

Little River Restoration and Bridge Replacement Project Restoration Plan

Van Damme State Park Mendocino County

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Prepared By:

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Facilities and Development Division**

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1. Introduction

1.1 Objective

The objective of this document is describe how the California Department of Parks and Recreation (State Parks) plans to meet the North Coast Regional Water Quality Control Board (Regional Board) stream and riparian mitigation and monitoring requirements for the Little River Restoration and Bridge Replacement Project (Project). To meet this objective, this restoration plan describes Project components that will be implemented to restore and improve habitat conditions at the Project Area and how success will be evaluated.

1.2 Responsible Parties

Permittee: California Department of Parks & Recreation
Contact: Joel Bonilla
2241 Harvard Street, Ste. 200
Sacramento, California 95815

The permittee will be financially responsible for the long-term maintenance and management, as needed, of the stream restoration features described in this report.

Restoration Manager: Lisa Paterson
California Department of Parks & Recreation
Northern Service Center
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The Restoration Manager will oversee the completion of mitigation, monitoring, and reporting requirements.

2. Background

Van Damme State Park is located three miles south of Mendocino on Highway 1 (Figures 1 and 2). Little River bisects the Park. The Project Area is at a bridge that crosses Little River and provides access to a campground and the Fern Canyon Scenic Trail. The original bridge was built in 1951 and consists of a two-span corrugated metal arch on concrete abutments. Years of scour undermined the bridge foundations, and it ultimately failed in 2018. The underlying arch culverts are sagging, and the concrete abutments extend into the riverbed which impedes anadromous passage during low flows and contributes to erosion downstream. Little River is known to support the Northern California winter run steelhead (*Oncorhynchus mykiss irideus* pop. 49) and Northern California Coast Coho salmon (*Oncorhynchus kisutch* pop. 4).

3. Project Description

The objective of the Little River Restoration and Bridge Replacement Project is to restore anadromous fish passage during low flows and replace a failed bridge at Little River in Van Damme State Park.

Site Preparation:

Construction staging will be limited to campsites 20 and 21, within Van Damme State Park. Each site has a compacted and disturbed area of approximately 1,500 square feet, which is adequate for equipment and material storage.

Brush clearing for the proposed bridge site will use chainsaws and other gas-powered hand tools. The bridge abutments, and riprap would require clearing and grubbing of approximately 80 linear feet, at each bridge abutment (Plan Sheet: C-1). The new bridge abutment is approximately 30 feet wide, and the Rock Slope Protection (RSP) will be placed directly under the bridge and 25 feet upstream and 25 feet downstream along the slope. Salvaged woody debris will be used for restoration work.

A total 300-foot portion of Little River will be temporarily dewatered with a sandbag or bladder dam. Upstream water will be piped, via gravity flow, downstream of the construction site. The construction window for the Project is June 15 through October 31 to avoid steelhead spawning. A dewatering plan will be prepared by a State Parks Contractor prior to construction.

Road Extension:

Construction of the new bridge will require an extension of the roadway on the south side of the river. The road will be extended approximately 240 feet on the south side of the river to accommodate a new bridge alignment (Plan Sheet: L-1). Pavement conforms will be necessary on the north side of the river to connect the new bridge to the existing roadway (Plan Sheet: C-3). The road extension on the south side of the river will traverse through an existing bike-in campsite which is a compacted and disturbed area.

New Bridge:

The existing temporary bridge will be left in place while the new bridge is being constructed to allow access to the park and the construction site. The new bridge will be delivered to the site as preassembled modular units (including girders, secondary framing, metal deck forms), and transported on a flatbed truck and craned into position. Additional assembly work would include bolting and potential welding that would occur on site. The guardrails and barriers will likely consist of wood to match the park's aesthetics. Temporary excavation shoring will be required where the new bridge abuts the old bridge (Plan Sheet: S2.1). The new bridge alignment will be more perpendicular to the river than the existing structure, aiding with river hydraulics and reducing scour.

Similar to the existing bridge, utilities will be hung from the bridge to service the combo building on the north side of the river. The abutments for the bridge will require driving steel H-piles into the ground using diesel or hydraulic hammers. The piles will be driven until refusal is achieved. Splicing of steel H-piles may be required to increase the pile length as required. Rock Slope Protection (RSP) will be necessary around the abutments to minimize scouring and provide protection against geologic hazards. The project is located within a Tsunami hazard area. Approximately 0.02 acres of RSP will be placed on the Southside slope and 0.01 acres of RSP will be placed along the Northside slope (Plan Sheet: C-1).

