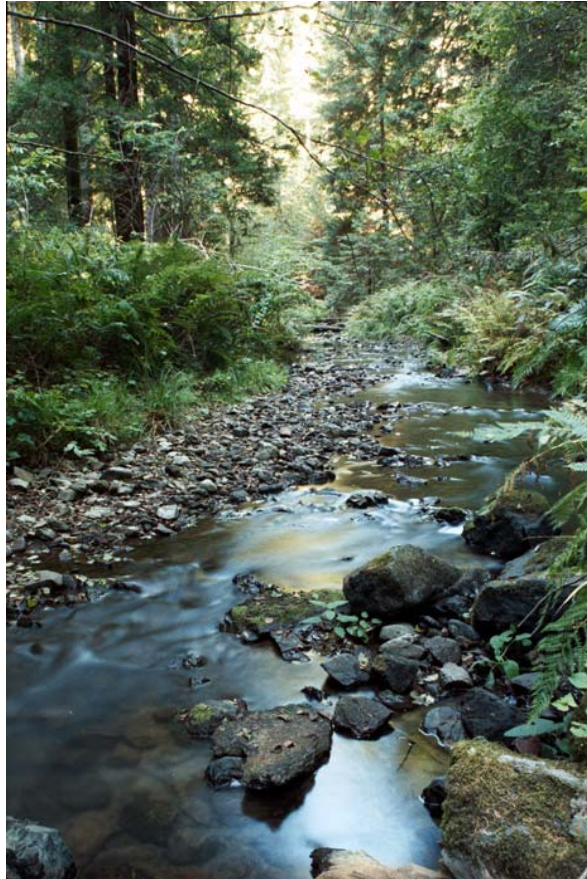


DRAFT

**INITIAL STUDY
MITIGATED NEGATIVE DECLARATION**



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**VAN DAMME STATE PARK
LITTLE RIVER FERN CANYON TRAIL
AND CAMPGROUND IMPROVEMENTS PROJECT**

June 2006



State of California

DEPARTMENT OF PARKS AND RECREATION

MITIGATED NEGATIVE DECLARATION

PROJECT: LITTLE RIVER FERN CANYON TRAIL AND CAMPGROUND IMPROVEMENTS
RIVERS AND PARKWAYS GRANT PROJECT AT VAN DAMME STATE PARK

LEAD AGENCY: California Department of Parks and Recreation

AVAILABILITY OF DOCUMENTS:

The Initial Study for this Mitigated Negative Declaration is available for review at:

- Mendocino District Headquarters
California Department of Parks & Recreation
Russian Gulch State Park
Highway 1
Mendocino, California 95460
- Van Damme State Park Visitor Center
Van Damme State Park
Little River, California 95456
- Mendocino County Library, Fort Bragg Branch
499 Laurel Street
Fort Bragg, California 95437
- Northern Service Center
California Department of Parks & Recreation
One Capitol Mall – Suite 410
Sacramento, California 95814
- California State Parks Internet Site
http://www.parks.ca.gov/default.asp?page_id=980

PROJECT DESCRIPTION:


Move four campsites from streamside location to Upper Meadow Campground; replace footbridge between Group Camp and the lower shower building and realign trail to combination building away from streambank; scarify group parking area and install permeable surface; construct cooking shelter (ramada) and fish cleaning station in the Group Camp; install propane tank and a connection to the sewer line adjacent to the ramada; repair and realign Fern Canyon Trail from the upper loop trail from the Pygmy Forest boardwalk down approximately 2.5 miles down Fern Canyon; replace five trail footbridges, moving one approximately 200 feet upstream; construct a new bridge over the last remaining intact low water ford; turnpike old skid road in Pygmy Forest; construct two sets of crib stairs on Fern Canyon Trail; add two small retaining walls in the canyon and numerous drainage dips.

A copy of the Initial Study is attached. Questions or comments regarding this Initial Study/Mitigated Negative Declaration may be addressed to:

Susan Wilcox
California Department of Parks & Recreation
Northern Service Center
One Capitol Mall, Suite 500
Sacramento, CA 95814

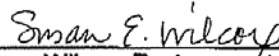
Submissions must be postmarked or received by fax no later than 26 July 2006.

Pursuant to Section 21082.1 of the California Environmental Quality Act, the California Department of Parks and Recreation (DPR) has independently reviewed and analyzed the Initial Study and Negative Declaration for the proposed project and finds that these documents reflect the independent judgment of DPR. DPR, as lead agency, also confirms that the project mitigation measures detailed in these documents are feasible and will be implemented as stated in the Negative Declaration.



Kirk Marshall, Acting Superintendent
Mendocino District

6/26/06
Date



Susan Wilcox, Environmental Coordinator
Northern Service Center

6/26/06
Date

A copy of the Initial Study is attached. Questions or comments regarding this Initial Study/Mitigated Negative Declaration may be addressed to:

Susan Wilcox
California Department of Parks & Recreation
Northern Service Center
One Capitol Mall, Suite 500
Sacramento, CA 95814

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Kirk Marshall, Acting Superintendent
Mendocino District

Date

Susan Wilcox, Environmental Coordinator
Northern Service Center

Date

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CHAPTER 1 - INTRODUCTION

1.1 INTRODUCTION AND REGULATORY GUIDANCE

The Initial Study/Mitigated Negative Declaration (IS/MND) has been prepared by the California Department of Parks and Recreation (DPR) to evaluate the potential environmental effects of the proposed Little River Fern Canyon Trail and Campground Improvements Project at Van Damme State Park, Mendocino County, California. This document has been prepared in accordance with the California Environmental Quality Act (CEQA), Public Resources Code §21000 *et seq.*, and the State CEQA Guidelines, California Code of Regulations (CCR) §15000 *et seq.*

An Initial Study is conducted by a lead agency to determine if a project may have a significant effect on the environment [CEQA Guidelines §15063(a)]. If there is substantial evidence that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) must be prepared, in accordance with CEQA Guidelines §15064(a). However, if the lead agency determines that revisions in the project plans or proposals made by or agreed to by the applicant mitigate the potentially significant effects to a less-than-significant level, a Mitigated Negative Declaration may be prepared instead of an EIR [CEQA Guidelines §15070(b)]. The lead agency prepares a written statement describing the reasons a proposed project would not have a significant effect on the environment and, therefore, why an EIR need not be prepared. This IS/MND conforms to the content requirements under CEQA Guidelines §15071.

1.2 LEAD AGENCY

The lead agency is the public agency with primary approval authority over the proposed project. In accordance with CEQA Guidelines §15051(b)(1), "the lead agency will normally be an agency with general governmental powers, such as a city or county, rather than an agency with a single or limited purpose." The lead agency for the proposed project is DPR. The contact person for the lead agency regarding specific project information is:

Thomas Kidder, Maintenance Supervisor
Mendocino District Headquarters
California Department of Parks & Recreation
Russian Gulch State Park
Highway 1
Mendocino, California 95460

Questions or comments regarding this Initial Study/Mitigated Negative Declaration should be submitted to:

Susan Wilcox, Environmental Coordinator
California Department of Parks and Recreation
Northern Service Center
One Capitol Mall – Suite 500
Sacramento, CA 95814
Fax: 916-445-8883
Email: CEQANSC@parks.ca.gov

Submissions must be in writing and postmarked or received by fax or email no later than 26 July 2006. The originals of any faxed document must be received by regular mail within ten working days following the deadline for comments, along with proof of successful fax transmission. Email or fax submissions must include full name and address.

1.3 PURPOSE AND DOCUMENT ORGANIZATION

The purpose of this document is to evaluate the potential environmental effects of the proposed Van Damme State Park Little River Trail and Campground Improvements Project. Mitigation measures have been incorporated into the project to eliminate any potentially significant impacts or reduce them to a less-than-significant level.

This document is organized as follows:

- Chapter 1 – Introduction
This chapter provides an introduction to the project and describes the purpose and organization of this document.
- Chapter 2 - Project Description
This chapter describes the reasons for the project, scope of the project, and project objectives.
- Chapter 3 - Environmental Setting, Impacts, and Mitigation Measures
This chapter identifies the significance of potential environmental impacts, explains the environmental setting for each environmental issue, and evaluates the potential impacts identified in the CEQA Environmental (Initial Study) Checklist. Mitigation measures are incorporated, where appropriate, to reduce potentially significant impacts to a less than significant level.
- Chapter 4 - Mandatory Findings of Significance
This chapter identifies and summarizes the overall significance of any potential impacts to natural and cultural resources, cumulative impacts, and impacts to humans, as identified in the Initial Study.

- Chapter 5 - Summary of Mitigation Measures
This chapter summarizes the mitigation measures incorporated into the project as a result of the Initial Study.
- Chapter 6 - References
This chapter identifies the references and sources used in the preparation of this IS/MND.
- Chapter 7 - Report Preparation
This chapter provides a list of those involved in the preparation of this document.

1.4 SUMMARY OF FINDINGS

Chapter 3 of this document contains the Initial Study (IS) that identifies the potential environmental impacts (in Environmental Checklist format) and provides a brief discussion of each impact resulting from implementation of the proposed project.

Based on the IS and supporting environmental analysis provided in this document, the proposed Little River Fern Canyon Trail and Campground Improvements Project would result in less than significant impacts for the following issues: aesthetics, agricultural resources, air quality, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation/traffic, and utilities and service systems.

In accordance with §15064(f) of the CEQA Guidelines, an MND shall be prepared if the proposed project will not have a significant effect on the environment after the inclusion of mitigation measures in the project. Based on the available project information and the environmental analysis presented in this document, there is no substantial evidence that, after the incorporation of mitigation measures, the proposed project would have a significant effect on the environment. DPR therefore proposes to adopt a Mitigated Negative Declaration in accordance with the CEQA Guidelines.

CHAPTER 2 - PROJECT DESCRIPTION

2.1 INTRODUCTION

This Initial Study/Mitigated Negative Declaration (IS/MND) has been prepared by the California Department of Parks and Recreation (DPR) to evaluate the potential environmental effects of the proposed Little River Fern Canyon Trail and Campground Improvements Project at Van Damme State Park in Mendocino County, California. The proposed project includes moving campsites, upgrading the group camping area, repairing and realigning parts of the Fern Canyon Trail, and replacing several footbridges. The project would reduce recreational impacts on the Little River stream channel, reduce erosion and its ecological effects in the Pygmy Forest and Fern Canyon, and improve public safety and recreational opportunities within the Park.

2.2 PROJECT LOCATION

Van Damme State Park is located three miles south of the town of Mendocino on State Route 1. The highway runs through the Park, separating the campgrounds, Visitor Center and the Fern Canyon trailhead to the east, and the beach and parking lot to the west. The Park extends about 3 miles inland, encompassing nearly 50% of the Little River watershed. The project area is limited to the east side of the Park, in existing campgrounds and recreational areas and along the Little River's Fern Canyon scenic trail.

2.3 BACKGROUND AND NEED FOR THE PROJECT

The Resource Element of the *Van Damme State Park Preliminary General Plan* (DPR 1995) identifies specific natural and cultural resources along with their values, sensitivities, and physical constraints. The Resource Element also sets forth long-range management objectives for the Park's resources and identifies specific actions or limitations required to achieve these objectives.

The General Plan identifies three prioritized action categories. The priorities are intended to guide future planning, research and budget decisions in order to reach important goals at the earliest opportunity. The criteria used in establishing the relative importance of the priorities include visitor health and safety, the protection of park resources, and public access and enjoyment.

Priority I actions defined for Van Damme State Park are resource protection, interpretation, and provisions for coastal access and day-use facilities. Rehabilitation of existing campsites and trails development were identified as significant for continued services and resource management purposes. In the Upper and Lower Little River Resource Management Zones, the Fern Canyon Trail has developed erosion, compaction and drainage problems. Streamside campsites on the Little River have been identified as elements having a negative effect on its aquatic habitat.

2.4 PROJECT OBJECTIVES

The Department of Parks and Recreation mission (2001) is,

To provide for the health, inspiration and education of the people of California by helping to preserve the state's extraordinary biological diversity, protecting its most valued natural and cultural resources, and creating opportunities for high-quality outdoor recreation.

The Declaration of Purpose for Van Damme State Park (DPR 1995) states, in part: *The purpose of Van Damme State Park is to make available to the people for their inspiration, enlightenment, and enjoyment, in an essentially natural condition, the outstanding scenic features and natural values, including...the riparian habitats associated with Little River and Beal Creek...the geology and plant and animal life...and the scientific values therein.*

Also defined in the Park's General Plan are Resource Management Objectives which include:

1. Allow limited modification of natural conditions to protect existing facilities (e.g. bank protection, tree safety improvements);
2. Preserve and protect riparian ecosystem processes;
3. Protect special status species and their habitats;
4. Restore anadromous fisheries; modify or remove stream crossings to improve fish passage;
5. Protect natural development of riparian vegetation;
6. Restore natural fluvial processes; develop guidelines for road and trail maintenance including cultural feature protection; and
7. Protect riparian ecosystem from deleterious upstream influences.

The proposed project, as outlined above, would further the Department's mission and the Park's objectives by:

- Protecting habitat and reducing impediments to coho salmon and steelhead trout, southern seep salamanders, southern torrent salamanders, and red tree vole; and
- Protecting existing facilities that support high quality recreational experiences and opportunities.

2.5 PROJECT DESCRIPTION

Van Damme State Park is located three miles south of the town of Mendocino on State Route 1. The park encompasses 2,337 acres including 20 acres of marine environment under lease from the State Lands Commission. The park extends about 3 miles inland encompassing nearly 60% of the Little River watershed, from Gordon Lane to the north to Little River Airport Road to the south. Total ocean frontage for the park is just over one mile. The park had 297,057 visitors in 2004 with 60,000 people making use of the overnight facilities.

The campground in the park has 74 developed sites with one group campsite. There are 10 environmental campsites 1.5 miles up Fern Canyon, which follows Little River. There are 7.8 miles of trails extending from the Pygmy Forest off of Little River Airport road to the sea. This project is in and around Little River, which flows through the park to the Pacific Ocean at Van Damme beach. This project has two components, one inland approximately two miles up the river on the trail system and the other within the campground area near the mouth of the stream in the developed area of the Park. The latter area includes four river side sites, the Group Camp, and the Upper Meadow Campground.

Within the campground the footbridge between the Group Camp and the lower shower building will be removed along with its concrete abutments. A 38-foot bridge set on a wood foundation will be constructed per the Department's trail handbook. The sewer line from the Upper Meadow campground will be attached to the bridge on its downstream side. The 7,250 square foot group parking area will be scarified and a sand base laid down with paving blocks with top soil put down to provide drainage into the soil. The existing trail from the bridge to the combination shower building will be moved several feet back from the stream edge along its length. A cooking shelter and fish cleaning station will be constructed in the Group Camp, to provide shelter while cooking. The ramada will replicate a common design from the 1950's. Installation of a propane tank and a connection to the sewer line adjacent to the ramada will be required.

Alongside the river between the first two highway bridges across from the Campfire Center, the four narrow campsites will be moved to the Upper Meadow Campground. The campsites will be sited on the east side of the meadow and parking spurs will be constructed and surfaced with base rock. The campground furniture will be moved from the lower (riverside) campsites.

