from 1911 until 1974. Existing improvements include a two-story house; wooden decks and stairs; a detached studio and a wooden dock. Property improvements lie within the zone of tidal influence with the exception of the gravel parking access, a small front yard and side yards. The landscape in the front and side yards consists of a gravel parking lot, Monterey pine and cypress tree screening, bamboo, and ornamental grass. An existing wooden fence approximately four feet in height delineates the southwestern edge of the property and provides separation from nearby Sir Francis Drake Boulevard.

1.3 Land Use

Based on Marin County Planning Packet P1560, the Property is divided into Assessor's Tax Parcels 112-151-04, 05, 06, and 07. According to GIS parcel data from the Marin County Assessor's Office, the total acreage of the four parcels is approximately 1.75 acres. Square footage of each parcel is provided in **Table 1**. The Property is zoned C-RSP-1 Residential Single-Family Planned Coastal Zone, 1 unit/acre. The land falls within Marin Countywide Plan Land Use Designation: C-SF3 Rural/Residential Coastal Zone.

1.4 Project Description

The proposed project seeks the required permits and approvals to repair and remodel the existing house, deck, and dock foundations. The intent of the remodel is to address the preservation and long-term use of the property due to anticipated sea level rise of up to 3.2 feet. The project consists of lifting the existing structures and the dock three feet. The structure currently rests on shallow foundations that are approximately three feet high. The proposed foundations will have a maximum height of six feet. **Table 2** lists the square footage of existing and proposed features or improvements on the property. Additional detail is provided in the following paragraphs.

Miller Pacific Engineering Group (Miller Pacific) conducted a geotechnical study on October 17th, 2017 and determined that the potential for strong seismic shaking at the project site is high. The proximity to the San Andreas Fault is a likely source for future earthquake effects and combined with sea level rise there is significant risk for adverse damage to structures and improvements. With the construction of new foundations designed in accordance with the latest edition of California Building Code (2016 CBC), and by installing retaining structures designed with a seismic surcharge load, this risk will be mitigated to a less than significant level.

A structural repair and remodel plan prepared by Miller Pacific recommends installation of a ridged shallow foundation system consisting of helical anchor piles three-to-six inches in diameter, drilled cast in place piers, and installation of concrete grade beams fabricated off site. The work will require drilling and placement of the new foundation materials beneath the structure but will not require grading. The proposed structural repair and remodel plan involves lifting and temporarily shoring up the house, drilling

approximately 50 helical anchor piles battered to an angle of 10-to-15 degrees at a minimum depth of 20 feet below ground surface in order to reach non-liquefiable material, installation of approximately 533.5 linear feet of 5,000 PSI concrete grade beam reinforced with rebar and connected to the helical anchor piles, and then lowering and attaching the structure to the renovated foundation. The existing pier foundations that support the dock will be modified by installing steel four-inch by four-inch sleeves around the existing wooden posts and securing the posts with a welded metal frame that is anchored to the concrete piers at the end (seaward side) of the dock.

The proposed foundation work and raising of the dock will be conducted within the footprint of the existing structures with minimal impact outside the footprint. Staging and construction support will be located in the existing gravel driveway. Impacts associated with the work outside of the existing footprint of the house and its improvements are due to the required equipment and worker access needed to lift the house, install the helical anchor piles, construct the new grade beam foundation, and attach the structure to the new foundation. A forty-foot work area is required on the north side of the structure and a fifteen-foot work area is required on the south side of the structure in order to allow equipment access, worker access, transfer of materials from the staging area to the work area, and removal of any scrap or excess construction material generated by the work (**Table 3**). Work associated with elevating the existing dock will require only two feet of work area on either side. It is expected that the equipment required to perform the work will include hydraulic jacks, drilling equipment for helical anchor pile installation, temporary structural support for the residence (i.e. wooden shoring or cribbing), hand tools, and power tools. **Table 3** lists the area of the property outside of the existing development footprint that will be temporarily impacted by construction activities ("Temporary Construction Setback Areas"). The construction duration for the proposed structural repair and remodel is estimated at approximately 34 weeks.