Restoration Work:

The removal of 12 trees, predominantly red alder and one grand fir (*Abies grandis*) with a diameter at breast height of approximately 47 inches, is necessary to accommodate the proposed bridge and roadway (Plan Sheet: L-1). The material from those trees will be re-used to aid with revegetation and/or large woody debris augmentation. The large grand fir will be moved 150 feet downstream of the old bridge and would be anchored into the slope with 15-inch diameter RSP (Plan Sheet: C-2). The root wad will enhance aquatic habitat and provide slope protection to an existing road slope failure.

Upon completion of the proposed bridge, the old bridge and abutments will be removed. All components will be removed including the underlying concrete slab as well as the adjacent retaining wall (upstream). A road slope failure will also be repaired.

4. Environmental Setting

The Project Area is located along the Mendocino County coast in Van Damme State Park which covers approximately 2,170 acres including 20 acres of marine environment (Figure 1). Little River runs through the park with its mouth at Van Damme Beach. The park extends about three miles inland, encompassing nearly 55% of the Little River watershed. It is the home for spawning steelhead and coho salmon during the winter months.

The Project Area is within the steep-walled Fern Canyon of the Little River watershed at the location of a bridge over the river that provides access to the campground and the Fern Canyon Scenic Trail.

The Project Area is approximately 0.4 miles east of State Highway 1 (Figure 2), and approximately 0.5 miles northeast of the Van Damme State Marine Conservation Area and includes the temporary bridge, the failed bridge along Little River, the road on either side of the bridge, the location of the road extension to the new bridge, and the small bank stabilization area.

Land use in and around the Project Area includes the Van Damme State Park trails and campgrounds, Highway 1, privately-owned open space, Little River Golf Course, rural residential areas, a regional airport, and the town of Little River.

4.1 Climate

Climate data for the Project Area was sourced from the Fort Bragg 5N COOP Weather Station (ID: 043161), which averages 42.83 inches of annual precipitation (Western Regional Climate Center 2024). Van Damme State Park has cool, wet winters and mild, foggy summers. The mean maximum annual air temperature is 60.2 Fahrenheit (°F), and the mean minimum annual temperature is 44.6°F (Western Regional Climate Center 2024). The coolest temperatures occur in December and January, and the warmest months are July and August.

4.2 Topography

The Project Area occurs in the outer Coast Range foothills within an incised ravine containing Little River known as Fern Canyon. The average elevation within the Project Area is approximately 130 feet above mean sea level.

4.3 Hydrology

The Project Area centers around Little River which is fed by precipitation and the water table. Beal Creek converges with Little River downstream of the Project Area before it drains to the Pacific Ocean.

The National Wetland Inventory (NWI) classified Little River and Beal Creek as intermittent riverine features that have temporarily flooded streambeds (R4SBA); near their convergence, NWI reported broad-leaved deciduous scrub-shrub wetlands that are irregularly flooded, estuarine, and intertidal (E2SS1P) (Figure 3; USFWS 2024).

4.4 Aquatic Resources Delineation

An aquatic resources delineation of the Project Area was conducted in 2024. In total, 0.280 acres of Little River was delineated in and near the Project Area that is expected to be jurisdictional waters of the US and waters of the state regulated by the U.S. Army Corps of Engineers (ACOE) and Regional Board (Figure 4). The Ordinary High-Water Mark (OHWM) indicators used to delineate Little River consisted of shelving, litter removal, and wrack. Abutted by roads, Little River is incised in the Project Area. As a result, Little River does not have access to a traditional floodplain. The results of the delineation concur with the NWI's classification of Little River as R4SB, an intermittent riverine feature with a streambed (USFWS 2024).

4.5 Biological Conditions

The Project Area is in the North Coast subregion of the California Floristic Province (Jepson Flora Project 2025). Little River flows through a red alder (*Alnus rubra*) riparian forest. The banks are dominated by an understory of ferns and vines, including the following dominant species: sword fern (*Polystichum munitum*), California blackberry (*Rubus ursinus*), cow parsnip (*Heracleum maximum*), thimbleberry (*Rubus parviflorus*), western lady fern (*Athyrium filix-femina*), elk clover (*Aralia californica*), and a variety of herbaceous species not in bloom at the time of the field visits. The biological conditions at the Project Area are described in detail in the Biological Resources Assessment for this Project (State Parks 2025).