The upper loop trail from the Pygmy Forest boardwalk down approximately 2.5 miles down Fern Canyon is the site for a variety of trails-related construction sites. Five trail bridges from 36 feet to 14 feet are to be replaced. In one site only, the existing bridge is to be removed, the concrete taken out of the stream bank, and the bridge foreshortened and moved approximately 200 feet upstream will there be in-stream work performed. The rest of the bridges will be sited at the 100-year flood level with appropriate ramping on to the bridges. In addition a 40-foot bridge will be constructed over the last remaining intact low water ford. Originally Fern Canyon had nine low water fords constructed by the CCC in the 1930's. As part of mitigation to remove the center

portions of 7 of the fords and complete removal of the 8th the 9th was left in place. It is a wet crossing year around. The bridge length will allow for the ford to remain intact under the bridge. It will be an arch glum bridge like the other 7 on the stream. Where the fire road comes down to meet the Fern Canyon trail a 20 foot long seasonal pipe bridge will be constructed. The pipe bridge will be placed in the spring and removed in the fall. Currently people ride their bikes and walk through the stream at this location.

There are five puncheons on the trail that will be replaced. A puncheon is a bridge that is less than 36" high and as such has no handrails. They will vary in length from 10 to 16 feet in length. One will be used as an approach to the bridge, which will be moved.

The Fern Canyon trail crosses the "Pygmy Forest" as it descends into the canyon. The trail is on an old skid road. The road is entrenched and 1132 feet of the trail will be turnpiked. This is a trail construction used typically to move water through a trail. In this case the water needs to sheet across the trail, which will have a base rock surface over a cobble base. The trail is entrenched anywhere from 4 inches to 18 inches.

Two sets of stairs will be constructed using a full crib to retain trail material. The stairs will include a total of 12 steps. Two retaining walls will be constructed in the canyon to support the trail surface. One is 14 feet long and the other 9. One will utilize downed logs in the area.

Numerous drainage dips will be constructed to get the water across the trail. In one location a drainage lens 50 feet long will be constructed with a drainpipe installed.

2.6 PROJECT IMPLEMENTATION

DPR proposes a construction period beginning in September 2006 and lasting up to three months; however, unfavorable conditions such as inclement weather could cause delays, extending construction into early 2007. The specific construction areas (e.g. Group Camp and footbridges) will be closed to the public during construction. Work would generally occur during daylight hours on weekdays only, except as necessary to address emergencies or other unforeseen conditions.

Heavy equipment required for the proposed activities may include (but not be limited to) dump trucks, backhoes, and one or two small, rubber-tired cranes. Most construction equipment would be transported to the site and remain there until the associated work is completed. Transport vehicles for building components, material delivery trucks, and crew vehicles would also be present intermittently at the site. Staging areas for the project would be limited to paved surfaces including parking areas near the Pygmy Forest, Visitor Center, and Campgrounds. Construction materials needed in inaccessible areas (particularly on the Fern Canyon Trail) will be hand-carried to their point of use.

2.7 VISITATION TO VAN DAMME STATE PARK

Van Damme SP				
Department of Parks and Recreation				
Fiscal Year Attendance				
Northern Field Division			Mendocino District	
Fiscal year	PAID DAY USE	FREE DAY USE	OVERNIGHT CAMPING	TOTAL ATTENDANCE
1995-1996	2,209	81,419	49,753	133,381
1996-1997	5,676	188,458	53,327	247,460
1997-1998	5,821	114,888	48,289	168,999
1998-1999	5,760	95,297	50,558	151,614
1999-2000	5,693	93,474	50,918	150,085
2000-2001	8,207	292,179	50,452	350,839
2001-2002	3,921	442,319	53,048	499,288
2002-2003	2,332	319,845	52,357	374,534
2003-2004	3,986	238,073	52,002	294,061
Total Attendance:	43,605.40	1,865,951.60	460,704.00	2,370,261.00
Average Attendance:	4,845.04	207,327.96	51,189.33	263,362.33

2.8 CONSISTENCY WITH LOCAL PLANS AND POLICIES

As noted in Section 2.4, above, the proposed project is consistent with the Resource Management Objectives defined in the *Van Damme State Park Preliminary General Plan* (DPR 1995).

The plans and policies of other public agencies in Mendocino County, as well as some State and Federal agencies, influence management and planning decisions for Van Damme State Park.

Mendocino County's General Plan Update (2003) addresses issues related to the development and use of state park lands. In particular, the Coastal Element of the County General Plan (Local Coastal Plan) establishes policies for protection of public access and use of the coastline, guidelines for planning and development of facilities, and preservation of coastal resources. These policies will serve as constraints on coastal land use and development as the County assumes permit authority for development from the California Coastal Commission.

Steelhead and coho salmon runs still occur in Little River and are managed by the California Department of Fish and Game (DFG). Aquatic habitat restoration and management activities undertaken by DPR require close consultation with DFG.

Other agencies regulating or influencing land use and development in the project vicinity include the Mendocino County Department of Parks and Recreation, the California

Department of Forestry and Fire Protection, the U.S. Fish and Wildlife Service, and the U.S. Army Corps of Engineers.

2.9 DISCRETIONARY APPROVALS

DPR has approval authority for implementation of projects within the boundaries of Van Damme State Park, including the proposed Little River Fern Canyon Trail and Campground Improvements Project; however, the following permits and/or consultations may also be required before work can begin:

- A Section 404 Clean Water Act permit from the U.S. Corps of Engineers (USACE) Regulatory Branch, for portions of the project that could impact waters of the U.S., if the project is determined to be within USACE jurisdiction.
- A Streambed Alteration Agreement (Section 1601) from the California Department of Fish and Game (DFG) for work in or around streams, pond, or drainage areas.
- Section 7 consultation with the U.S. Fish and Wildlife Service relating to Lotis blue butterfly habitat, in compliance with the federal Endangered Species Act.
- New or Amended Septic System Permit from Mendocino County Department of Environmental Health and the North Coast Regional Water Quality Control Board (NCRWQCB), Region 1.
- Amended Non-Community Water System Permit from the California Department of Health Services (DHS), Drinking Water Branch.
- Consultation with the California Department of Forestry and Fire (CDF) and State Fire Marshall.
- Coastal Development Permit - Mendocino County Planning Department and the California Coastal Commission for work west end of the project area, which lies within the Local Coastal Plan jurisdiction, administered by the County.
- Storm Water Pollution Prevention Plan (SWPPP), in compliance with the National Pollutant Discharge Elimination System (NPDES) Program, with oversight by the State Water Resources Control Board.
- Permit to Operate a stationary on-site internal combustion engine over 50 horsepower - Mendocino County Air Quality Management District

2.10 RELATED PROJECTS

DPR often has other smaller maintenance programs and rehabilitation projects planned, on-going, or recently completed in the same vicinity as the proposed project. At Van Damme State Park, these include (Braudrick 2004):

- 48 different habitat restoration projects (using joint CCC/DFG/DPR grant funds);
- Installation of new sewer lift station to convey effluent to two leach fields across river and uphill on opposite side;
- Removal of inverted slab and other failed features at culverts and footbridges;
- Installation of metal (military surplus) vehicle bridge on paved park road;
- Cape ivy removal (probably with inmate crew by hand); and
- Removal/control of other invasive plant species, e.g. Himalayan berries, forget-me-nots, and cotoneaster.

CHAPTER 3 - ENVIRONMENTAL CHECKLIST

PROJECT INFORMATION	
1. Project Title:	Little River Fern Canyon Trail and Campground Improvements
2. Lead Agency Name & Address:	California Department of Parks and Recreation
3. Contact Person & Phone Number:	Thomas Kidder, Maintenance Supervisor, Mendocino District (707) 937-5804
4. Project Location:	Van Damme State Park
5. Project Sponsor Name & Address:	California Department of Parks and Recreation Mendocino District P.O. Box 440 Mendocino, California 95460
6. General Plan Designation:	OSDPR (Open Space)
7. Zoning:	Coastal Open Space/Floodplain/Visitor Accommodation and Service, Campground/Public Facilities and Lands
8. Description of Project:	Move four campsites from streamside location to Upper Meadow Campground; replace footbridge between Group Camp and the lower shower building and realign trail to combination building away from streambank; scarify group parking area and install permeable surface; construct cooking shelter (ramada) and fish cleaning station in the Group Camp; install propane tank and a connection to the sewer line adjacent to the ramada; repair and realign Fern Canyon Trail from the upper loop trail from the Pygmy Forest boardwalk down approximately 2.5 miles down Fern Canyon; replace five trail footbridges, moving one approximately 200 feet upstream; construct a new bridge over the last remaining intact low water ford; turnpike old skid road in Pygmy Forest; construct two sets of crib stairs on Fern Canyon Trail; add two small retaining walls in the canyon and numerous drainage dips.
9. Surrounding Land Uses & Setting:	Refer to Chapter 3 of this document (Section IX, Land Use Planning)
10. Approval Required from Other Public Agencies	Refer to Chapter 2, Section 2.9

1. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact", as indicated by the checklist on the following pages.

- | | | |
|--|---|---|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agricultural Resources | <input type="checkbox"/> Air Quality |
| <input checked="" type="checkbox"/> Biological Resources | <input checked="" type="checkbox"/> Cultural Resources | <input type="checkbox"/> Geology/Soils |
| <input type="checkbox"/> Hazards & Hazardous Materials | <input type="checkbox"/> Hydrology/Water Quality | <input type="checkbox"/> Land Use/Planning |
| <input type="checkbox"/> Mineral Resources | <input type="checkbox"/> Noise | <input type="checkbox"/> Population/Housing |
| <input type="checkbox"/> Public Services | <input type="checkbox"/> Recreation | <input type="checkbox"/> Transportation/Traffic |
| <input type="checkbox"/> Utilities/Service Systems | <input type="checkbox"/> Mandatory Findings of Significance | <input type="checkbox"/> None |

DETERMINATION

On the basis of this initial evaluation:

I find that the proposed project **COULD NOT** have a significant effect on the environment and a **NEGATIVE DECLARATION** will be prepared.

I find that, although the original scope of the proposed project **COULD** have had a significant effect on the environment, there **WILL NOT** be a significant effect because revisions/mitigations to the project have been made by or agreed to by the applicant. A **MITIGATED NEGATIVE DECLARATION** will be prepared.

I find that the proposed project **MAY** have a significant effect on the environment and an **ENVIRONMENTAL IMPACT REPORT** or its functional equivalent will be prepared.

I find that the proposed project **MAY** have a "potentially significant impact" or "potentially significant unless mitigated impact" on the environment. However, at least one impact has been adequately analyzed in an earlier document, pursuant to applicable legal standards, and has been addressed by mitigation measures based on the earlier analysis, as described in the report's attachments. An **ENVIRONMENTAL IMPACT REPORT** is required, but it must analyze only the impacts not sufficiently addressed in previous documents.

I find that, although the proposed project could have had a significant effect on the environment, because all potentially significant effects have been adequately analyzed in an earlier EIR or Negative Declaration, pursuant to applicable standards, and have been avoided or mitigated, pursuant to an earlier EIR, including revisions or mitigation measures that are imposed upon the proposed project, all impacts have been avoided or mitigated to a less-than-significant level and no further action is required.

Susan Wilcox
Environmental Coordinator

Date

ENVIRONMENTAL ISSUES

I. AESTHETICS

ENVIRONMENTAL SETTING

On northern California's Mendocino Coast, rocky bluffs rise abruptly from the sea and the ocean can be both very cold and very rough. The distinct smell of salt hangs in the air as one travels the picturesque but narrow and winding State Route 1 (SR 1) toward Van Damme State Park. Located three miles south of the town of Mendocino, the park encompasses 2,337 acres including 20 acres of marine environment under lease from the State Lands Commission. The park extends about 3 miles inland encompassing nearly 60% of the Little River watershed, from Gordon Lane to the north to Little River Airport Road to the south. Total ocean frontage for the park is just over one mile.

State Route 1 bisects the park, separating the campground areas and the Fern Canyon Trail on the east from the beach on the west. Van Damme's star attraction is the Fern Canyon Trail, a 5-mile round-trip hiking and biking trail with an elevation gain of only 200 feet. The canyon's verdant vegetation shows an overwhelming variety of greens. Second-growth redwoods and red alders tower above the valley floor as the trail weaves through five-finger, deer, and sword ferns.

The trail meanders over the river several times. Eight footbridges have replaced low-water fords on Little River, but during the winter and spring, hikers must do some rock hopping at the remaining ford to avoid getting wet feet. Remnants of retaining walls built by the Civilian Conservation Corps in the late 1930s and early '40s are visible. After continuing east, the trail ends at a 3.5-mile loop trail along an old logging road. This loop is more difficult than the Fern Canyon Trail but hikers are rewarded for their extra effort by a visit to the pygmy forest of Bishop pine and Mendocino pygmy cypress. Stunted by highly acidic soil, the trees mature at heights of only 5 to 6 feet, in remarkable contrast to the full-size conifers in nearby stands.

WOULD THE PROJECT:	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

- a-b) Although SR 1 is an eligible State Scenic Highway in Mendocino County, the proposed project area is limited to the Fern Canyon Trail and camping areas in the interior of Van Damme State Park. As the park entrance meanders up and away from SR 1, these areas are hidden from view within the woods and canyon. Therefore, the project will not be visible from the highway or from any vista point within the park itself.
- c) The Van Damme State Park General Plan (DPR 1995) states, “The scenic resources of the unit may be protected in a variety of ways, from well-planned facility development to the level of maintenance.” According to the General Plan, sighting major facilities in areas most accessible by vehicle yet not obscuring scenic ocean views, and employing scale, materials and colors that integrate developed areas into the natural environment, are desirable elements in the development of park facilities. The trail repairs will have no effect on scenic resources. New construction and facility relocation, i.e. the stream crossing and campground improvements, are in keeping with the design elements described above and will have a less than significant effect on the park’s aesthetic/visual character.
- d) Lighting is not a part of this project and no new light sources will be introduced into the landscape. All construction work will be limited to daylight hours, eliminating the need for work lights. The project will create no new source of light or glare and, therefore, will have no impact on day or nighttime views.

II. AGRICULTURAL RESOURCES

ENVIRONMENTAL SETTING

Van Damme State Park is located just off State Route 1 in Mendocino County. In 1928, 40 acres of land was purchased by Charles Van Damme as a camping and picnic site for the general public and when he passed away in 1930, he willed the land to the State for use as a park. After adding to the acreage in 1933, Van Damme SP formally opened to the public in 1934. Today, Van Damme SP encompasses 2,337 acres including 20 acres of marine environment under lease from the State Lands Commission. Some of the lands now comprising Van Damme SP were used historically for agricultural purposes, however, the park does not support any agricultural or farmland operations.

One parcel designated Prime Agricultural Land is situated adjacent to the park, north of Van Damme Beach and east of Beal Creek and the Highland Meadow Campground. No portion of the specific project area, or Van Damme SP in general, is included in any of the Important Farmland categories, as delineated by the Department of Conservation under the Farmland Mapping and Monitoring Program (DOC 2003).

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT*:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

* In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997), prepared by the California Department of Conservation as an optional model for use in assessing impacts on agricultural and farmland.