In addition to the repair and remodel of the foundation, the Owner proposes to construct two new sets of wooden stairs and deck landings at the location of existing stairs and landing access to both the front door and second floor access. The two new stairs and landings will be built within existing landscaped or ruderal areas. The purpose of the deck landings and stairs is to connect the proposed elevated access entry stairs to grade. Construction of the new deck landings will be performed using typical methods and will utilize redwood decking, concrete footings, fasteners, power tools, and hand tools.

Landscape improvements include removal of five hazardous non-native Monterey pine (*Pinus radiata*) trees, ornamental grass, bamboo, iceplant and the establishment of native vegetation. The five Monterey pine trees are considered hazardous because many mature limbs have grown up through the power lines that run along Sir Francis Drake Boulevard. Removal of these limbs to a height below the power lines would effectively remove most of the tree canopies. Thus, removal of these four trees and replacement with native shrubs appropriate for the area that will not eventually grow up into the power lines is proposed. The proposed native shrub species is Pacific wax myrtle (*Myrica californica*). Additional landscape maintenance and improvements include a newly constructed four-foot-tall redwood fence along Sir Francis Drake Boulevard, new gold decomposed

granite on the driveway and existing parking area, and installation of three EV charging ports to service the Owner's cars and his guests (**Figure 3**).

Table 1 – Parcel and Project Areas

Assessor's Parcel Number	Square Feet
112-151-04	38,968
112-151-05	8,232
112-151-06	19,079
112-151-07	10,018
Total	**76,297**

Note: Parcel information from Marin County GIS parcel layer.

Table 2 - Summary of Existing and Proposed Improvements (Square Feet)

Project Element	Existing Area (Square Feet)	Proposed Area (Square Feet)
Building Area (no change)	3,362	3,362
Floor Area (no change)	2,838	2,838
Deck Area	2,480	2,773
Dock Area	2,420	2,583
Stairs & Landing	211	246
On-site Parking	2,893	2,307
	14,204	**14,109**

Table 3 - Temporary Construction Setback Areas

Project Element	Square Feet
House - 40-ft and 15-ft construction areas	13,328
Dock – 2-ft construction area	2,349
Total	**15,677**

2.0 Biology

Nearly all of the property is located within the intertidal zone and regular flooding is influenced by diurnal and seasonal tidal events. As a result, the land contains mostly marsh and mudflat with some open water. The topography is gently undulating and varied as a result of sand and silt deposition as well as subsidence in low-lying areas. The occurrences of salt marsh on the property would be considered wetlands and ESHA by the California Coastal Commission (CCC) and likely would qualify as potentially jurisdictional wetlands regulated by the U.S. Army Corps of Engineers (USACE). Photographs of existing conditions on the property are provided as **Appendix A**.

2.1 Natural Communities

Mud Flat – Mud flats are areas of fine-grained sediments that are inundated during higher tides but become exposed during medium and lower tidal fluctuations. Due to the frequency of inundation, mud flats are generally not vegetated with terrestrial or marsh plants and instead are either barren or have varying coverage of algae. Eel grass (*Zostera marina*) occurs in the lower intertidal or subtidal areas.

Salt Marsh - The majority of the property consists of salt marsh that is typical of Tomales Bay and contains littoral zone low marsh vegetation, a topographically higher belt dominated by salt grass (*Distichlis spicata*), and areas of open water within depressions and low-lying areas. The dominant flora consists of salt grass, Virginia glasswort (*Salicornia depressa*), gum plant (*Grindelia stricta*), sand spurry (*Spergularia* sp.), alkali heath (*Frankenia salina*), seaside plantain (*Plantago maritima*), and fleshy jaumea (*Jaumea carnosa*). Within the topographic depressions and intertidal areas that are subject to more frequent inundation by seawater, California cordgrass (*Spartinia foliosa*) occurs. A band of fine to medium-grained sand that appears to be deposited by wind waves occurs along the transition from mud flats to salt marsh. This "Beach/Marsh" area is sparsely vegetated with salt marsh plant species. Common non-native old world grasses occupy the upland edges and include barb grass (*Hainardia cylindrica*) and sickle grass (*Parapholis incurva*).