5. Restoration Plan

5.1 Basis for the Restoration Plan

Existing site conditions, the 2024 aquatic resources delineation, and the Project design were used as the basis for this restoration plan. The current failed bridge includes a concrete slab in the bed of the river that is a barrier to fish passage during low flows. The new bridge will span Little River, and impacts will be limited to bridge foundations and rock installation on the bank adjacent to the bridge foundations. The construction of the new bridge and installation of RSP protection will result in permanent impacts to 160 linear feet on the banks of Little River. To offset this disturbance, the existing bridge and concrete crossing in the bed of Little River will be removed and the banks will be revegetated through plantings and natural recruitment. This will result in the restoration of approximately 87 linear feet of the Little River bank. This includes restoration of 59 feet from the removal of the old bridge abutments and the removal of a 28 linear foot concrete retaining wall, located on the southside of the bridge. Additionally, 72 square feet will be restored within the Little River streambed through the removal of the old bridge pier foundation and 177 square feet will be restored through the removal of the old ford river crossing.

5.2 Goals

- Reduce the footprint of the bridge in bed and banks of Little River.
- Improve anadromous fish passage.
- Stabilize existing bank erosion.
- Ensure the revegetation of the banks of Little River in the Project Area after the completion of the Project.

5.3 Actions

The Restoration Site encompasses the Project's ground disturbance locations and a 25-foot buffer around the ground disturbance. The Project's restoration goals will be accomplished through the following actions:

- a) The old bridge including the concrete slab in the riverbed will be removed to restore anadromous fish passage.
- b) Bank contours will be restored at the location where the old bridge was removed and the road slope failure location. Slash from tree removal will be used to stabilize gentle slopes and coconut fiber will be used on steeper slopes.
- c) The grand fir will be successfully incorporated into the stream for large woody debris augmentation.
- d) Native herbaceous species (e.g., ferns) and shrubs (e.g., elk clover and thimble berry) will be salvaged at locations proposed for ground disturbance. The excavated specimens will be stored in a shady location and transplanted to the old bridge location and road slope failure location after the location's contours have been restored.
- e) Cuttings from local willows (*Salix* spp.) will be planted at the old bridge location and road slope failure location in areas that receive enough sunlight. Alder and red elderberry (*Sambucus racemosa*) cuttings will be planted in the shadier areas. All cuttings will be taken from the project site or from areas adjacent to Little River within Van Damme State Park. At a minimum, one cutting will be planted every five linear feet on both banks within the disturbance area.
- f) Invasive species with a California Invasive Plant Council rating of Moderate or High¹ will be removed within 25 feet of Project Activities if feasible.

5.4 Schedule

Restoration Actions a), b), and c) will be completed by October 31 of the year that bridge construction is completed. Bridge construction is expected to be completed in one season (June 15 to October 31). These actions will be included in the contract for bridge construction and will be required for successful completion of the contract.

Initial planting [Restoration Actions d) and e)] will be completed by November 30 during the year that bridge construction is completed.

Invasive plant abundance will be assessed during each annual monitoring survey conducted in May or June of each year following the completion of construction, and necessary invasive species control will be conducted during summer or fall following each monitoring survey.

¹ <https://www.cal-ipc.org/plants/profiles/>

6. Monitoring

Restoration efforts will be monitored annually in May or June starting the first year after construction is completed to evaluate whether the performance standards were achieved.

The first monitoring report will be submitted to the Regional Board by January 31, two years after the completion of the bridge construction. (If the project is completed in October of 2026, monitoring visits will be conducted in the spring of 2027 and 2028, and the first monitoring report will be submitted in January of 2029.)

Annual monitoring will continue for two years or until performance standards are met. Monitoring will be conducted on both the north and south banks of Little River within the disturbance area of the project and at two undisturbed reference sites, one on the north bank and one on the south bank. The reference sites will be roughly equivalent in size to the disturbance area that is monitored on each bank, within approximately 50 feet upstream or downstream of the disturbance area, and representative of the existing riparian vegetation that occurs along Little River.

The following actions will be conducted during each monitoring visit at the four monitoring locations (north bank Project Site, south bank Project Site, north bank reference site, and south bank reference site) prior to construction and during monitoring surveys:

- Survey for new occurrences of invasive plants.
- Survey for evidence of erosion.
- Record the absolute percent cover of native species and non-native species within the understory (less than 10 feet in height).
- Record the overstory tree and large shrub cover (greater than 10 feet in height).
- Record the number of surviving willow (*Salix* spp.), red alder, and red elderberry plants (cuttings and naturally occurring plants).
- Record the percent of bare ground.
- Take photographs from eight permanent photo points including two photo points at each of the four monitoring locations.