DISCUSSION

a, b, c) As noted in the environmental setting above, Van Damme SP does not support any agricultural operations or farmland. All work proposed for this project will be confined within park boundaries in areas that do not abut agricultural parcels outside the Park. The work proposed in this project will not result in the conversion of agricultural land to a non-agricultural use, or change any existing zoning.

III. AIR QUALITY

ENVIRONMENTAL SETTING

Van Damme SP is located in the North Coast Air Basin (NCAB), which is composed of Mendocino, Humboldt, Trinity, Del Norte counties and the northern portion of Sonoma County under the jurisdiction of the United States Environmental Protection Agency (USEPA) Region IX (Mendocino County 2005; USEPA 2006). As Van Damme SP is located in Mendocino County, the park also falls under the jurisdiction of the Mendocino County Air Quality Management District (MCAQMD). The NCAB operates thirteen monitoring stations, five of those sites are in the MCAQMD. The Fort Bragg air monitoring site, about 13 miles north of the Park, monitors particulate matter (Mendocino County 2005).

The California Air Board makes State area designations for ten criteria pollutants (an air pollutant for which acceptable levels of exposure can be determined and for which an ambient air quality standard has been set): ozone, suspended particulate matter (PM₁₀), fine suspended particulate matter (PM_{2.5}), carbon monoxide, nitrogen dioxide, sulfur dioxide, sulfates, lead, hydrogen sulfide, and visibility reducing particles (VRPs). A pollutant is designated in attainment if the state standard for that pollutant was not violated at any site in the area during a three-year period. Conversely, a pollutant is designated non-attainment if there was at least one violation of a State standard for that pollutant in the area. Unclassified means the data is incomplete and designation of attainment or non-attainment is not supportable. At the State level, carbon monoxide, nitrogen dioxide, sulfur dioxide, sulfates, and lead levels for Mendocino County have been designated attainment; while the particulate matter (PM₁₀) has been designated as “non-attainment”; and particulate matter (PM_{2.5}), hydrogen sulfide, and VRP levels have been designated unclassified.

In contrast to the State area designations, the USEPA makes national area designations for five criteria pollutants: ozone (1-hour and 8-hour standards), PM₁₀, PM_{2.5}, carbon monoxide, nitrogen dioxide, and sulfur dioxide. Nationally, any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) one or more of the National Ambient Air Quality Standards for the criteria pollutants designated in the Clean Air Act is designated “non-attainment”. An area considered to have air quality as good as or better than the national ambient air quality standards as defined in the Clean Air Act is designated “attainment area”; an area that cannot be classified on the basis of available data as meeting or not meeting the national primary or secondary ambient air quality standard is designated “unclassified”. At the National level, ozone (1-hour and 8-hour standards), PM₁₀, PM_{2.5}, carbon monoxide, and nitrogen dioxide are all designated as “unclassifiable / attainment”; and sulfur dioxide is designated “unclassified”.

Mendocino County Air Quality Designations 2004 (CARB 2006)

	State Levels	Federal Levels
Ozone	Attainment	1 hour & 8 hour standard: Unclassifiable / Attainment
Particulate Matter (PM ₁₀)	Non-attainment	Unclassifiable / Attainment
Particulate Matter (PM _{2.5})	Unclassified	Unclassifiable / Attainment
Carbon Monoxide	Attainment	Unclassifiable / Attainment
Nitrogen Dioxide	Attainment	Unclassifiable / Attainment
Sulfur Dioxide	Attainment	Unclassified
Sulfates	Attainment	Not Applicable (N/A)
Lead	Attainment	N/A
Hydrogen Sulfide	Unclassified	N/A
Visibility Reducing Particles	Unclassified	N/A

Over the previous 5-year period (1999-2003), Fort Bragg exceeded the PM₁₀ standard a total of 13 days; major sources for that are combustion (automobile, diesel, wood smoke, and industrial) and dust (road dust caused by vehicular travel and naturally occurring dust from winds, etc.). Particles less than 10 microns in diameter (PM₁₀) pose a health concern because they can be inhaled into and accumulate in the respiratory system. Particles less than 2.5 microns (PM_{2.5}) are referred to as “fine” particles and are believed to pose the largest health risk. Because of their small size, fine particles can lodge deeply into the lungs.

Individual or groups that would be especially reactive to criteria pollutants are considered sensitive receptors, such as children, the elderly and those who are acutely or chronically ill. Facilities where sensitive receptors are likely to be located include schools, playgrounds, childcare centers, retirement and convalescent homes, hospitals, medical clinics, and residences.

In general, air quality in Mendocino County is good, the District being in “attainment” of state air quality standards, at least in part due to its proximity to the Pacific Ocean and robust prevailing northwest winds. However, the County is in “non-attainment” or “unclassified” of the state standard for particulate matter. Mendocino County has written and adopted an attainment plan to control and reduce their future PM levels.

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT*:				
a) Conflict with or obstruct implementation of the applicable air quality plan or regulation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations (e.g., children, the elderly, individuals with compromised respiratory or immune systems)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

* Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied on to make these determinations.

DISCUSSION

- a) The proposed project will not conflict with or obstruct implementation of the Mendocino County Air Quality Management District plan or regulations. No impact.
- b, c) The proposed project will not emit air contaminants at a level that, by themselves, will violate any air quality standard, or contribute to a permanent or long-term increase in any air contaminant. However, project implementation will generate short-term emissions of fugitive dust (PM₁₀) and involve the use of equipment and materials that will emit ozone precursors. Increased emissions of PM₁₀ could contribute to existing non-attainment conditions, which could interfere with achieving the projected attainment standards. However, integration of the following conditions into the project design will reduce potential impacts to a less than significant level.

CONDITION- AIR 1

- All active construction areas will be watered at least twice daily during, dry, dusty conditions.
- All trucks hauling soil, sand or other loose materials on public roads will be covered or required to maintain at least two feet of freeboard.
- All equipment engines will be maintained in good condition, in proper tune (according to manufacturer's specifications), and in compliance with all State and federal requirements.
- Excavation and grading activities will be suspended when sustained winds exceed 25 miles per hour (mph), instantaneous gusts exceed 35 mph, or dust from construction might obscure driver visibility on public roads.
- Earth or other material that has been transported onto paved streets by trucks, construction equipment, erosion, or other project-related activity will be promptly removed.

- d) As noted in Discussion III(b,c) above, project construction will generate dust and equipment exhaust emissions for the duration of the project. Park visitors with conditions that make them sensitive to these emissions will have the option of avoiding the area altogether or remaining in portions of the park that will be upwind or protected from blowing dust or other emissions. Any vehicles transporting materials or construction crews will be limited to using present paved parking areas only. Equipment use that could generate fugitive dust would be of limited duration, both in daily operation and as a percentage of the proposed work for this project. In addition, the specific construction sites would be closed to the public. Integration of **Condition Air -1** above, into the project design will reduce potential impacts to a less than significant level.
- e) Proposed work will not result in the long-term generation of odors. Construction-related emissions might result in a short-term generation of odors, including diesel exhaust, fuel vapors; these odors might be considered objectionable by some park visitors and employees. However, construction activities will be short-term; odorous emissions will dissipate rapidly in the air, with increased distance from the source; and unauthorized personnel will not be allowed into construction areas. Potential odor impacts will be considered less than significant.

IV. BIOLOGICAL RESOURCES

ENVIRONMENTAL SETTING

The project area spans Van Damme State Park from the upper marine terrace formation at the pygmy forest access off Little River Airport Road, down into Fern Canyon along the upper Fern Canyon Trail to the middle reach of Little River, and downstream into the campground along the main Fern Canyon Trail to about one-quarter mile from the outlet of the river into the Pacific Ocean.

There are a five plant communities, or series, that could be affected by the proposed project. The following series names and descriptions are taken from "A Manual of California Vegetation" by Sawyer and Keeler-Wolf (1995).

Redwood Series

Most of the project work will occur within a redwood series that has been previously logged, but possesses mature second growth forest characteristics and stand structure. Redwood (*Sequoia sempervirens*) dominates the canopy. Other important tree species include Douglas-fir (*Pseudotsuga menziesii*), tanbark oak (*Lithocarpus densiflorus*), grand fir (*Abies grandis*), and western hemlock (*Tsuga heterophylla*). Commonly encountered species in the shrub layer include tanbark oak, wax myrtle (*Myrica californica*), California rose-bay (*Rhododendron macrophyllum*), wood rose (*Rosa gymnocarpa*), thimbleberry (*Rubus parviflorus*), California huckleberry (*Vaccinium ovatum*), and red huckleberry (*Vaccinium parvifolium*). The ground layer is comprised of numerous species such as vanilla leaf (*Achlys californica*), trail plant (*Adenocaulon bicolor*), five-finger fern (*Adiantum aleuticum*), lady fern (*Athyrium filix-femina* var. *cyclosorum*), deer fern (*Blechnum spicant*), milk maids (*Cardamine californica*), fairy bells (*Disporum smithii*), salal (*Gaultheria shallon*), California sweetgrass (*Hierochloa occidentalis*), redwood sorrel (*Oxalis oregana*), California blackberry (*Rubus ursinus*), western sword fern (*Polystichum munitum*), sugar-scoop (*Tiarella trifoliata*), pig-a-back plant (*Tolmiea menziesii*), and western trillium (*Trillium ovatum*).

Bishop Pine and Pygmy Cypress Series

An initial section of the trail work near the Pygmy Forest parking lot crosses through a transitional area of Bishop pine and pygmy cypress series intergrading with a mixed conifer forest which is best characterized as redwood series. Bishop pine series and pygmy cypress series are rare natural plant communities, as designated by the California Department of Fish and Game (DFG). Bishop pine series is dominated by bishop pine in the canopy (*Pinus muricata*). Pygmy cypress (*Cupressus goveniana* ssp. *pigmaea*) and Bolander pine (*Pinus contorta* ssp. *bolanderi*) occur as scattered individuals. The shrub and ground layers include California blackberry, western sword fern, poison oak (*Toxicodendron diversilobum*), California coffeeberry (*Rhamnus californica*), bracken fern (*Pteridium aquilinum* var. *pubescens*), and California huckleberry.

Pygmy cypress series, also known as pygmy forest, is dominated by an array of acidic soil-tolerant trees and shrubs. The canopy supports a mostly stunted forest of pygmy cypress,

Bolander pine, and Bishop pine. The shrub and ground layers are dominated by hairy manzanita (*Arctostaphylos columbiana*), salal, California huckleberry, red huckleberry, wax myrtle, glossyleaf manzanita (*Arctostaphylos nummularia*), bracken fern, bear-grass (*Xerophyllum tenax*), pygmy manzanita (*Arctostaphylos mendocinensis*), Labrador tea (*Ledum glandulosum*), and rose-bay (*Rhododendron macrophyllum*). Three of the dominant species in the pygmy cypress series are listed by the California Native Plant Society (CNPS) as rare (pygmy cypress, Bolander pine, and pygmy manzanita; CNPS Inventory List 1B). Additional sensitive species present in this vegetation type include coast lily (*Lilium maritimum*; CNPS List 1B) and Pt. Reyes ceanothus (*Ceanothus gloriosus* var. *gloriosus*, CNPS List 4). Localized areas of sphagnum bog within the pygmy forest are also recognized as sensitive natural communities by DFG.

Scattered tanbark oak, Douglas-fir, and redwood occur in the ecotone areas between the Bishop pine and pygmy cypress series and areas characterized as redwood series.

Red Alder Series

Red alder series, also a rare natural plant community, is the dominant vegetation type in those project locations immediately adjacent to Little River, such as the Group Camp area. In the canopy red alder (*Alnus rubra*) and redwood predominate. In some locations cascara (*Rhamnus purshiana*) co-dominates with red alder. The shrub and ground layers include California blackberry, cascara, slough sedge (*Carex obnupta*), sword fern, pig-a-back plant, sugar-scoop, poison oak, coltsfoot (*Petasites palmatus* var. *frigidus*), wild-ginger (*Asarum caudatum*), common rush (*Juncus effusus*), spreading rush (*Juncus patens*), and giant horsetail (*Equisetum telmateia* ssp. *braunii*).

Introduced Perennial Grassland Series

Vegetation types in the Upper Meadow Campground portion of the project consist of Bishop pine series and a non-native introduced perennial grassland series. The introduced perennial grassland series is an herbaceous community comprised of mostly non-native species such as velvet grass (*Holcus lanatus*), tall fescue (*Festuca arundinacea*), sweet vernal grass (*Anthoxanthum odoratum*), orchard grass (*Dactylis glomerata*), and dandelion (*Taraxacum officinale*). Native species include red fescue (*Festuca rubra*), self-heal (*Prunella vulgaris*), and bracken fern.

Special-Status Species¹

Sensitive biological resources that occur or potentially occur on the proposed project site are

¹ For the purposes of this document, special-status species are defined as plants and animals that are legally protected or that are considered sensitive by federal, state, or local resource conservation agencies and organizations. Specifically, this includes species listed as state or federally Threatened or Endangered, those considered as candidates for listing as Threatened or Endangered, species identified by the USFWS and/or CDFG as Species of Concern, animals identified by CDFG as Fully Protected or Protected, and plants considered by the California Native Plant Society (CNPS) to be rare, threatened, or endangered (i.e., plants on CNPS lists 1 and 2).

discussed in this section. Sensitive biological resources include plants and animals that have been given special recognition by federal, state, or local resource agencies and organizations. Also included are habitats that are listed as critical for the survival of a listed species or have special value for wildlife species, and plant communities that are unique or of limited distribution and are considered sensitive.

Queries of the California Department of Fish and Game's Natural Diversity Database (DFG 2006a) and the California Native Plant Society's On-line Inventory (CNPS 2006) were conducted for sensitive biological resources that are known to occur within the Mendocino and Mathison Peak 7.5-minute U.S.G.S. quadrangle maps. In addition, the U.S. Fish and Wildlife Service (USFWS) Arcata Field Office website was searched for sensitive species in Mendocino County. All sensitive biological resources were evaluated for potential impacts by this project.

Plant Species

Fifty special status plant species are listed in the CNPS² on-line inventory as potentially occurring in the coastal Mendocino region (Table X). Of these, seven of the plant species are known to occur within Van Damme State Park (DPR 2006a). There is potentially suitable habitat within the project area for twenty-two plant species. However, only those species that are known to occur within Van Damme State Park, or have the potential to occur there based on the presence of suitable habitat, are addressed in this document.

SENSITIVE PLANT AND WILDLIFE SPECIES THAT ARE KNOWN TO OCCUR, OR COULD POTENTIALLY OCCUR WITHIN VAN DAMME STATE PARK

Pink sand-verbena (*Abronia umbellata* ssp. *breviflora*) – This species is a CNPS List 1B.1 perennial herb that blooms from June to October found in coastal dunes and coastal strand habitats. Pink sand-verbena was reported within Van Damme National Park in 1941 near the mouth of the little river and has not been seen in survey since (DPR 2006a). Habitat for this species does not occur within the project area. Therefore, the project will not affect pink sand-verbena.

Blasdale's bent grass (*Agrostis blasdalei*) – This is a perennial rhizomatous herb listed as a CNPS List 1B.2. It blooms from May through July. Blasdale's bent grass is found on coastal bluff scrub, coastal dunes, and coastal prairies. Habitat for this species does occur within the park but not within the proposed project area. Therefore, the project will not affect Blasdale's bent grass.