Freshwater Stream - A small unnamed intermittent stream channel is located on the northern boundary of the property. The channel is completely outside the footprint of the house and proposed project and lies approximately 200 feet from the house. The stream is subject to tidal inundation near the shore within the property boundary and is relatively flat with a bed of various sized gravels and sands. The channel enters the property by passing under Sir Francis Drake Blvd through a culvert. The banks are devoid of typical woody riparian vegetation due the position of the stream outlet within the intertidal zone and consist mostly of herbaceous marsh plants dominated by salt grass and meadow barley (*Hordeum brachyantherum*). As the stream enters the lower intertidal area, the banks transition to mudflat sediments and terrestrial vegetation is absent.

Ruderal and Introduced Vegetation – The front yard, roadside, and landscaped areas consist of introduced trees and ornamental plants including Monterey pine, Monterey cypress (*Hesperocyparis macrocarpa*), bamboo, Chinese silver grass (*Miscanthus sinensis*), barbed goat grass (*Aegilops* sp.), and ice plant (*Carpabotus edulis*). Coast redwood (*Sequoia sempervirens*) is also found near the road.

Table 4 summarizes the approximate square footage of these four natural communities that lie within the areas temporarily affected by construction activities.

Table 4 - Mapped Natural Communities and Areas Within Temporary Construction Setbacks

Natural Community	Area Within House Setback (Square Feet)	Area Within Dock Setback (Square Feet)
Mud Flat	0	483
Beach/Marsh	0	270
Salt Marsh	11,924	1,596
Stream (Channel)	0	0
Ruderal	1,404	0
Total	**13,328**	**2,349**

2.2 Rare, Threatened and Endangered Species

Prior to conducting the field portion of the assessment, the California Department of Fish and Wildlife (CDFW) *California Natural Diversity Database* (CNDDB) was queried to determine the special-status species that have been documented within a 1.6-mile (2 kilometers) radius of the project area. During field site assessments, habitat conditions were evaluated to determine the likelihood of occurrence of the species listed by the CNDDB.

According to the CNDDB, 16 special status plants and 19 special status animals have been documented within approximately 2 kilometers of the site. Species with State and/or Federal threatened or endangered (T&E) status includes tidewater goby (*Eucyclogobius newberryi*), California black rail (*Laterallus jamaicensis coturniculus*), Central California coast coho salmon (*Oncorhynchus kisutch*), California red-legged frog (*Rana draytonii*), longfin smelt (*Spirinchus thaleichthys*), and California freshwater shrimp (*Syncaris pacifica*). There are 13 additional animal species that are not T&E, but have California Species of Special Concern status and 13 plant species that are not T&E but have California Native Plant Society (CNPS) rankings of 1B.

Most of these plant and animal species have no likelihood of occurrence on or near the property due to lack of suitable habitat. Special status plants and animals that have a higher likelihood of occurrence based on habitat conditions either on site or adjacent to the site are described in detail below. A complete summary of special status plants and animals identified by the CNDDB are provided in **Table 5**.

2.2.1 Critical Habitat

Available maps for U.S. Fish & Wildlife Service (USFWS) Critical Habitat were searched in the vicinity of the property. The property does not lie within any designated critical habitat areas. The nearest critical habitat area lies approximately 0.4 miles west of the property and is associated with marbled murrelet (*Brachyramphus marmoratus*). The next closest critical habitat area lies 0.8 miles towards the south-southeast and is associated with tidewater goby (USFWS, 2018).

2.3 Plants

Surveys for protected plant species were conducted on multiple dates throughout the spring and summer of 2017 and 2018. Although there are several plants associated with salt marsh environments that are listed by the CNDDB and have California Native Plant Society (CNPS) 1B status, none of those plant species have been observed on the property. An inventory of plant species observed on the property is included as **Appendix C**.

2.4 Wildlife

Common shorebirds are found on site and in neighboring properties. At the adjacent yacht club, shore bird habitat is marginal yet improves on properties to the west of that site. Shorebirds are readily discernable and common on the open beach, mud flats, and marsh as they are seen wading and feeding on invertebrates including insects, small crustaceans, and mollusks.

We utilized standardized shorebird and water bird survey data, the results of numerous published and unpublished reports, and verified our documentation of bird species occurrences at the site with those known to occur in Tomales Bay. The most common among shorebirds seen on a regular basis include herons, bitterns, egrets, sandpipers, stilts, avocets, seagulls, terns, and skimmers.