6.1 Performance Standards

- a) The old bridge and its concrete abutments, the impediment for anadromous fish passage, were successfully removed.
- b) There will be no erosion or evidence of sedimentation at the old bridge and road slope failure locations.
- c) Total plant cover within the Project Site monitoring locations will be at least 35%.

- d) The combined number of live woody cuttings (willow, alder, and elderberry) or plants of these species that occur through natural recruitment in the Project Site monitoring locations will be at least 50% of the number of these species corresponding reference sites.
- e) Invasive species cover is lower than or equal to the neighboring undisturbed portions of the stream.
- f) The large woody debris augmentation is securely anchored.

The monitoring report will document the Project Site's progress towards or satisfaction of the performance standards listed above. The monitoring report will list the 10 dominant plant species in the old bridge and road slope failure locations, the percent cover of native species, the percent cover of invasive species, and the number woody saplings or cuttings at those locations.

Ten photograph stations will be established prior to the start of construction focused on the locations where ground disturbance will occur (e.g., old and new bridge locations, road slope failure, road extension, grand fir to be removed); photographs will be taken at these locations prior to the start of construction. The monitoring effort will capture a photograph from the same location facing the same vantage point.

The monitoring report will detail the results of the monitoring survey and any adaptive management actions that were implemented and the timeline of those that will be implemented.

7. Maintenance and Adaptive Management

If performance criteria are not satisfied during the year 2 monitoring, State Parks will develop measures to address how the restoration site can be modified to satisfy the criteria and propose a timeline for its implementation. If the performance criteria are not satisfied during the year 2 monitoring, State Parks will then conduct annual monitoring of the restoration site with a monitoring report submitted to the respective agencies as described above at the end of each year's monitoring; annual monitoring will ensue until the performance criteria are satisfied. The monitoring report will detail the adaptive management measures that were implemented.

8. Long-Term Management

Van Damme State Park will remain under State Parks ownership and management.

9. Financial Assurances

California Department of Parks and Recreation will be responsible for providing financial assurances for implementation and completion of the riparian habitat mitigation.

10. Completion of Compensatory Mitigation Plan

10.1 Notification of Completion

State Parks will notify the North Coast Regional Water Quality Control Board upon completion of the Project's mitigation plan. Completion of the plan will be contingent upon satisfaction of the performance standards listed in Section 6.1.

10.2 Agency Confirmation

After State Parks has submitted the final annual report and Notification of Completion, Regional Board representatives can request a site visit to verify successful completion. Once the regulatory agencies have verified completion of the Plan, State Parks will be free of further obligation.

11. References

California Department of Parks and Recreation (State Parks). 2025. Little River Restoration and Bridge Replacement Project, Biological Resources Assessment. California Department of Parks and Recreation, Northern Service Center, Sacramento, CA.

U.S. Fish and Wildlife Service. 2024. National Wetlands Inventory, California data download, Version 6.2 (Build 9200). U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. Accessed November 26, 2024. <https://www.fws.gov/program/national-wetlands-inventory/download-state-wetlands-data>

Figures

Figure 1. Project Location.