Pygmy manzanita (*Arctostaphylos mendocinoensis*) – This is a CNPS List 1B.2 perennial evergreen shrub that blooms in January located in closed-cone coniferous forests. Based upon the presence of suitable habitat, the species has a potential to occur in the project area.

² California Native Plant Society (CNPS) Lists: List 1A = presumed extinct in California; List 1B = rare or endangered in California and elsewhere; List 2 = rare or endangered in California, more common elsewhere; List 3 = need more information; List 4 = plants of limited distribution. New threat code extensions are: .1 = seriously endangered in California; .2 = fairly endangered in California; and .3 not very endangered in California.

Humboldt milk-vetch (*Astragalus agnicidus*) – This perennial herb is a State Endangered and a CNPS List 1B.1 plant species that occurs in broadleaf upland forests and north coast coniferous forests. The Humboldt milk-vetch blooms from April to August. Although it is not known to occur in Van Damme State Park, potential habitat for the species exists within the project area. .

Point Reyes blennosperma (*Blennosperma nanum* var. *robustum*) This State Rare and CNPS List 1B.2 annual plant species is found in coastal prairies and coastal scrub. This species blooms from February through April. Habitat for the Point Reyes blennosperma occurs adjacent to the project area, but there is no potential habitat for the species within the project area. Therefore, Point Reyes blennosperma will not be affected by implementation of the project.

Small groundcone (*Boschniakia hookeri*) – Small groundcone is a CNPS List 2.3 perennial herb that is parasitic on salal and huckleberry. It blooms from April through August and occurs in north coast coniferous forests. Although it is not known to occur in Van Damme State Park, small groundcone has the potential to occur within the project area based upon the presence of suitable habitat.

Swamp harebell (*Campanula californica*) – This perennial rhizomatous herb that blooms from June to October is a CNPS List 1B.2 plant species. It occurs in bogs and fens, closed-cone coniferous forests, coastal prairies, meadows and seeps, marshes and swamps, and north coast coniferous forests. Swamp harebell has a potential to occur in the project area, based upon the presence of suitable habitat.

California sedge (*Carex californica*) – This CNPS List 2.3 perennial rhizomatous herb, which blooms from May to August, is found in bogs and fens, closed-cone coniferous forests, coastal prairies, meadows and seeps, and marshes and swamps. A record of California sedge was reported in Van Damme State Park in the pygmy cypress forest series (CNDDDB 2006). The species has the potential to occur in the project area based on the presence of suitable habitat.

Lakeshore sedge (*Carex lenticularis* var. *limnophila*) – Lakeshore sedge is a CNPS List 2.2 perennial herb that blooms from June to August. This species is found in bogs and fens, marshes and swamps, and closed-cone coniferous forests. There is a potential that Lakeshore sedge could occur in the project area based upon the presence of suitable habitat.

Deceiving sedge (*Carex saliniformis*) – Blooming in June, this CNPS List 1B.2 perennial rhizomatous herb inhabits coastal prairies, coastal scrub, meadows and seeps, and marshes and swamps. This species has a potential to occur in the project area, based on the presence of suitable habitat.

Mendocino coast Indian paintbrush (*Castilleja mendocinensis*) – This CNPS List 1B.2 perennial herb blooms from April through August. It occurs in coastal bluff scrub, closed-cone coniferous forests, coastal dunes, coastal prairies, and coastal scrub. Based on the presence of suitable habitat, this species has a potential to occur within the project area.

Howell's spineflower (*Chorizanthe howellii*) – This species is listed as Federally Endangered, State Threatened, and CNPS List 1B.2. Howell's spineflower is an annual herb that blooms from May to July, occurring in coastal sand dunes, coastal prairies, and coastal scrub. Habitat for this species occurs adjacent to the project area, but there is no potential for this species within the project area. Therefore, Howell's spineflower will not be affected by project implementation.

Pygmy cypress (*Cupressus goveniana* spp. *pigmaea*) - Pygmy cypress is a CNPS List 1B.2 perennial evergreen tree that is found in closed-cone coniferous forests. A record of pygmy cypress was reported in Van Damme State Park (DFG 2006a). However, based on the results of a DPR 2005 survey, no pygmy cypress trees occur within the project area.

Supple daisy (*Erigeron supplex*) – This perennial herb is a CNPS List 1B.2 species that blooms from May to July. The supple daisy is found in coastal bluffs and coastal prairies. A record of this species was reported for Van Damme State Park (DFG 2006a). Although this species is found within the park, habitat for this species does not occur within the project area. Therefore, supple daisy will not be affected by project implementation.

Coast fawn lily (*Erythronium revolutum*) – Blooming from March through July, this perennial bulbiferous herb is a CNPS List 2.2 species. Coast fawn lily is found within bogs and fens, broadleaved upland forests, and north coast coniferous forests. Based on the presence of suitable habitat, this species has a potential to occur within the project area.

Roderick's fritillary (*Fritillaria roderickii*) – Roderick's fritillary is a CNPS List 1B.1 species that is also listed as Endangered by the state of California. Blooming from March through May, this species is found in coastal bluff scrub, coastal prairies, and valley and foothill grasslands. Habitat for this species occurs adjacent to the project area, but there is no potential habitat for this species within the project area. Therefore, Roderick's fritillary will not be affected by project implementation.

Pacific gilia (*Gilia capitata* ssp. *pacifica*) – This annual herb is listed as a CNPS List 1B.2 species and blooms from April to August. Pacific gilia is located in coastal bluff scrub, chaparral, coastal prairies, and valley and foothill grasslands. Although there is coastal prairie within the park, there is no suitable habitat for this species within the project area. Therefore, Pacific gilia will not be affected by project implementation.

Point Reyes horkelia (*Horkelia marinensis*) – This perennial herb is a CNPS List 1B.2 species located on coastal dunes, coastal prairies, and coastal scrub. It blooms from May through September. Although there is coastal prairie within the park, there is no suitable habitat for this species within the project area. Therefore, Point Reyes horkelia will not be affected by implementation of the project.

Baker's goldfields (*Lasthenia marcantha* ssp. *bakeri*) – Baker's goldfields is a CNPS List 1B.2 perennial herb that blooms from April to October. It is found growing in closed-cone coniferous forests, coastal scrub, meadows and seeps, and marshes and swamps. Based on the presence of suitable habitat, this species has a potential to occur within the project area.

Coast Lily (*Lilium maritimum*) – Coast lily is a perennial bulbiferous herb, listed as a CNPS List 1B.1 species. This species blooms from May to August and is found growing in broadleaved upland forests, closed-cone coniferous forests, coastal prairies, coastal scrub, marshes and swamps, and north coast coniferous forests. There is a record for this species in Van Damme State Park near the proposed project area (DFG 2006a). Based upon the presence of suitable habitat, the species has a potential to occur in the project area.

Running-pine (*Lycopodium clavatum*) – This perennial rhizomatous herb is a CNPS List 2.3 species. Running-pine occurs in lower montane coniferous forest, marshes and swamps, and north coast coniferous forest. It blooms from June through August. This species has a potential to occur in the project area based on the presence of suitable habitat.

Northern microseris (*Microseris borealis*) – Northern microseris is a CNPS List 2.1 perennial herb that blooms from June through September. It occurs in bogs and fens, lower montane coniferous forest, and meadows and seeps. Although it is not known to occur in Van Damme State Park, northern microseris has the potential to occur in the project area based upon the presence of suitable habitat.

Leafy-stemmed miterwort (*Mitella caulenscens*) – Leafy-stemmed miterwort is a CNPS List 2.3 perennial rhizomatous herb that blooms from April through October. It occurs in broadleaved upland forests, lower montane coniferous forests, meadows and seeps, and north coast coniferous forests. There are two records for this species within Van Damme State Park (DFG 2006a). This plant is known to occur along the moist banks of Little River. Based upon previous surveys by DPR biologists, this species does not occur within the project area. Leafy-stemmed miterwort will therefore not be affected by project implementation.

Bolander's beach pine (*Pinus contorta* ssp. *bolanderi*) – This perennial evergreen tree is a CNPS List 1B.2 species. Bolander's beach pine is found growing in closed-cone coniferous forests. There are two records for this species within Van Damme State Park (DFG 2006a). Based upon the presence of suitable habitat, the species has a potential to occur in the project area.

North Coast semaphore grass (*Pleuropogon hooverianus*) – This perennial rhizomatous herb is a CNPS List 1B.1 species that is also listed as State Threatened. This grass blooms in April and is normally found growing in broadleaf upland forests, meadows and seeps, and north coast coniferous forests. Although this plant has not been found growing in Van Damme State Park, there is a potential for North Coast semaphore grass to occur in the project area based upon the presence of suitable habitat.

White beaked-rush (*Rhynchospora alba*) – This CNPS List 2.2 perennial rhizomatous herb blooms from July to August and is found in bogs and fens, meadows and seeps, and marshes and swamps. This species has a potential to occur in the project area based on the presence of suitable habitat.

Great burnet (*Sanguisorba officinalis*) – Great burnet is a CNPS List 2.2 perennial rhizomatous herb that occurs in bogs and fens, broadleaved upland forests, meadows and seeps, marshes and swamps, north coast coniferous forests, and riparian forests. This species

blooms from July through October. Based on the presence of suitable habitat, this species has a potential to occur within the project area.

Seacoast ragwort (*Senecio bolanderi* var. *bolanderi*) – This perennial rhizomatous herb is a CNPS List 2.2 species that blooms from June to July. As it is found growing in coastal scrub and north coast coniferous forests, there is a potential for seacoast grass to occur in the project area due to the presence of suitable habitat.

Maple-leaved checkerbloom (*Sidalcea malachroides*) – This CNPS List 1B.2 perennial herb, that occurs in broadleaved upland forests, coastal prairies, coastal scrub, north coast coniferous forests, and riparian woodlands. It blooms from April through July. This species has a potential to occur in the project area based on the presence of suitable habitat.

Siskiyou checkerbloom (*Sidalcea malviflora* ssp. *patula*) – Siskiyou checkerbloom is a CNPS List 1B.2 perennial rhizomatous herb that blooms from May to August. It occurs in coastal bluff scrub, coastal prairies, and north coast coniferous forests. Based on the presence of suitable habitat, this species has a potential to occur within the project area.

Purple-stemmed checkerbloom (*Sidalcea malviflora* ssp. *purpurea*) – Purple-stemmed checkerbloom is a CNPS List 1B.2 perennial rhizomatous herb found in broadleaved upland forests and coastal prairies. It blooms in May. Habitat for this species occurs adjacent to the project area, but there is no potential habitat for this species within the project area. Therefore, purple-stemmed checkerbloom will not be affected by project implementation.

McDonald's rock-cress (*Arabis macdonaldiana*) – This perennial herb is listed as Federal Endangered, State Endangered, and CNPS List 1B.1. McDonald's rock-cress blooms from May to July and is found growing in upper and lower montane coniferous forests in serpentine soils. Suitable habitat for the species does not occur within the project area. Therefore, this species will not be affected by project implementation.

Red Mountain buckwheat (*Eriogonum kelloggii*) – Red Mountain buckwheat is listed as a Federal Special Concern, State Endangered and CNPS List 1B.2 plant species. This perennial herb blooms from June to August and occurs in lower montane coniferous forests in serpentine soils. Suitable habitat for the species does not occur within the project area. Therefore, this species will not be affected by project implementation.

Burke's goldfields (*Lasthenia burkei*) – This annual herb is listed as a Federal Endangered, State Endangered, and CNPS List 1B.1 plant species. Burke's goldfields occur in meadows and seeps and vernal pools. This species blooms from April through June. Suitable habitat for the species does not occur within the project area. Therefore, Burke's goldfields will not be affected by project implementation.

Red Mountain stonecrop (*Sedum eastwoodiae*) – Red Mountain stonecrop is listed as a Federal Special Concern, and CNPS List 1B.2 plant species. This lower montane coniferous forest dweller is a perennial herb that blooms from May to July in serpentine soils. Suitable habitat for this species does not occur within the project area. Therefore, Red Mountain stonecrop will not be affected by project implementation.

Wildlife Species

Sensitive wildlife species that occur or could potentially occur on the proposed project site are listed in **Table Y**.

Invertebrates

Lotis Blue Butterfly (*Lycaeides anna lotis*) – Federal Endangered. Very little is known about the range and biology of this butterfly. In Mendocino County only three plant communities are likely used by the Lotis Blue. These communities are pygmy forest, coastal prairie, and sand dunes (Pratt 2003). Potential host plants for this species include *Lupinus latifolius*, *L. littoralis*, *L. Polycarpus*, *L. rivularis*, *Astragalus nuttallii*, and *Tirifolium wormskjoldii*. *Lotus formosissimus* is the likely food plant for the Lotis blue. There is a pygmy forest bog near the project area in Van Damme State Park that was surveyed in 2003. No lotis blue eggs, larvae, or adults were observed at the bog. Because of the lack of the potential food plant in the project area, it is highly unlikely that lotus blues would be impacted as a result of project implementation.

Behren's silverspot butterfly (*Speyeria zerene behrensi*) – Federal Endangered. The Behren's inhabits coastal terrace prairies where its larval food plant, *Viola adunca*, is found. Surveys for the lotis blue butterfly were performed in 2003 and 2004, and no lotis blues or Behren's silverspot butterflies were found (Pratt 2003, Pratt 2004). Habitat for this species does not occur within the project area; therefore no impacts to this species will occur as a result of project implementation.

Amphibians

Southern Seep (=Torrent) Salamander (*Rhyacotriton variegates*) – California Special Concern. Seep salamanders prefer cold permanent seeps and small streams with a rocky substrate in coast redwood, Douglas fir, mixed conifer, and montane forests. Impacts to the hydrology of seeps and streams due to development and timber harvest threaten this species. Seep salamanders have been documented in the Little River drainage of Van Damme State Park. Therefore, impacts could occur to this species as a result of project implementation.

Western Tailed Frog (*Ascaphus truei*) – California Special Concern. Tailed frogs are found in forested habitats including coastal redwood, Douglas fir, mixed conifer, and montane riparian. They are more commonly recorded in mature and old-growth stands with cold, well-shaded streams. Timber harvest and habitat modification in a manner that alters the temperature requirements for tailed frogs threaten this species. Tailed frogs have been documented in the Little River drainage of Van Damme State Park. Therefore, impacts could occur to this species as a result of project implementation.

Red-legged Frog (*Rana aurora*) – California Special Concern. A narrow zone of overlap exists in southern Mendocino County, California for two geographically contiguous subspecies (*aurora* and *draytonii*) of red-legged frogs. Frogs along the coast in the Walker Creek drainage, Marin County and south, are assumed to be *draytonii* and are therefore protected under the US Endangered Species Act, whereas all coastal frogs to the north of the Walker Creek

drainage, including Van Damme State Park, are a California Special Concern species. These frogs are found permanent or temporary water bordered by dense grassy or shrubby vegetation. Threats are attributed to habitat modification due to timber harvest and urban development, and bullfrog predation. Red-legged frogs are likely to occur in the project area; therefore, impacts could occur to this species as a result of project implementation.