2.4.1 Nesting Birds

There is little potential for migratory roosting birds to occupy the redwood, cypress and pine trees. The trees are located under and within the power line and adjacent to Sir Francis Drake Boulevard, which experiences relatively frequent vehicle traffic. During numerous site visits and surveys over the past two years we found no evidence of nesting or roosting birds on site. The salt marsh community consists primarily of low-growing pickleweed and does not have substantial stands of tall grass or shrubs that could be preferential habitat for sensitive birds such as California black rail. Although of good quality, the salt marsh habitat in the immediate vicinity of the property is somewhat narrow and fragmented due to existing development along the shoreline.

Nesting birds and raptors are protected by the Migratory Bird Treaty Act (MBTA) and State Fish and Wildlife code. Although nesting periods vary by species, the nesting season generally lasts between February and September with peak activity occurring between May and July. Raptors typically require taller trees or dead snags for nesting while other bird species could potentially require a wide variety of habitats for nesting. Potential nesting sites should be surveyed for active nests if heavy demolition or construction is to occur during the nesting season (February 1 – September 30).

2.4.2 Amphibians and Reptiles

A marginal habitat exists for amphibians within the building footprint and proposed areas of construction due to tidal inundation. A more suitable habitat exists in the riparian corridor off site and across the Sir Francis Drake Boulevard. Nighttime and daylight surveys were conducted to determine if any of these species were found on site including

California newt, Rough skinned newt, Orange bellied newt, pacific tree frog, pacific chorus frog. None were found to exist on site.

The California giant salamander (*Dicamptodon ensatus)*, California red-legged frog (*Rana draytonii*), and Western pond turtle (*Emys marmorata*) have been documented by the CNDDB in the region, but require freshwater conditions, which do not occur on the property. Therefore, there is not suitable habitat for these species on site.

2.4.3 Fish

The federal endangered tidewater goby (*Eucyclogobius newberryi*) is found in brackish lagoons and lower stream reaches. It prefers relatively quiet, but not stagnant, water. The stream outlet that occurs near the norther property boundary was visually surveyed for fish and none were observed. Previous studies have found that the remaining occurrences of tidewater goby are confined to Tomasini Creek, near southern end of the bay, and are no longer found along the northern portions of the bay (Fong et. al., 2004)

Table 5 - California Natural Diversity Database Results

Special-status species with potential to occur within 1.6 miles (2 km) of the site

Common Name	Scientific Name	Status	Habitat requirements	Probability of Occurrence in the Project Area
Plants				
Marin manzanita	*Arctostaphylos virgata*	-/-/1B.2	Typically found in coniferous forest, broadleafed upland forest, or chaparral. Associated with soils derived from sandstone or granitic parent material.	Does not occur on or near the project site.
coastal marsh milk-vetch	*Astragalus pycnostachyus* var. *pycnostachyus*	-/-/1B.2	Associated with mesic coastal dunes, coastal scrub, coastal salt marsh and edges of streams.	Could occur but not found on site
swamp harebell	*Campanula californica*	-/-/1B.2	Occurs along edges of non-saline coastal marshes and lagoons.	Could occur but not found on site
Lyngbye's sedge	*Carex lyngbyei*	-/-/2B.2	Brackish or freshwater marshes.	Could occur but not found on site
Humboldt Bay owl's-clover	*Castilleja ambigua* var. *humboldtiensis*	-/-/1B.2	Coastal salt marsh.	Could occur but not found on site
Point Reyes salty bird's-beak	*Chloropyron maritimum* ssp. *palustre*	-/-/1B.2	Coastal salt marsh.	Could occur but not found on site
Bolander's water-hemlock	*Cicuta maculata* var. *bolanderi*	-/-/2B.1	Fresh or brackish marshes and swamps.	Could occur but not found on site