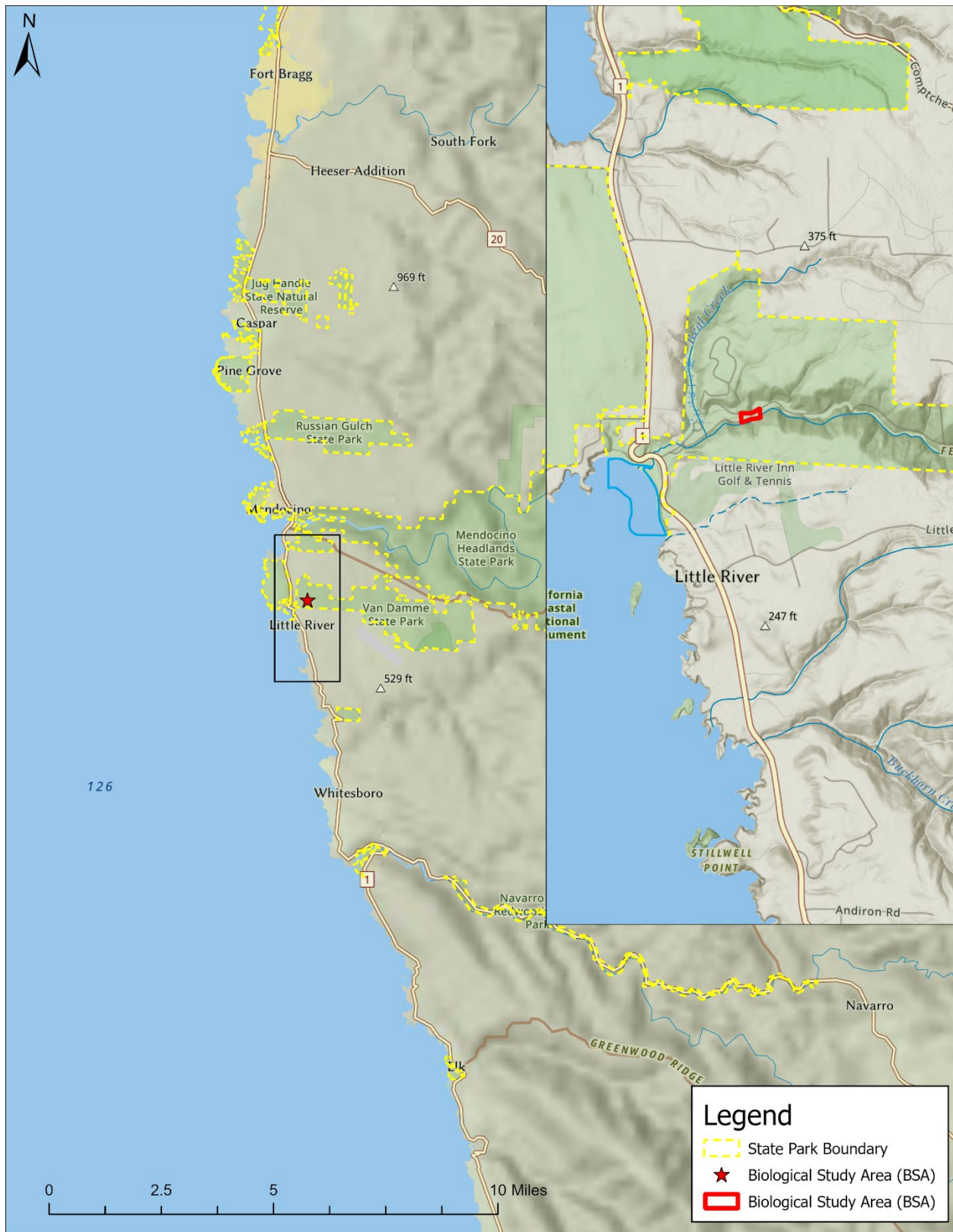


Figure 2. Study Area.



Figure 3. National Wetlands Inventory (NWI) data for the Project Area and surrounding area (USFWS 2024).