Fish

Coho Salmon - Central California ESU (*Oncorhynchus kisutch*) – A Federal Threatened species that is dependent on freshwater and ocean environments. Within California, coho salmon historically ranged from the Oregon-California border south to the streams of northern Monterey Bay. Adult coho migrate from the ocean to spawn in streams with a gravel substrate. Juvenile coho rear in low-gradient streams, side channels, and estuaries prior to migrating to the ocean where they forage until they reach maturity. Threats include siltation and summer de-watering from agriculture. Coho have been documented in Little River; therefore project related instream work could impact this species.

Steelhead – Northern California Coast Steelhead ESU (*Oncorhynchus mykiss*) – Federal Threatened. The life history of steelhead is similar to that of coho although the migration and spawning times vary considerably among and within species and populations. Threats are attributed to agricultural water diversions and sediment deposition from previous logging. Steelhead are known to occur in Little River; therefore project related instream work could impact this species.

Birds

Marbled Murrelet (*Brachyramphus marmoratus*) – Federal Threatened and California State Endangered. The murrelet is a small seabird that flies inland to nest in coastal forests where it usually lays only one egg. Potential habitat is defined as mature and old-growth coniferous forests, and younger coniferous forests that have platform trees. Trees must have large limbs or deformities that provide nest platforms. A platform is a relatively flat surface at least four inches in diameter located in the live crown of a coniferous tree. Platforms can be bare or moss covered branches, tree deformities, or structures such as squirrel nests. In California, murrelets spend most of the time offshore foraging on small ocean fish and invertebrates. The main cause of population declines has been the loss of forest nesting habitat due to timber harvest. However, current threats also include other factors such as oil spills and predation of eggs by unnaturally high populations of Steller's jays (*Cyanocitta stelleri*) and common ravens (*Corvus corax*).

Although nesting murrelets have not been documented in Van Damme SP, they are known to nest in adjacent parks including Russian Gulch SP and Mendocino Woodlands SP. Suitable nesting habitat occurs within the ¼ mile of the upper portion of the trail proposed for rehabilitation. If present within ¼ mile of the project area, impacts could occur to marbled murrelet as a result of project implementation.

Northern Spotted Owl (*Striz occidentalis caurina*) – Federal Threatened. Spotted owls are found in many types and age-classes of forests, but prefer mature forests from British

Columbia to central California. They are a nocturnal hunter with a diet of small mammals, birds, reptiles, and insects. They nest in tree cavities or on platforms in larger trees. Males and females generally mate in February or March and lay two to three eggs in April or May. The spotted owl is threatened by loss and adverse modification of its habitat primarily due to timber harvesting. In addition, expanding populations of barred owls (*Strix varia*) have invaded many forest areas that were previously occupied by spotted owls. Habitat for this species occurs with the project site; therefore impacts could occur to spotted owls as a result of project implementation.

Tricolored Blackbird (*Agelaius tricolor*) - California Special Concern. This blackbird requires open water and a protected nesting substrate, which is usually either flooded or thorny vegetation. Tricolored blackbirds are highly colonial and prey on insects within a few kilometers of the colony. Nesting habitat for this species does not occur in the project area. Therefore, tricolored blackbird will not be affected by project implementation.

Bald Eagle (*Haliaeetus leucocephalus*) (**nesting and wintering**) – Federal Threatened and California Endangered. Bald eagles are also protected by the Bald and Golden Eagle Protection Act (BGEPA) and the Migratory Bird Treaty Act (MBTA). Bald eagle distribution varies seasonally. Most eagles that breed in Canada and the northern U.S. move south for the winter. In northern California eagles primarily feed on fish, however waterfowl also supplement their diet, especially in the winter. Eagles generally nest near coastlines, rivers, and large lakes or reservoirs with an adequate food supply. They nest in mature trees; snags; cliffs; and occasionally on human-made structures. Past threats to the bald eagle arose from the widespread use of DDT and other pesticides, and poisoning as a result of feeding on waterfowl containing lead shot. Current threats are attributed to loss of nesting habitat due to development. Bald eagle populations have been steadily increasing primarily due to habitat protection and a reduction in the levels of certain pesticides (including DDT) occurring in the environment. Currently the bald eagle is designated as threatened by U. S. Fish and Wildlife Service (USFWS), however because their populations have increased the FWS proposes to remove the bald eagle from the List of Threatened and Endangered species. If the federal Listing is removed, the bald eagle will still be protected by the BGEPA, the MBTA, and the current state listing as California Endangered.

Nesting and wintering habitat does not occur within the project area. Therefore, no impacts will occur to bald eagles as a result of project implementation.

Raptors: All raptors and their nests are protected under the Fish and Game Code (Section 3503.5). While there are currently no known raptor nests within the project area, some potential exists for raptor species to nest within or near the proposed project sites. The following sensitive raptor species may occur within the project area. **Cooper's hawk** (*Accipiter cooperi*) (**nesting**) – California Special Concern; **Northern harrier** (*Circus cyaneus*) (**nesting**) - California Special Concern; **White-tailed Kite** (*Elanus leucurus*) (**nesting**) – California Fully Protected; **Sharp-shinned Hawk** (*Accipiter striatus*) (**nesting**) – California Special Concern species; **Osprey** (*Pandion haliaetus*) (**nesting**) – California Special Concern; and **Northern goshawk** (*Accipiter gentilis*) (**nesting**) – California Special Concern. Impacts to these species could occur if the project is constructed during nesting season (February 1 through August 31) while active nests are within or near the project area.

Mammals

Red Tree Vole (*Arborimus pomo*) – California Special Concern. The red tree vole is an important prey species of the federally threatened northern spotted owl. Red tree voles live, nest, and feed on conifer needles within the forest canopy of coastal coniferous forests. Nests consist primarily of the resin ducts of fir needles, and fecal material. The major threats to this species are the continued loss of occupied sites due to logging and clearing trees for agriculture and development. Habitat for this species occurs within the project area; therefore impacts to the red tree vole could occur as a result of project implementation.

Sensitive Bat Species - Townsend's big-eared bat (*Corynorhinus townsendii*) and **Pallid bat** (*Antrozous pallidus*) –These bats are California Special Concern species that are found in a variety of habitats, including coniferous forests, and may roost in caves, rock crevices, or cavities of trees. No potential roosting habitat will be removed as a part of this project. Therefore, no impacts will occur to bat species as a result of project implementation.

Sensitive Plant Communities

Sensitive natural plant communities are communities that are especially diverse, regionally uncommon, or of special concern to local, state, and federal agencies. Removal or substantial degradation of these communities would constitute a significant adverse impact under CEQA. The CNDDDB record search produced a list of six sensitive plant communities for the Mendocino and Mathison Peak 7.5 USGS quadrangle map. One of these sensitive plant communities, Mendocino Pygmy Cypress Forest (= pygmy cypress series), is known to occur within Van Damme State Park adjacent to the proposed project area. Mendocino Pygmy Cypress Forest is described earlier in this section. Other sensitive plant communities found adjacent to the proposed project area, as described by "A Manual of California Vegetation", are the Bishop pine and red alder series (Sawyer and Keeler-Wolf 1995). All of these vegetation series contain forest components that provide valuable habitat for both common and special status wildlife species.

Wetland and Waters of the United States

The U.S. Army Corps of Engineers (USACE) defines wetlands as areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. The majority of USACE jurisdictional wetlands meet three wetland delineation criteria: (1) hydrophytic vegetation, (2) hydric soil types, and (3) wetland hydrology.

"Waters of the United States" is a term that applies to the jurisdictional limits of the authority of the USACE to regulate navigable waters under Section 404 of the Clean Water Act. Navigable waters are defined in Section 502(7) of the Act as "waters of the United States, including the territorial seas." By definition, navigable waters include all wetlands and tributaries to "waters of the United States." Under Section 404 of the Act the USACE has authority to regulate the discharge of dredged or fill materials into navigable waters. The authority for the USACE to regulate navigable waters is also provided under Section 10 of the Rivers and Harbors Act of

1899. Under this statute, the USACE regulates excavation or filling operations or the alteration or modification of the course, location, condition, or capacity of any navigable water of the United States.

A wetland and "Waters of the U.S." delineation has been conducted for this project and submitted to the USACE in 2006 for verification and determination of jurisdiction. Approximately 0.005 acres of potential jurisdictional wetlands and a total of approximately 160 linear feet of "Waters of the U.S." have been identified within the project area that may be affected by implementation of the project. Potential jurisdictional wetlands have been identified at the proposed seasonal bridge crossing over Little River at the intersection of the fire road and the Fern Canyon trail and adjacent to Little River in the vicinity of the Group Campground comfort station. There are several sites identified as "Waters of the U.S." within the project area, mostly at bridge and puncheon crossings along the Fern Canyon Trail.

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
a) Have a substantial adverse effect, either directly or through habitat modification, on any species identified as a sensitive, candidate, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands, as defined by §404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

- a) The Little River watershed provides both spawning and rearing habitat for **coho salmon** and **steelhead trout**. Two footbridges and their abutments will be replaced. Hand crews will perform in-stream work within Little River to remove one existing footbridge and its concrete abutments, and install a new bridge approximately 200 feet upstream from its present trail location. Another existing footbridge, including abutments, with a sewer line attachment will be replaced with a 38-foot bridge set on a wood foundation. It will continue to have the sewer line attached to its downstream side. To avoid potential impacts to steelhead and coho the following measures shall be implemented to reduce the potential impacts to a less than significant level.

MITIGATION MEASURE BIO-1 COHO SALMON AND STEELHEAD TROUT

- To avoid potential impacts to steelhead and coho, demolition and construction work within the stream shall be limited to the period between June 1 and November 1, or until the first significant rainfall.
- If it is necessary to divert water, a DFG- and USFWS-approved biologist shall implement measures (slope protection, fish screens, temporary cofferdams, etc.) to rescue fish within the work site prior to dewatering.
- To the maximum extent possible, concrete shall be broken up outside of the stream channel.
- Silt fencing, straw wattles, or other approved forms of sediment entrapments shall be installed to insure that no silt, soil or debris enters the stream.

Southern seep salamanders have been documented in the Little River drainage of Van Damme State Park. Five trail bridges from 14 to 36 feet in length are to be replaced along the upper loop trail portion of the Fern Canyon Trail. In addition, some puncheon (small bridges 10 to 16 feet long) replacements sites and trail rehabilitation sites are in areas where salamanders could be impacted. At least one natural seep has been identified along the bank of the trail near a puncheon replacement site (at approximately 7156 feet, Trail Work Log). Through consultation with the California Department of Fish and Game (Valentine 2006), the following avoidance measures were prepared to reduce project-related impacts to southern seep salamanders to a less than significant level.

MITIGATION MEASURE BIO-2 SOUTHERN SEEP (TORRENT) SALAMANDER

- Where possible, relocated stream crossings shall avoid suitable habitat for sensitive amphibian species.
- A DPR-qualified biologist shall monitor all potential southern torrent salamander habitat sites during construction.
- Any southern torrent salamanders found within the work zone shall be moved by a qualified biologist to a safe location upstream or downstream of the work site, prior to construction.

Marbled murrelet. The upper loop portion of the Fern Canyon trail has platform trees within ¼ mile of the project area. During the breeding season (March 24 through September 15), marbled murrelets could nest within ¼ mile of project sites. In addition, tree removal or trimming is proposed along the trail and trail reroute. A few small trees may also be trimmed or removed for the trail reroute. The following avoidance measures will prevent the disturbance or loss of active nests and reduce project-related impacts to nesting murrelets to a less than significant level.

CONDITION BIO-3 (MARBLED MURRELET)
<ul style="list-style-type: none"> ▪ No project construction-related activities shall occur during the breeding season (March 24 through September 15) to avoid direct or indirect (noise) take of Marbled Murrelets. ▪ All construction related activities shall not begin until 2 hours after sunrise and shall cease 2 hours before sunset. ▪ No trees greater than 12 inches dbh shall be removed as a result of this project. ▪ All tree removal work will occur between September 15 and February 1 to protect nesting birds. ▪ All construction personnel will be instructed by a DPR-qualified biologist in the life history of the marbled murrelet and its habitat.

Northern spotted owl and Raptors. Although spotted owls have not been detected in Van Damme State Park during previous surveys, habitat for this species occurs throughout the project area. In addition, there is suitable nesting habitat for other raptors within the project area. Without protocol level surveys, we will proceed as though they are present and incorporate the following avoidance measures to prevent the disturbance or loss of active nests and reduce project-related impacts to potential nesting northern spotted owls and raptors to a less than significant level.

CONDITION BIO-4 (NORTHERN SPOTTED OWL AND OTHER RAPTORS)
<ul style="list-style-type: none"> ▪ No project construction-related activities shall occur during the breeding season (February 1 through August 31) to avoid direct or indirect (noise) take of northern spotted owls and other raptors. ▪ All construction related activities shall not begin until 2 hours after sunrise and shall cease 2 hours before sunset. ▪ No trees greater than 12 inches dbh shall be removed as a result of this project. ▪ All tree removal work will occur between September 15 and February 1 to protect nesting birds.

Red tree vole. Although no red tree vole nests were observed during site visits, it is possible that they could be encountered at the trail reroute work site. To avoid potential impacts to red tree vole the following measures will be implemented to reduce potential impacts to a less than significant level.

CONDITION BIO-5 (RED TREE VOLE)
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- No trees greater than 12 inches dbh shall be removed as a result of this project.
- All trees to be trimmed or removed shall be inspected by a DPR-qualified biologist for the presence of red tree vole nests prior to tree trimming or removal work.
- Any red tree vole nests encountered at a work site shall be flagged and avoided during construction.

California red-legged frogs are likely to move through the project area and could be impacted during project implementation. Implementation of the following mitigation measures would reduce potential impacts to red-legged frogs to a less than significant level.

MITIGATION MEASURE BIO-6 (CALIFORNIA RED-LEGGED FROG)

- In areas where vehicles or heavy equipment may be used, a DPR-qualified biologist will conduct a visual inspection of the construction zone, immediately prior to the start of work each morning.
- If a red-legged frog is found, start of work at that project site would be delayed until the species moves out of the site on its own accord, or is temporarily relocated by a DPR-approved biologist.
- Project excavations will be covered at night with plastic, or another approved method that prevents animals from being trapped.

Sensitive plant species. There are four CNPS List 1B or List 2 species that have reported occurrences within Van Damme State Park adjacent to the proposed project area (DFG 2006a). These are pygmy cypress, coast lily, leafy-stemmed mitrewort, and Bolander's beach pine. Eighteen additional plant species have the potential to occur within the project area. Those are pygmy manzanita, Humboldt milk-vetch, small groundcone, swamp harebell, California sedge, lakeshore sedge, deceiving sedge, Mendocino coast Indian paintbrush, coast fawn lily, Baker's goldfields, running-pine, northern microseris, North Coast semaphore grass, white-beaked rush, great burnet, seacoast ragwort, maple-leaved checkerbloom, and Siskiyou checkerbloom. Two species are listed by the State of California, Humboldt milk-vetch is listed as State Endangered and North Coast semaphore grass is listed as State Threatened. Marginal to potentially suitable habitat exists within or adjacent to the project area for the above listed species. Based upon plant surveys conducted by a DPR-qualified biologist in 2005, there are no sensitive plant species within the project area.