Common Name	Scientific Name	Status	Habitat requirements	Probability of Occurrence in the Project Area
western leatherwood	*Dirca occidentalis*	-/-/1B.2	A variety of habitats including broadleaf upland forest, coniferous forest, cismontane woodland, riparian woodland, and chaparral.	Does not occur on or near the project site.
Marin checker lily	*Fritillaria lanceolata* var. *tristulis*	-/-/1B.1	Coastal bluff scrub, coastal prairie, and coastal scrub.	Does not occur on or near the project site.
fragrant fritillary	*Fritillaria liliacea*	--/CNPS 1B.2	Associated with clay-rich soils in coastal prairie or grasslands associated with native bunchgrasses. Commonly associated with serpentine soils.	Does not occur on or near the project site.
congested-headed hayfield tarplant	*Hemizonia congesta* ssp. *congesta*	-/-/1B.2	Valley and foothill grassland. Sometimes occurs along roadsides.	Does not occur on or near the project site.
water star-grass	*Heteranthera dubia*	-/-/2B.2	Alkaline marshes and swamps, usually in still or slow-moving water.	Could occur but not found on site
Point Reyes horkelia	*Horkelia marinensis*	-/-/1B.2	Coastal dunes, coastal prairie, coastal scrub.	Does not occur on or near the project site.
Perennial goldfields	*Lasthenia californica* ssp. *macrantha*	-/-/1B.2	Coastal dunes, coastal prairie, coastal scrub.	Does not occur on or near the project site.

Common Name	Scientific Name	Status	Habitat requirements	Probability of Occurrence in the Project Area
Marin knotweed	*Polygonum marinense*	-/-/3.1	Coastal salt marsh or brackish marshes.	Could occur but not found on site
Point Reyes checkerbloom	*Sidalcea calycosa* ssp. *rhizomata*	-/-/1B.2	Freshwater marshes near the coast.	Does not occur on or near the project site.
Invertebrates				
California freshwater shrimp	*Syncaris pacifica*	FE/SE	Found in perennial coastal streams with a gentle gradient (< 1 percent), generally at low elevations. Preferred habitat includes water that is between one and three feet deep with undercut banks containing live roots of riparian trees such as willow and alder as well as overhanging vegetation.	Unlikely. No suitable habitat
Fish				
Tidewater goby	*Eucyclogobius newberryi*	FE/SC	Brackish water habitats along the California coast from San Diego to Humboldt County. Found in shallow lagoons and lower stream reaches; need fairly still but not stagnant water and high oxygen levels.	Unlikely. No suitable habitat
Longfin smelt	*Spirinchus thaleichthys*	-/ST	Found in bay, estuary, and nearshore coastal environments. Spawning occurs in low-salinity or freshwater reaches of coastal rivers. Smelt are typically found in mid-water, but may move vertically in pursuit of prey.	Unlikely. No suitable habitat.

Common Name	Scientific Name	Status	Habitat requirements	Probability of Occurrence in the Project Area
Tomales roach	*Lavinia symmetricus*	-/SC	A benthic feeder found in small streams. Adapted to intermittent watercourses but not tolerant of saline water.	Unlikely. No suitable habitat
Coho salmon - central California coast ESU	*Oncorhynchus kisutch* pop. 4	FE/SE	Streams and small freshwater tributaries. Spawning habitats have stable gravel substrates. The latter half of their life cycle is spent foraging in estuarine and marine waters of the Pacific Ocean.	Unlikely. No suitable habitat
Reptiles/Amphibians				
California giant salamander	*Dicamptodon ensatus*	-/SC	Wet coastal forests near clear, cold streams and seeps.	Unlikely. No suitable habitat
Western pond turtle	*Emys marmorata*	--/SC	Western pond turtles are found in ponds, marshes, rivers, streams, and irrigation ditches containing aquatic vegetation. They are usually seen sunning on logs, banks, or rocks near banks. Individuals move up to three or four miles within a creek system, especially during "walk-abouts" before a female lays eggs. They nest in burrows which can be up to several hundred feet away from river or pond banks and may be found in woodlands, grasslands, and open forest.	Unlikely. No suitable habitat

Common Name	Scientific Name	Status	Habitat requirements	Probability of Occurrence in the Project Area
California red-legged frog	*Rana draytonii*	FT/SC	In the coast ranges, requires ephemeral or permanent water such as ponds, reservoirs, or creeks with areas of slow moving water or pools during winter/spring. Water must last at minimum until the end of June for reproduction. During late summer or fall, adult frogs are known to utilize a variety of upland habitat types with either leaf litter or small mammal burrows. Adult frogs may travel as far as 3 miles overland in non-riparian habitats to an aquatic site.	Unlikely. No suitable habitat
Birds				
Great egret	*Ardea alba*	-/-	Freshwater or saltwater habitats. Often build stick nests high in trees, frequently on islands.	Could occur but not found on site
Great blue heron	*Ardea herodias*	-/-	A variety of habitats including open coastlines, marshes, sloughs, riverbanks, lakes, grasslands, and agricultural fields. Stick nests are built high off the ground in trees.	Could occur but not found on site
Yellow rail	*Coturnicops noveboracensis*	-/SC	Shallow marshes and wet meadows. Both fresh water and brackish marsh environments are used, as well as dense, tall grass.	Could occur but not found on site
Saltmarsh common yellowthroat	*Geothlypis trichas sinuosa*	-/SC	Salt marshes. Nests just above ground or over water in thick herbaceous vegetation.	Could occur but not found on site