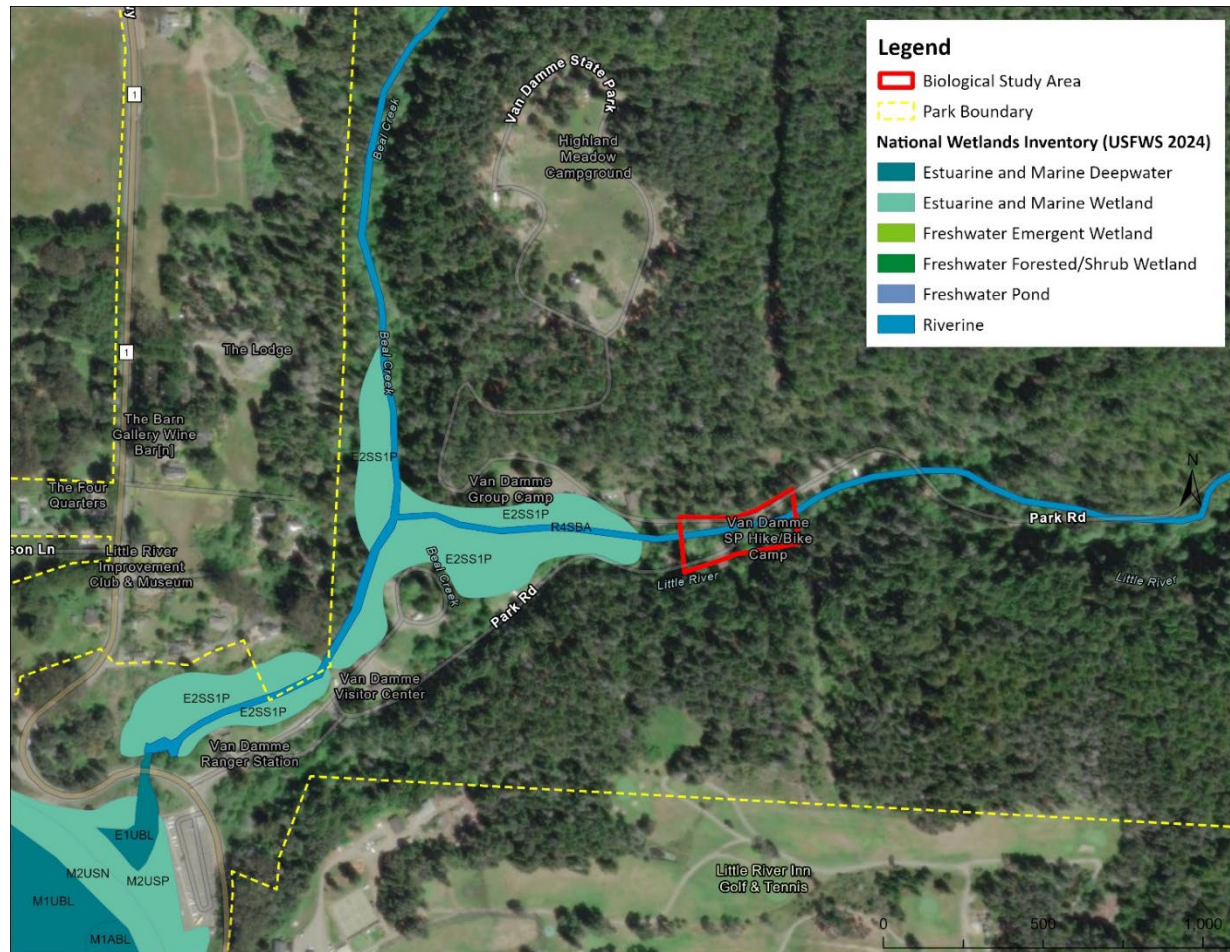


Figure 4. Aquatic resources delineation results.



Appendix 1 – Representative Photographs

Photograph 1:

Looking southwest is a downstream view of the bridge.

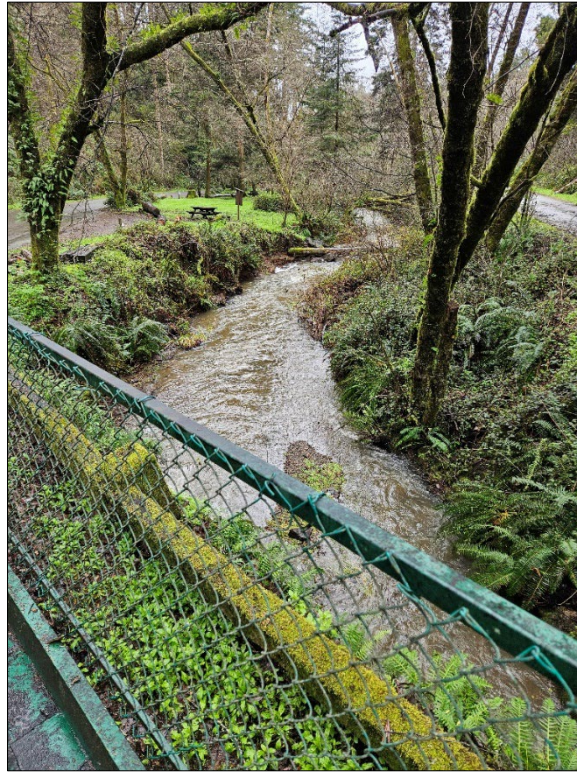


Photograph 2:

Looking northeast is an upstream view of the bridge. Note the concrete abutment is a fish barrier during low flows.



Photograph 3:
From the bridge
is a view
downstream



Photograph 4:
View from
bridge looking
upstream. The
replacement
bridge will be
placed just
upstream of the
existing bridge.

Photograph 5:
View of south
riverbank.



Photograph 6:
View of south
riverbank (just
upstream of
Photograph 5's
vantage) where the
new bridge will be
constructed.

Photograph 7:

View looking
northeast towards
where the new
bridge will connect
on the north bank.