- b) **Sensitive Plant Communities.** Bishop pine, pygmy cypress, and red alder series are sensitive natural plant communities that occur within the project footprint. It is not anticipated that the proposed project will create significant impacts to these plant communities. However, excavation activities could damage the roots of mature native trees. Implementation of the following mitigation measure would reduce impacts to a less than significant level.

CONDITION BIO-7 SENSITIVE NATURAL COMMUNITIES

- No roots with a diameter of one inch or greater within the root health zone (5 times dbh (diameter at breast height) of any native tree with a dbh of 12 inches or greater will be cut.

c) Wetlands and Waters of the United States.

A wetland and “Waters of the U.S.” delineation has been conducted for this project and a report submitted to the USACE in 2006 for verification and determination of jurisdiction. The delineation identifies approximately 0.005 acres of potential jurisdictional wetlands and a total of approximately 160 linear feet of “Waters of the U.S.” within the project area that may be affected by implementation of the project. The Department has had preliminary discussions with the USACE regarding this project and the USACE has indicated that the project would most likely qualify under a Section 404 Nationwide permit.

CONDITION BIO-8 WETLANDS

- The Department will obtain a Section 404 permit if directed to do so by the USACE.

d) Coho and Steelhead are Federal Endangered Species. These anadromous salmonids occur in Little River and may occur within the project area. Potential significant impacts to coho and steelhead could occur from project work occurring within the bed of streams occupied by coho or steelhead. Implementation of Mitigation Measure BIO-1 AND PROJECT CONDITION BIO-8 above would reduce any potential impacts to coho and steelhead to a less than significant level.

e,f) This project does not conflict with any local ordinances, adopted conservation plans, or policies.

Table X. List of Special Status Plant Species Known to Occur or Potentially Occurring Near Van Damme State Park

Scientific Names	Common Names	CNPS ³	State	Federal
<i>Abronia umbellata</i> ssp. <i>breviflora</i> ¹	pink sand-verbena	List 1B.1	None	None
<i>Agrostis blasdalei</i>	Blasdale's bent grass	List 1B.2	None	None
<i>Arctostaphylos mendocinoensis</i> ²	pygmy manzanita	List 1B.2	None	None
<i>Astragalus agnicidus</i> ²	Humboldt milk-vetch	List 1B.1	SE	None
<i>Blennosperma nanum</i> var. <i>robustum</i>	Point Reyes blennosperma	List 1B.2	SR	None
<i>Boschniakia hookeri</i> ²	small groundcone	List 2.3	None	None
<i>Calamagrostis crassiglumis</i>	Thurber's reed grass	List 2.1	None	None
<i>Calystegia purpurata</i> ssp. <i>saxicola</i>	coastal bluff morning-glory	List 1B.2	None	None
<i>Campanula californica</i> ²	swamp harebell	List 1B.2	None	None
<i>Carex californica</i> ²	California sedge	List 2.3	None	None
<i>Carex lenticularis</i> var. <i>limnophila</i> ²	lakeshore sedge	List 2.2	None	None
<i>Carex livida</i>	livid sedge	List 1A	None	None

Table X. List of Special Status Plant Species Known to Occur or Potentially Occurring Near Van Damme State Park (continued)

Scientific Names	Common Names	CNPS ³	State	Federal
<i>Carex lyngbyei</i>	Lyngbye's sedge	List 2.2	None	None
<i>Carex saliniformis</i> ²	deceiving sedge	List 1B.2	None	None
<i>Castilleja affinis</i> ssp. <i>litoralis</i>	Oregon coast Indian paintbrush	List 2.2	None	None
<i>Castilleja ambigua</i> ssp. <i>humboldtiensis</i>	Humboldt Bay owl's-clover	List 1B.2	None	None
<i>Castilleja mendocinensis</i> ²	Mendocino coast Indian paintbrush	List 1B.2	None	None
<i>Chorizanthe howellii</i>	Howell's spineflower	List 1B.2	ST	FE
<i>Clarkia amoena</i> ssp. <i>whitneyi</i>	Whitney's farewell-to-spring	List 1B.1	None	None
<i>Collinsia corymbosa</i>	round-headed chinese houses	List 1B.2	None	None
<i>Cupressus goveniana</i> ssp. <i>pigmaea</i> ^{1, 2}	pygmy cypress	List 1B.2	None	None
<i>Erigeron supplex</i> ¹	supple daisy	List 1B.2	None	None
<i>Erysimum menziesii</i> ssp. <i>menziesii</i>	Menzies' wallflower	List 1B.1	SE	FE
<i>Erythronium revolutum</i> ²	coast fawn lily	List 2.2	None	None
<i>Fritillaria roderickii</i>	Roderick's fritillary	List 1B.1	SE	None
<i>Gilia capitata</i> ssp. <i>pacifica</i>	Pacific gilia	List 1B.2	None	None
<i>Gilia millefoliata</i>	dark-eyed gilia	List 1B.2	None	None
<i>Hemizonia congesta</i> ssp. <i>leucocephala</i>	Hayfield tarplant	List 3	None	None
<i>Hesperervax sparsiflora</i> var. <i>brevifolia</i>	short-leaved evax	List 2.2	None	None
<i>Horkelia marinensis</i>	Point Reyes horkelia	List 1B.2	None	None
<i>Juncus supiniformis</i>	hair-leaved rush	List 2.2	None	None
<i>Lasthenia macrantha</i> ssp. <i>bakeri</i> ²	Baker's goldfields	List 1B.2	None	None
<i>Lasthenia macrantha</i> ssp. <i>macrantha</i>	perennial goldfields	List 1B.2	None	None
<i>Lilium maritimum</i> ^{1, 2}	coast lily	List 1B.1	None	None
<i>Lycopodium clavatum</i> ²	running-pine	List 2.3	None	None
<i>Microseris borealis</i> ²	northern microseris	List 2.1	None	None
<i>Mitella caulescens</i> ^{1, 2}	leafy-stemmed mitrewort	List 2.3	None	None
<i>Phacelia insularis</i> var. <i>continentis</i>	North Coast phacelia	List 1B.2	None	None
<i>Pinus contorta</i> ssp. <i>bolanderi</i> ^{1, 2}	Bolander's beach pine	List 1B.2	None	None
<i>Pleuropogon hooverianus</i> ²	North Coast semaphore grass	List 1B.1	ST	None
<i>Puccinellia pumila</i>	dwarf alkali grass	List 2.2	None	None
<i>Rhynchospora alba</i> ²	white beaked-rush	List 2.2	None	None
<i>Sanguisorba officinalis</i> ²	great burnet	List 2.2	None	None
<i>Senecio bolanderi</i> var. <i>bolanderi</i> ²	seacoast ragwort	List 2.2	None	None
<i>Sidalcea calycosa</i> ssp. <i>rhizomata</i>	Point Reyes checkerbloom	List 1B.2	None	None
<i>Sidalcea malachroides</i> ²	maple-leaved checkerbloom	List 1B.2	None	None
<i>Sidalcea malviflora</i> ssp. <i>patula</i> ²	Siskiyou checkerbloom	List 1B.2	None	None
<i>Sidalcea malviflora</i> ssp. <i>purpurea</i>	purple-stemmed checkerbloom	List 1B.2	None	None
<i>Triquetrella californica</i>	coastal triquetrella	List 1B.2	None	None
<i>Viola palustris</i>	marsh violet	List 2.2	None	None

¹Known to occur in the Park

²Special status species potentially impacted by implementation of proposed action.

³ California Native Plant Society (CNPS) Lists: List 1A = presumed extinct in California; List 1B = rare or endangered in California and elsewhere; List 2 = rare or endangered in California, more common elsewhere; List 3 = need more information; List 4 = plants of limited distribution. New threat code extensions are: .1 = seriously endangered in California; .2 = fairly endangered in California; and .3 not very endangered in California.

SE State Endangered
 ST State Threatened
 SR State Rare
 FE Federally Endangered
 FSC Federal Special Concern

Table Y. List of Special Status Wildlife Species Known to Occur or Potentially Occurring Near Van Damme State Park

Type	Common Name	Scientific Name	Status
Invertebrates	Behren's silverspot butterfly	<i>Speyeria zerene behrensii</i>	FE
	lotis blue butterfly	<i>Plebejus idas lotis</i> (syn. <i>Lycaeides argyrognomon lotis</i>)	FE
Fish	CA coastal chinook salmon	<i>Oncorhynchus tshawytscha</i>	FT
	central CA coast coho salmon ^{1,2}	<i>Oncorhynchus kisutch</i>	FE, SE
	Northern California steelhead ^{1,2}	<i>Oncorhynchus mykiss</i>	FT, CSC
Amphibians	red legged frog ^{1,2}	<i>Rana aurora</i>	CSC
	southern torrent salamander ^{1,2}	<i>Rhyacotriton variegatus</i>	CSC
	western tail frog ^{1,2}	<i>Ascaphus truei</i>	CSC
Birds	bald eagle	<i>Haliaeetus leucocephalus</i>	FT, SE
	golden eagle	<i>Aquila chrysaetos</i>	CSC
	marbled murrelet ²	<i>Brachyramphus marmoratus</i>	FT, SE
	northern spotted owl ²	<i>Strix occidentalis caurina</i>	FT
	osprey	<i>Pandion haliaetus</i>	CSC
	tricolored blackbird	<i>Agelaius tricolor</i>	CSC
	western snowy plover	<i>Charadrius alexandrinus nivosus</i>	FT, CSC
Mammals	Western yellow-billed cuckoo	<i>Coccyzus americanus</i>	FSC, SE
	Pallid bat	<i>Antrozous pallidus</i>	CSC
	red tree vole ²	<i>Arborimus pomo</i>	CSC
	Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	CSC

¹Known to occur in the Park ²Special status species potentially impacted by implementation of proposed action.

SE State Endangered
 ST State Threatened
 FE Federally Endangered
 FT Federally Threatened
 FSC Federal Special Concern
 CSC California Special Concern

V. CULTURAL RESOURCES

ENVIRONMENTAL SETTING

Van Damme State Park is located approximately three miles south of the town of Mendocino, straddling State Route 1 (SR 1) on the Mendocino coast. This 2,170 acre park is comprised primarily of upland forests which extend three miles inland through the Little River watershed. The Park's acreage is not contiguous. Additional properties include two parcels located north of the beach and west of the highway and consist of open grassland terraces. Another 80 acre parcel is located 2.5 miles south of the entrance and east of SR 1 at Dark Gulch. Twenty acres of tidal and ocean bottom are leased from the State Lands Commission (DPR 1995).

The park is ecologically diverse, composed of marine and tidal environments as well as grasslands on the terrace, riparian corridors, and coastal forest. The topography and natural resources throughout the park provided an ideal setting for both prehistoric and historic activities. Prehistorically, the area was ideal for occupation and resource procurement, evidenced through the archaeological remains including shell middens. Historically the area supported similar activities including logging, campground development and shipping. Evidence of these activities includes logging features, features and structures associated with the Civilian Conservation Corps (CCC) campground development era, and a former shipyard.

Five shell midden sites have been recorded in the park; however, these sites are located on the coastal bluff and well outside the project area. A former village site mentioned in reports from the late 1800s no longer exists. The site was reportedly located on Little River and subsequently covered or destroyed by the mill pond. All documented prehistoric archaeological resources in the Park are situated outside the Area of Potential Effects (APE) for the proposed project. The Van Damme State Park General Plan reports that no prehistoric sites were found in surveyed areas of the redwood forest in Fern Canyon or in the Mendocino pygmy cypress forest lands on the terraces surrounding it (DPR 1995). Earlier archaeological studies in the park as well as the current investigation support these findings. Historic-era features in the park are primarily related to historic logging activities or the CCC. Most of these features are located outside the APE. The proposed project has been designed to avoid adverse effects on the single historic-era feature in the APE, a low-water ford which will be left in place and spanned by a footbridge.

To date, no sites located in the park have been officially nominated for inclusion on the National Register of Historic Places (NRHP) or the California Register of Historic Resources (CRHR). Until an official determination of significance is made in consultation with the California State Historic Preservation Officer, all cultural resources in the park and more specifically the APE will be treated as potentially eligible for the NRHP and CRHR.

Historic Resources

In 1850, the sinking of the *Frolic* off the coast of nearby Point Cabrillo and the subsequent discovery of the stands of redwoods as a source for lumber, led to the start of the lumber industry in the area. The first sawmill opened on Big River in 1852 and soon expanded throughout the area, eventually reaching Little River in 1863.

Silas Coombs, Ruel Stickney, Tapping Reeves, Isaiah Stevens, and Charles Pullen formed a partnership and established the Little River Mill. Coombs and Stickney had worked for the Albion Mill before deciding to start their own enterprise at the Little River settlement. The mill, constructed by Pullen, was steam powered, employed 50 men, and had a capacity of 25,000 board feet per day. The original mill burned down in 1874 and a new mill of similar capacity was quickly built across the river from the location of the original. Through the decades the partnerships behind the ownership of the mill changed until by 1883, Silas Coombs was the sole owner of the mill and all the lands located to the south of the mill. Dwindling timber reserves and the panic of 1893 spelled the end of the operations and Coombs closed the mill in 1894. Silas Coombs passed away the following year (DPR 1995).

In 1928, Charles F. Van Damme purchased approximately 40 acres from the heirs of Silas Coombs and other residents of the area. Van Damme had been born in Little River but had left to make his fortune in San Francisco with the Richmond-San Rafael Ferry. Upon his retirement he returned to Little River to purchase land for a picnic and camping area for the general public. Van Damme died in 1930, and in his will he bequeathed the land to the State for use as a park. In 1933, to add to Van Damme's property, the State acquired much of the upper Little River drainage from Coomb's heirs. Van Damme State Park officially opened to the public in 1934 due mainly to the efforts of the local Civilian Conservation Corps (DPR 1995).

Franklin D. Roosevelt created the Civilian Conservation Corps (CCC) as part of his New Deal economic recovery programs. The CCC employed young men between the ages of 18 and 23 who were assigned to various work camps throughout the United States. In California alone, between 1932 and 1941 the CCC constructed over 1,500 buildings and structures in the state park system.

Between October 1935 and 1940, CCC companies moved into Camp Russian Gulch on the Mendocino Coast and due to its close proximity to Van Damme, these CCC companies provided the manpower behind the improvements made at Van Damme SP as well. Companies 572, 1998 and 5448 built a new access road, rehabilitated Van Damme's original campground and picnic area, built a water system to serve the park and constructed a park staff residence and a community recreation hall now used as a visitor's center. In 1937 they added a three and one-half mile road up the canyon that crossed the river over two bridges. In 1940 another group from the CCC added nine stone and concrete fords, seven of which were removed in the 1990s.

Prehistoric Archaeological Resources

On the Mendocino Coast human presence extends back approximately 11,000 years; however, only the last 3,000 years are relatively well defined in the archaeological record. The record suggests that during the later period earlier inhabitants were gradually replaced by the Pomo Indians. Subsistence was based on hunting and gathering of wild foods, and involved a wide variety of plant and animal species that included periodic visits to the coast from the interior for the procurement of resources (food and material) associated with a marine economy.