Common Name	Scientific Name	Status	Habitat requirements	Probability of Occurrence in the Project Area
California black rail	*Laterallus jamaicensis coturniculus*	-/ST	Fresh and saline marshes and wet meadows with some tall vegetation as refugia.	Could occur but not found on site
Mammals				
Pallid bat	*Antrozous pallidus*	--/SC	Usually found in arid and rocky or mountainous regions near a water source. They can also occur near grasslands. Roosting sites include warm horizontal cracks in rocks or in buildings. Night roosts are usually in the open on foliage.	Unlikely. No suitable habitat

Notes:
FE: Federally Endangered

FT: Federally Threatened

SA. California Special Animal

SC: CDFW listed Special Concern

SE: Listed as Endangered in California.

SR: Listed as Rare in California

ST: Listed as Threatened in California

CNPS 1A, 2, etc.: California Native Plant Society rare, threatened, endangered list classification:

1A. Presumed extinct in California

1B. Rare or Endangered in California and elsewhere

2. Rare or Endangered I California, more common elsewhere

3. Plants for which we need more information – Review list

4. Plants of limited distribution – Watch list

3.0 Potential Impacts, Avoidance, and Minimization Measures

There are potential temporary impacts to ESHA wetland habitat and jurisdictional waters of the U.S. as a result of the construction, repair and remodel of the existing foundation and dock. Temporary impacts to these areas will be the result of equipment and worker access needed to modify the foundation and piers.

There is not a significant temporary or permanent impact to plants or animals or ESHA habitat as result of constructing the entry landscaped areas, installing the EV stations, or construction of the new landings and stairs. These activities lie outside ESHA and potential jurisdictional waters.

Temporary impacts can be mitigated through the following measures:

Vegetation

1. Protection and delineation of limit of work: Installation of temporary construction fencing around the limits of work (Temporary Construction Setback Areas), placement of protective crane mats to protect vegetation and soils during, equipment access, set up and installation of house jacks, borings, installation of casings, and installation of pre-fabricated foundation beams.
2. Control and eradication of non-native iceplant and other non-native vegetation within the limit of work and on all extents of the property. Restoration of existing landscaping and ruderal areas with native plant species appropriate for the location.

Wildlife –shorebirds and nesting birds

1. Nesting Birds – Construction activities should occur outside of the February 1st to September 30 breeding and nesting season in order to avoid nesting birds that could potentially be utilizing habitat. If construction activities must be performed within the breeding and nesting season, a pre-construction survey shall be performed no more than 14 days prior to the onset of construction. If nesting birds protected by the MBTA and State Fish and Wildlife code are found, a temporary fence shall be erected 200 feet (or less if determined appropriate by the biologist through consultation with CDFW) around the nest site. Upon recommendation of the biologist, construction within the fenced zone shall be postponed or halted until juveniles have fledged and there is no evidence of a second nesting attempt.
2. Perform any trimming or removal of trees or other vegetation outside of the nesting season.

Construction mitigations

1. With areas of construction subject to tidal waters it is recommended to install a floating debris boom to collect accumulating debris that may be kicked up during construction in order to minimize effects on any surrounding habitats. Debris is defined as any material floating or washed ashore in the waterway that does not naturally occur in that environment including but not limited to old docks/piers and other lumber debris.
2. Noise abatement – No power or mechanized equipment shall be operated before 8 a.m. or as regulated by local ordinances.
3. Worker orientation – On the first day of construction activities, the biologist shall conduct a tailgate meeting with the contractor to explain the sensitive resources and the exclusion areas.
4. Staging of equipment and materials, Temporary Exclusionary Fencing – Equipment and materials shall not be operated or stored on any natural areas that do not lie within the footprint of the proposed development. No native vegetation shall be disturbed due to the operation or storage of equipment and materials outside of the area required for construction (the work area). The work area may only include the 15-foot and 40-foot zones shown on Design Drawings. Prior to the onset of construction a temporary exclusionary fence shall be installed to prevent impacts to areas outside of the work area. This fence is the same as required under "Vegetation" above.
5. Outside of construction areas that are subject to tidal influence, temporary sediment and erosion control devices shall be installed around the work area in accordance with the project and/or permit requirements.

4.0 References

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FIGURES

12856 SIR FRANCIS DRAKE INVERNESS, CA	BIOLOGICAL ASSESSMENT	**FIGURE 1** **VICINITY MAP**

Document Path: L:\LivingArch\3 ORDERS\12856 Sir Francis Drake\GIS\Biological_Report\Boathouse Vicinity 8x11.mxd

BIOLOGICAL RESOURCES

STREAM CHANNEL:	2,344 SQ.FT.
MUD FLAT:	3,819 SQ.FT.
BEACH/ MARSH:	5,535 SQ.FT.
SALT MARSH:	47,882 SQ.FT.
LANDSCAPE/ RUDERAL:	3,174 SQ.FT

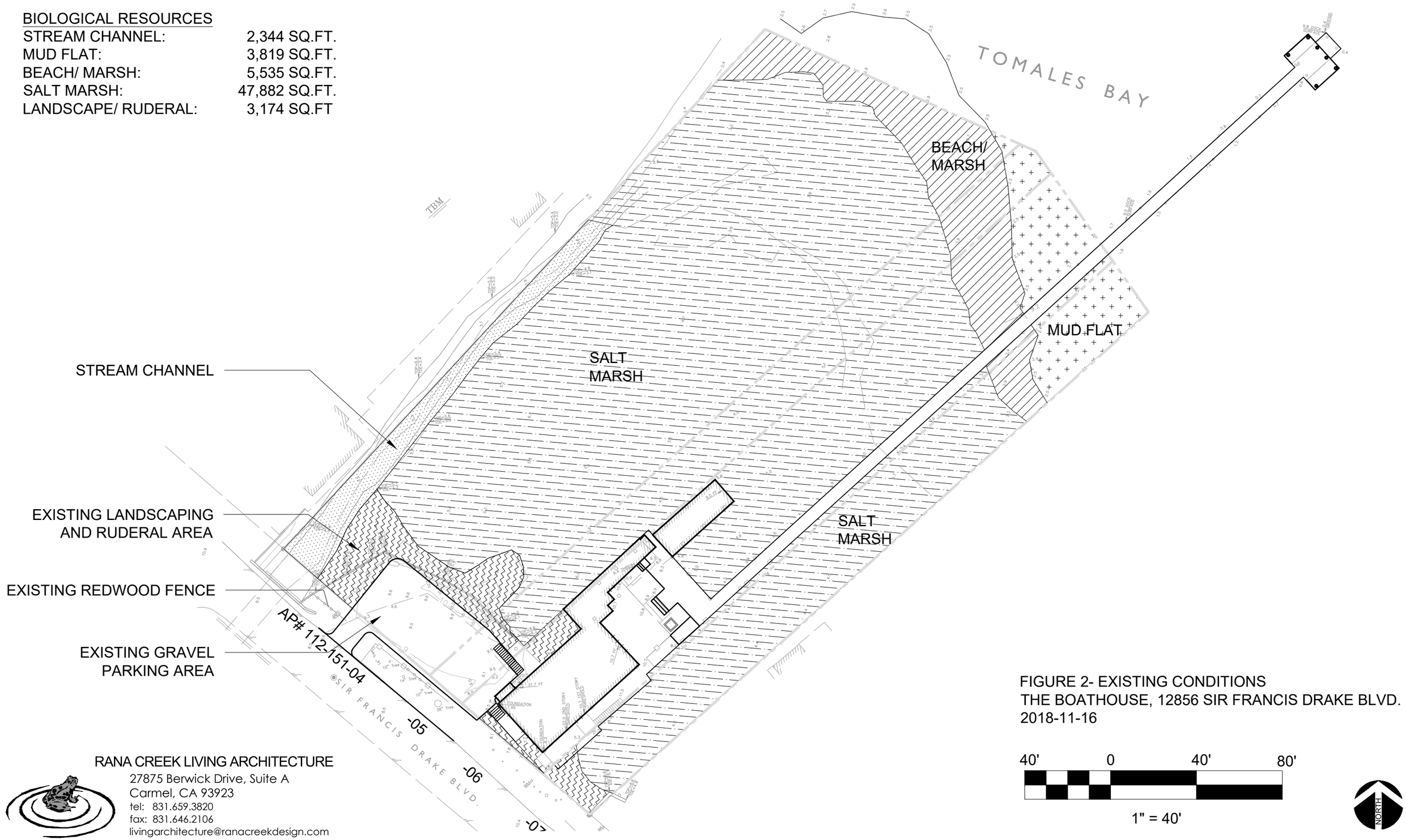

FIGURE 2- EXISTING CONDITIONS
THE BOATHOUSE, 12856 SIR FRANCIS DRAKE BLVD.
2018-11-16

40' 0 40' 80'

1" = 40'

RANA CREEK LIVING ARCHITECTURE
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APPENDICES

Appendix A – Site Photographs

Appendix B – Plant Species List

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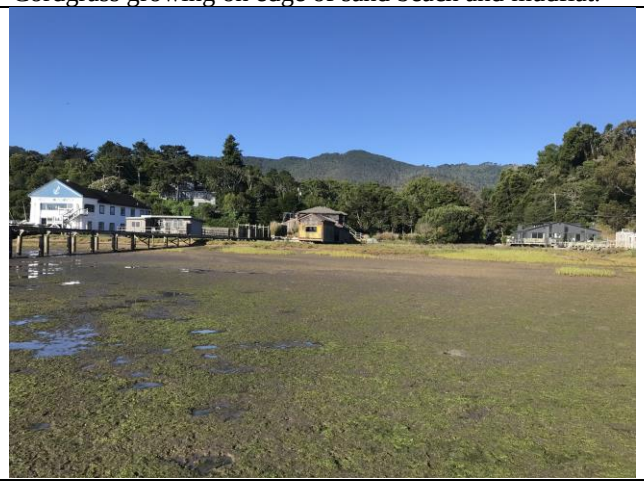
Photo 1 – North side of Boathouse and salt marsh in the foreground	**Photo 2** – Boathouse and salt marsh, looking west towards Sir Francis Drake Blvd.
	
Photo 3 – Existing dock.	**Photo 4** – South side of Boathouse

	
Photo 5 – Salt marsh and view north up Tomales Bay	**Photo 6** – Cordgrass growing on edge of sand beach and mudflat.
	
Photo 7 – Outlet of creek and adjacent mudflats	**Photo 8** – View of Boathouse (center) from mud flats. Yacht Club (left) and private residence (right)