The information compiled from the record search/literature review indicates prehistoric land use patterns at Van Damme SP are consistent with other findings along the Mendocino Coast. Five prehistoric archaeological sites have been identified within the Park. These sites (CA-MEN-1089, MEN-2283, MEN-2284, MEN-2285, MEN-2287) are located along the coastal bluffs extending north of the Little River and reflect a marine economy with the primary focus on the procurement and processing of shellfish. A former village site reported in the 1800s was located along Little River but was destroyed or covered by the construction and eventual silting in of a mill pond associated with logging activities in the area (DPR 1995). None of these previously recorded sites are located within the APE. Additionally, the proposed project activities located in the lower reaches of Little River will not impact buried archaeological deposits because ground disruption will be limited to previously disturbed areas of fill material.

Historic Archaeological Resources

The General Plan identifies at least three surviving features from the Little River sawmill era consisting of the remnants of the log dams that formed the mill pond (DPR 1995). Local historian Francis Jackson identified the most significant of these as the “Middle Dam” of the Little River logging operation. The remains of this feature are located four miles upstream from the river mouth and consist of only the lowest courses of logs which once formed a crib-dam composed of redwood logs 30 feet high, 20 feet deep, and 100 feet wide. The second feature consists of a log retaining wall (wing dam) situated along the north side of the river below the Ranger Residence. This feature was designed to divert logs to a desired direction in swiftly flowing water. The third feature is on the opposite side of the river and consists of the remnants of another log retaining wall aligned perpendicular to the preceding one. This feature separated the mill pond from the boom and was part of the “Upper Low Dam.” Additionally, the silting of the mill pond may have buried other logging related features or they may survive in now-overgrown areas in the eastern portion of the park. Buried features associated with the Randlett House or the Peterson Shipyard may also exist in the park; however, either by design or location this project will not impact these features.

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
a) Cause a substantial adverse change in the significance of a historical resource, as defined in §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource, pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

- a) The existing CCC buildings located in Van Damme SP, the park visitor's center and Residence #7, will not be impacted as they are outside the scope of this project. The remaining intact CCC Ford #9 will not be adversely impacted because the proposed bridge spans the ford and any associated bridge supports will be placed on the road. The campsites to be removed from the river's edge do not contain CCC campground furniture. There will be no impact to historic campground furniture.

The ramada proposed for construction is based upon a design utilized by State Parks in the 1950s. The 1950s design was chosen for its simplicity and will clearly be seen as a modern addition to the park, compatible with existing mid-20th century structures such as the nearby comfort station. The materials used in its construction will be modern as well, while in keeping with the natural environment as described in the Aesthetics section, above. As designed, the project will have no adverse impact on historic resources.

- b) A record search, previous archaeological investigations, and a current survey indicate that no known archaeological resources will be impacted by this project. All previously recorded sites are located west of SR 1 (out of the project area) and will be avoided by location. Additionally, the APE was surveyed for cultural resources by a DPR archaeologist for this project and no new cultural resources were discovered. However, because of the natural ambiguity of archaeological resources (often located below the surface) and obscured ground visibility due to vegetation, the full extent of the cultural resources may not be known. Ground-disturbing activities proposed as part of the project could significantly impact unknown archaeological deposits in the APE. Implementation of the following mitigation measures will reduce impacts to previously unidentified archaeological sites and features to a less than significant level:

MITIGATION MEASURE CULT-1 (INADVERTENT DISCOVERY)
<ul style="list-style-type: none">▪ In the event that previously unknown cultural resources (including but not limited to dark soil containing shellfish, bone, flaked stone, groundstone, or deposits of historic trash) are encountered during project construction by anyone, the state representative shall put work on hold at the specific location and contractors shall be redirected to other tasks. A DPR-qualified archaeologist will record and evaluate any such find and work with State Representative to implement avoidance, preservation, or recovery measures as appropriate prior to any work resuming at that specific location.▪ In the event that significant cultural resources are identified in the Area of Potential Effects, a qualified historian, archaeologist, and /or Native American representative (if appropriate) will monitor all subsurface work including trenching, grading, and excavation in that area.

- c) No burials have been documented or recorded in the APE; however, there is always a potential for unanticipated discoveries of human bone. If any human remains or burial artifacts were identified, the following measures shall be implemented to reduce the level of impact:

MITIGATION MEASURE CULT-2 (HUMAN REMAINS)

- In the event that human remains are discovered, work will cease immediately in the area of the find and the project manager/site supervisor will notify the appropriate DPR personnel. Any human remains and/or funerary objects will be left in place. The DPR Sector Superintendent (or authorized representative) will notify the Mendocino County Coroner, in accordance with §7050.5 of the California Health and Safety Code, and the Native American Heritage Commission (NAHC) will be notified within 24 hours of the discovery if the Coroner determines that the remains are Native American. The NAHC will designate the “Most Likely Descendant” (MLD) of the deceased Native American. The MLD will recommend an appropriate disposition of the remains. If a Native American monitor is on-site at the time of the discovery and that person has been designated the MLD by the NAHC, the monitor will make the recommendation of the appropriate disposition.
- If it is determined the find indicates a sacred or religious site, the site will be avoided to the maximum extent practicable. Formal consultation with the State Historic Preservation Officer and review by the Native American Heritage Commission/Tribal Cultural representatives would also occur as necessary to define additional site mitigation or future restrictions.

VI. GEOLOGY AND SOILS

ENVIRONMENTAL SETTING

GEOLOGY

Van Damme State Park is in the coastal zone of the northern Coast Ranges geomorphic province and is comprised of gently sloping marine terraces on the west and heavily wooded ridges on the east. Both ridge line and terrace have been dissected by local rivers and streams that have cut steep valleys along their courses westward out of the mountains towards the sea.

The oldest rocks in the region are the Cretaceous age (135 to 65 million years) sandstone, shale, conglomerate, and volcanic rock of the Franciscan Complex coastal belt. The coastal belt lies east of the San Andreas fault and extends along the coast from the Point Arena area at Alder Creek north to Cape Mendocino. The largely marine sedimentary rocks have a northwesterly trend and generally dip to the east. The younger marine terrace deposits are less than 1.6 million years old and consist of weakly cemented sands, gravels, and some finer-grained materials (Mendocino County 2003), essentially old beach deposits that have been uplifted.

In a plate tectonic setting, the Farallon plate lay between the converging Pacific and North American plates during the Cretaceous, and was being forced under (subducted) the western margin of the North American plate. During this time most of coastal Mendocino County was part of a continental marine shelf, slope, and trench laying near the Farallon plate subduction zone offshore an ancestral California coastline. For more than 60 million years, until the Farallon plate was completely subducted beneath the North American plate, sediments accumulating in the trench were scraped from the Farallon plate and forcibly attached to the continental margin to later become the Franciscan Complex rocks.

Coastal erosion is primarily from wave-action along bedding planes, joints, and fractures in the Franciscan Complex rocks. Wave energy works upon these zones of weakness, gradually widening them to form surge channels and sea caves in the cliffs. As wave and surge continuously pluck at soft and weakened rocks, sea caves and channels collapse and the connection with the mainland is finally lost. The erosional remnants are left behind as rock sea stacks, isolated from shore and marking the steady retreat of the coastline.

Along the coastal margin, the Franciscan Complex has been cut by wave-action into a series of nearly level erosional terraces that stair-step upward with increasing age to the east. Remnants of the terraces can be seen along nearly the entire Mendocino coastline, but where best-preserved, the terraces ascend from steep rocky cliffs at the ocean's edge to gently sloping uplands in a series of five steps starting from sea level and reaching a maximum elevation at 650 feet. In Van Damme State Park the terraces are best seen along the coastal headlands. Throughout the rest of the unit the terraces have been obscured by erosion and a heavy cloak of vegetation. The terraces reflect fluctuating sea levels superimposed upon relatively slow and steady coastal uplift.

During the mid-Pleistocene, changes in global climate initiated a period of first freezing and then melting of glacial ice that alternately lowered and raised sea levels. During periods of freezing, water was locked in glacial ice and sea levels dropped, forming the first terrace by stranding the erosional platform and its mantle of debris above sea level. As glacial ice melted, rising sea levels eroded vertical sea cliffs and debris accumulated on the newly cut erosional surface that would later become a marine terrace with the next episode of uplift and sea level retreat. The light colored terrace deposits overlaying the dark gray Franciscan Complex rocks are readily seen wherever erosion and exposure coincide to provide a cross-sectional view of the coastline.

Seismicity

No major faults are known to exist in Van Damme State Park; however, the trace of the active San Andreas fault zone lies just 5 miles offshore (Jennings 1994). About 75 miles to the northwest, the San Andreas Fault terminates at the Mendocino Triple Junction, a point where three tectonic plates (the Gorda, North American and Pacific plates) meet. This area, known as the Cascadia Subduction Zone, is the most seismically active area in the continental United States. The Cascadia Subduction Zone is capable of generating an earthquake with a Maximum Moment Magnitude of 8.3 (Petersen *et al*, 1996). Other active faults of the Maacama Fault Zone are located approximately 25 miles to the east near Willits (Jennings 1994). The San Andreas fault is the most probable source of earthquake shaking in Van Damme State Park. During the 8.3 Richter magnitude earthquake centered on the San Andreas fault in Marin County in 1906, structural damage ranged from relatively minor, in the town of Mendocino to quite severe, 8 miles north in Fort Bragg.

Population of the entire area has grown significantly since 1906, and a magnitude 8+ earthquake centered along this segment of the San Andreas fault and specifically at the Mendocino triple junction, could cause considerable damage. Earthquake effects would probably include local landslides in the steep-sided canyon of Little River, liquefaction and settlement of structures located on beach deposits and along the Little River floodplain, and local tsunami inundation at the mouth of Little River and along the coast.

SOILS

Although most of the Mendocino Coast is underlain by sandstone and shale of the Franciscan Complex, soils of the region are derived mainly from unconsolidated marine deposits or alluvium. Grazing, timber production, and recreation are the primary land uses on these soil types in the region. The variability of the soils is best explained by the dynamic geologic history of the area. Uplift of marine sedimentary formations, sea level changes, a large complex of active faults, climatic changes, and differences in vegetative cover have resulted in localized differences in soil-forming factors (parent material, relief, climate, biota, and time).

The more common soils near the coast are prairie-like with dark color, high organic content, and low pH. Ancient and impoverished soils called *podzols* are found on the upper terraces. These soils are extremely acidic, have very low fertility, and often feature a hardpan; characteristics that account for the dwarfed vegetation called Mendocino pygmy cypress forest.

Five soil types have been mapped within the project area by the Natural Resources Conservation Service (USDA 2006). These soils are Vandamme-Irmulco-Tramway complex, 50 to 75 percent slopes; Tropaquepts, 0 to 15 percent slopes; Shinglemill-Gibney complex, 2 to 9 percent slopes; Quinliven-Ferncreek complex, 2 to 15 percent slopes; and Caspar-Quinliven-Ferncreek complex, 9 to 30 percent slopes.

Starting at the Pygmy Forest parking lot, the upper loop of the Fern Canyon Trail occurs within the Shinglemill-Gibney complex soil mapping unit. The Shinglemill and Gibney soils are loams to sandy and clayey loams that formed in marine sediments. They are very deep, have slow permeability, and slow or medium surface runoff. There is a slight or moderate erosion hazard if the surface is bare. Shinglemill soils are poorly drained and the Gibney soils are somewhat poorly drained. Both soils are seasonally saturated with ponding occurring during the wet season. The NRCS has rated the limitations for trail development on Shinglemill soil as moderate and slight for the Gibney soil. The corresponding vegetation on these soils is a very open forest of small trees and shrubs, mostly pygmy cypress, Bishop pine, Bolander's pine, bracken fern, manzanita, and California huckleberry.

After a few hundred feet the Upper Trail loop crosses into the Quinliven-Ferncreek complex soil mapping unit. Like the preceding soil, this soil type formed in marine sediments and consists of loams to sandy loams or clay loam. Quinliven and Ferncreek soils are very deep, have slow permeability, and slow or medium surface runoff. There is a slight or moderate erosion hazard if the surface is bare. Quinliven soils are moderately well drained, whereas the Ferncreek soils are somewhat poorly drained. Both soils are seasonally saturated with ponding occurring during the wet season. The NRCS has rated the limitations for trail development on Quinliven soils as severe because it erodes easily. The Ferncreek soils are rated as a slight limitation for trail development. This soil mapping unit supports tree-dominated vegetation with a canopy of primarily redwood and Douglas fir.

As the trail descends into the canyon of the Little River it traverses steeper slopes mapped as Caspar-Quinliven-Ferncreek complex, 9 to 30 percent slopes. These sandy loam to loam soils occur on the shoulders of marine terraces and have formed in marine sediments. Caspar soils are well drained, but have a moderately slow permeability and medium or rapid surface runoff. Soil depth, drainage, surface runoff, and permeability characteristics for Quinliven and Ferncreek soils are described above. For all three soils there is a moderate erosion hazard if the surface is bare. The Caspar and Ferncreek soils are rated as a moderate limitation for trail development due to slope. The Quinliven soils have a severe rating because they erode easily. The forest on this soil type is dominated by redwood and Douglas-fir.

Most of the approximately 2.5 miles of the Upper Trail loop occurs in the Vandamme-Irmulco-Tramway complex soil mapping unit. These loam to clay loam soils have formed in material derived predominantly from sandstone. The Vandamme and Irmulco soils are deep and well drained. Tramway soils are moderately deep and well drained. Permeability is moderately slow for the Vandamme soil and moderate for Irmulco and Tramway soils. For all three soils, surface runoff is very rapid and there is a severe erosion hazard if the surface is bare. Due to steep slopes, there are severe limitations for trail development on all three soils. Vegetation on this soil type is a typical redwood forest.

The Tropaquepts soil mapping unit occurs in the Group Camp portion of the project. These very deep, very poorly drained soils, ranging from clay loam to loamy sand and sand, have formed in marine sediments and generally occur on marine terraces. Permeability is extremely variable, and water may pond on the surface for brief or long periods after heavy rainfall events. Surface runoff varies from ponded to medium, and there is a slight or moderate erosion hazard if the surface is bare. These soils have not been rated for facility development such as trails. Vegetation is primarily a red alder series type, especially adjacent to the Little River.

WOULD THE PROJECT:	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map, issued by the State Geologist for the area, or based on other substantial evidence of a known fault? (Refer to Division of Mines and Geology Special Publication 42.)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable, as a result of the project and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1997), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste disposal systems, where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Directly or indirectly destroy a unique paleontological resource or site, or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

- a) The project site is located within the seismically-active North Coast region and while the chance of the rupture of a known earthquake fault, strong seismic ground-shaking, or seismic-related ground failure are certainly possible in this area, this project would not substantially increase the exposure of people or structures to risk of loss, injury, or death as a result of these events.
- i) The project site is not located within an Alquist-Priolo Earthquake Fault Zone (APEFZ) as designated by the California Geological Survey (CGS 2000). Therefore, there is no expected impact from surface rupture due to this project.
- ii) The California Geological Survey has determined that the Cascadia Subduction Zone is capable of generating an earthquake with a Maximum Moment Magnitude of 8.3. Other faults in the area (San Andreas segments, Maacama) are also capable of generating strong earthquakes with magnitudes of 7.1 to 7.9. The expected ground acceleration at the project site is on the order of 0.5g to 0.6g (Petersen 1999). This would result in moderate to strong seismic shaking. However, there would be no increased risk to the public due to this project.
- iii) Seismic-induced ground failure, such as liquefaction, usually occurs in unconsolidated granular soils that are water saturated. During seismic-induced ground shaking, pore water pressure can increase in loose soils, causing the soils to change from a solid to a liquid state (liquefaction). The soils adjacent to the Little River floodplain are relatively unconsolidated and can be water saturated. There is a moderate risk for liquefaction in these soils. However, no new structures would be placed in the floodplain. Therefore there is a less than significant impact due to this project.
- iv) Landslides could occur in the Little River canyon where slopes are steep and soils are erodible. However, the project is designed to improve an already existing trail and will not significantly alter current conditions. Therefore, impacts are expected to be less than significant.