Appendix B - Plant Species List

The Boathouse
12586 Sir Francis Drake Blvd.
Inverness, CA

Botanical Name	Common Name	Native Species
Avena fatua	wild oat	
Carpobrotus edulis	Hottentot fig	
Cynosurus echinatus	annual dogtail	
Distichlis spicata	saltgrass	x
Festuca myruos	rat tail fescue	
Frankenia salina	alkali heath	x
Genista monspessulana	French broom	
Grindelia stricta var. angustifolium	gum plant	x
Hainardia cylindrica	barb grass	
Hesperocyparis macrocarpa	Monterey cypress	(not native to region)
Hordeum brachyantherum	meadow barley	x
Hordeum vulgare	common barley	
Jaumea carnosa	fleshy jaumea	x
Limonium californicum	California sea lavender	x
Miscanthus sinensis	Chinese silver grass	
Parapholis incurva	sickle grass	
Pinus radiata	Monterey pine	(not native to region)
Plantago coronopus	buckhorn plantain	
Plantago maritima	seaside plantain	x
Rubus ursinus	California blackberry	x
Salicornia depressa	Viginia glasswort	x
Salicornia pacifica	pickleweed	x
Sequoia sempervirens	coast redwood	x
Spartina foliosa	California cord grass	x
Spergularia sp.	sand spurry	--
Triglochin concinna var. concinna	arrow grass	x
Triglochin maritima	seaside arrow grass	x
Vinca minor	common periwinkle	
Zostera marina	eel grass	x