Implementation of Condition GEO-1 below will reduce the risk of injury to park users from seismic-induced ground failure and landslides to a less than significant level.

CONDITION GEO-1: POST-EARTHQUAKE INSPECTIONS
▪ State Park staff will inspect bridges and trails for damage as soon as feasible after a large earthquake, and close trails if they pose a danger to park users.

- b) A temporary increase in erosion may occur during construction of this project as a result of ground disturbing activities. Implementation of Condition GEO-2 below will reduce soil erosion or loss of topsoil by the proposed project to a less than significant level.

CONDITION GEO 2: EROSION CONTROL

- Best Management Practices (BMPs) will be used in all areas to control soil and surface water runoff during excavation and grading activities. Grading and excavation activities should not be planned during the rainy season (October 1 to May 1), but if storms are anticipated during construction or if construction must occur during winter months, “winterizing” will occur, including the covering (tarping) of any stockpiled soils and the use of temporary erosion control methods to protect disturbed soil. Temporary erosion control measures (BMPs) must be used during all soil disturbing activities and until all disturbed soil has been stabilized (recompacted, re-vegetated, etc.). DPR-approved BMPs, such as silt fences, fiber rolls, mulch or other applicable techniques will be utilized. Information on approved BMPs can be found in the Stormwater Best Management Practice Handbook for Construction, available on-line at www.cabmphandbooks.com.
- Permanent BMPs for erosion control will consist of properly compacting disturbed areas and revegetation of appropriate disturbed soil areas with native species using seed collected locally, where possible. If local seed is not available, a weed-free native mixture shall be used. Final design plans will incorporate BMP measures to be incorporated into the project.

- c) Portions of this project are located within geologic units or soils that are known to be unstable and landslides could occur in the Little River canyon where slopes are steep. However, there is already an existing trail and bridges in the project area. The proposed project will not significantly alter existing conditions, therefore impacts are expected to be less than significant.
- d) The soils mapped by the US Department of Agriculture (2006) in the project area have a low to moderate shrink-swell potential. Therefore, there is a less than significant impact potential for expansive soils to be an issue on the project site.
- e) The project does not involve the installation of a septic system or leach field. Therefore, there is no impact due to this project.
- f) No known unique paleontological resources exist within the project area. Therefore, there is no impact.

VII. HAZARDS AND HAZARDOUS MATERIALS

ENVIRONMENTAL SETTING

The proposed project within the Van Damme SP will be constructing a combination ramada and fish cleaning station, scarifying a parking lot, moving four campsites, replacing five trail footbridges, and realigning the Fern Canyon trail. Vegetation in the park area is composed of second growth redwood, bishop pine, pygmy cypress, red alder, and a non-native introduced perennial grassland series. Slopes are moderate to steep.

Hazardous Materials

There has been no known industrial use in the project area that could have been a source of hazardous materials (DTSC 2006). A minor sewage spill occurred in the park during the winter of 2005-06 when a sewage pipe attached to a storm-damaged bridge broke, however, the pipe was immediately repaired and the spill cleaned up (Braudrick 2006).

Airports

The project site is located within an airport land use zone because the airport is within a half-mile of the site. The Mendocino County (Little River) Airport is owned and operated by the County. Little River reported 8,000 operations per year (Mendocino County 1991). It is considered a General Aviation Airport that predominantly serves privately owned aircrafts. Although the runway configuration 11/29 would result in overflight of the project area, there are no navigational aids within the Park.

Schools

There are four schools and one school district office within a three and a half-mile radius of the project site. There are no schools located within one-quarter mile of the project area.

Fire

The Van Damme State Park is rated as having very high woodland fire hazard severity by Mendocino County based on mapping done by the California Department of Forestry and Fire Protection (CDF) (Mendocino County 2003). The Park's fire suppression needs are met by the CDF and the Albion-Little River Fire Volunteer Fire Department (Coastal Valleys EMS 2006).

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials, substances, or waste into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites, compiled pursuant to Government Code §65962.5, and, as a result, create a significant hazard to the public or environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Be located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport? If so, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Be located in the vicinity of a private airstrip? If so, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury, or death from wildland fires, including areas where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

DISCUSSION

- a) Construction activities will require the use of certain potentially hazardous materials such as fuels, oils, or other fluids associated with the operation and maintenance of vehicles and equipment. These materials are generally contained within vessels engineered for safe storage. Large quantities of these materials will not be stored at or transported to the construction site. However, spills, upsets, or other construction-related accidents could result in a release of fuel or other hazardous substances into the environment. The following conditions would reduce the potential for adverse impacts from these incidents to a less than significant level:

CONDITION HAZMAT-1 (SPILL PREVENTION AND RESPONSE)

- All equipment will be inspected by the contractor for leaks immediately prior to the start of construction, and regularly inspected thereafter until equipment is removed from park premises.
- Prior to the start of construction, the contractor(s) and/or DPR will prepare an emergency Spill Prevention and Response Plan and maintain a spill kit on-site throughout the life of the project. This plan will include a map that delineates construction staging areas, where refueling, lubrication, and maintenance of equipment may occur. The Spill Prevention and Response Plan will be incorporated into a Storm Water Pollution Prevention Plan if it is determined that the project requires an NPDES construction permit.
- Equipment will be cleaned and repaired (other than emergency repairs) outside of the park boundaries. All contaminated water, sludge, spill residue, or other hazardous compounds will be disposed of outside of park boundaries, at a lawfully permitted or authorized destination.

- b) There is a potential for hazardous substances to be released to the environment during the project from vehicle or equipment fluid spills or leaks. Implementation of the conditions discussed above would reduce any risk to on-site workers, the public, or the environment to less than significant.
- c) As noted in the Environmental Setting, the nearest schools are over three miles away from the proposed project site. There would be no significant impacts as a result of this project.
- d) No part of the Park is included on a list of hazardous materials sites compiled pursuant to Government Code § 65962.5. No area within the project site is currently restricted or known to have hazardous materials present. Therefore, no impact would occur within the project area.
- e, f) The Park is located within an airport land use plan, as the Mendocino County (Little River) Airport is within a half-mile of the Park. The proposed project includes general maintenance and repair of an existing campground and trail. Therefore, there will be no significant impacts as a result of this project on the Little River Airport.
- g) All construction activities will take place within the boundaries of Van Damme SP and work would not restrict access to, cause delays, or block any public road outside the immediate construction area. The traffic on State Route 1 and Little River Rd may be impacted for only short periods of time for delivery of construction materials or construction equipment. The project would not conflict with the emergency response plans of Mendocino County. Therefore, no impact will occur as a result of this project.
- h) The locations of the campsites and combination ramada and fish cleaning station are in grassy areas that could become flammable during the dry season (June – October). Heavy equipment can get very hot with extended use would sometimes be in close proximity to flammable vegetation. Improperly outfitted exhaust systems or friction between metal parts

and/or rocks could generate sparks, resulting in a fire. The following conditions would reduce the potential for adverse impacts from wildfire to a less than significant level:

CONDITION HAZMAT-2 (FIRE SAFETY)

- Prior to the start of construction, the Project Contractor will develop a DPR-approved Fire Safety Plan. The plan will include the emergency calling procedures for both CDF and the Albion-Little River Fire Volunteer Fire Department.
- Spark Arrestors or turbo charging (which eliminates sparks in exhaust) and fire extinguishers will be required for all heavy equipment.
- Construction crews will be required to park vehicles away from flammable material, such as dry grass or brush. At the end of each workday, heavy equipment will be parked over mineral soil, asphalt, or concrete to reduce the chance of fire.

VIII. HYDROLOGY AND WATER QUALITY

ENVIRONMENTAL SETTING

Watershed

Van Damme State Park is located within the Big-Navarro-Garcia watershed of Mendocino's Coastal Basin (Mendocino County 2003). Within Van Damme SP, the Little River flows through the bottom of the steep-walled canyon. River flows have strong seasonal fluctuations, with rapid response to runoff during heavy winter storms. A small floodplain occurs from the mouth to about a half-mile upstream. Park lands encompass all or nearly all of the Little River watershed portion of the Big-Navarro-Garcia watershed. Any surface water runoff from rain within the project site would flow into the Little River and out to the Pacific Ocean.

Flooding

Flooding is a major concern at Van Damme as the entire park is located within the FEMA-designated 100-year floodplain. For planning purposes, the FEMA-designated 100-year floodplain defines the area having a 1% chance of being inundated in any given year (Mendocino County 2003). Narrow steep-walled canyons with little bottom land and moderate to steep gradients yield rapid runoff response within Van Damme. Discharge shows strong seasonal fluctuation mainly in response to heavy winter rain (DPR 1995).

Groundwater

The project area within Van Damme State Park is considered part of the North Coast Hydrologic Region (DWR 2003). Van Damme is located within the general coastal groundwater basin, where most groundwater is developed from shallow wells in the sand and gravel beds of rivers or within marine terrace deposits. Coastal groundwater basins normally have problems with saltwater intrusion and nitrates (DWR 2003). Groundwater quality for the region is characterized as sodium-chloride bicarbonate water with relatively low dissolved solids (DPR 1995).

Water Quality

The Clean Water Act and the Environmental Protection Act provide federal protection for wetlands and waters of the United States. Responsibility for enforcing provisions of these acts lies with the federal Environmental Protection Agency, and is delegated to the U.S. Army Corps of Engineers for enforcement. Regionally, the North Coast Regional Water Quality Control Board (NCRWQCB) is responsible for surface and groundwater quality oversight. The NCRWQCB Basin Plan (NCRWQCB 1994) has a category for Minor Coastal Streams that would apply to small streams and creeks at Van Damme State Park. The Minor Coastal Streams existing beneficial uses are: municipal supply; commercial and sport fishing; and estuarine habitat. Proposed beneficial uses include: agricultural supply; industrial supply; groundwater recharge; recreational use; cold freshwater habitat; wildlife habitat; anadromous fish migration, spawning, reproduction and/or early development; and aquaculture. Uses such as agricultural supply, industrial supply and aquaculture are not applicable to all the streams and creeks in Van Damme State Park.

Stream channels are further protected under Section 1600 of the California Fish and Game Code.

Water Supply

DPR owns and operates its own drinking water system within Van Damme SP to serve operational needs. The park has a stream collection system on the Little River, with a water treatment plant near the Fern Canyon lower trailhead (DPR 1995).

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge, such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through alteration of the course of a stream or river, in a manner which would result in substantial on- or off-site erosion or siltation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in on- or off-site flooding?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map, or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place structures that would impede or redirect flood flows within a 100-year flood hazard area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury, or death from flooding, including flooding resulting from the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
j) Result in inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

DISCUSSION

- a) During any grading, excavation, or other ground disturbing activities, a release of sediment to surface waters could occur. Other impacts to water quality could result from releases of fuels or other fluids from vehicles and equipment during the construction process. Condition Hydro 1 will control releases of pollutants in storm (or other) water runoff and result in a less than significant impact.

CONDITION HYDRO 1 – WATER QUALITY
<ul style="list-style-type: none">▪ Implementation of Condition Geo 2 to provided BMPs to control erosion and runoff during the construction phase.▪ The project would be in compliance with all applicable water quality standards and waste discharge requirements as specified in the NCRWQCB Basin Plan.▪ Implementation of Condition Hazmat-1 will mitigate for impacts to water quality from possible pollutants (fuels and other vehicle fluids) released from vehicles and or other equipment during construction.

- b) This project will cause no change to current withdrawals of water from existing wells that supply the park's water needs. No impact.
- c) The project area's existing drainage patterns will not be altered in a manner that will significantly increase on- or off-site erosion or siltation. In addition, BMPs for erosion will be integrated into the design and construction plans for this project, as described in CONDITION HYDRO-1. Less than significant impact.
- d) The existing drainage patterns of the area will not be altered in a manner that will significantly increase the rate or amount of surface runoff to result in on- or off-site flooding. No impact.
- e) This project will not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems. No substantial additional sources of polluted runoff are expected from this project, provided soil erosion BMP's are followed and a BMPS for spill prevention and response are in place for vehicle fluid spills or other construction fluids or materials (refer to CONDITION HYDRO-1, above).
- f) This project will not substantially degrade water quality to soil erosion and runoff or release of vehicle or equipment fluids if BMPs are implemented, as specified in Condition Hydro 1.
- g) The majority of the project site is located within the FEMA-designated 100-year floodplain for Little River. However, the project does not include any housing structures, therefore, there will be no impact from this project.
- h) This project will place the combination ramada and fish cleaning station that may impede or redirect flood flows within the FEMA-designated 100-year floodplain. However, the degree of impedance or redirection of flood flows should be less than significant.

- i) The project would not expose structures to an increased risk from flooding, including flooding resulting from the failure of a levee or dam. The majority of the project site is located within the FEMA-designated 100-year floodplain, therefore, there is no increased risks from flooding and a less than significant impact..

- j) The project area will not be susceptible to a seiche (generated in an enclosed water body). Van Damme State Park is a coastal park that is bordered by the Pacific Ocean. All locations along the coastline are at risk of inundation by a tsunami, including the proposed project location. Previous studies have estimated a 100-year tsunami run-up height of 8-10 feet for the region (Mendocino County 2003). While inundation is possible, this project will not increase the potential. Landslides and mudflows may be possible in the steeper areas of the park and along the upper drainage of Little River. Since these potential impacts are existing conditions, there would be a less than significant impact due to this project.

IX. LAND USE AND PLANNING

ENVIRONMENTAL SETTING

Van Damme State Park is located three miles south of the town of Mendocino on State Route 1. The park encompasses over 2,000 acres including 20 acres of marine environment under lease from the State Lands Commission. The park extends about 3 miles inland, encompassing nearly 55% of the Little River watershed, from Gordon Lane and Comptche Road at the north, to Little River Airport Road at the south.

Little River runs through the park with its mouth at Van Damme Beach. Two other parcels, located north of the beach and west of the highway, are mostly open grassland terrace. The park also includes a separate 80 acre parcel, 2.5 miles south of the entrance and east of State Route 1 at Dark Gulch (DPR 1995).

Among the goals defined through the development of the Van Damme State Park General Plan (DPR 1995) are:

- Preservation and Restoration of Natural Resources (including protection of existing riparian areas and wetlands). This is a primary goal of the proposed project.
- Cultural Resource Protection (including preservation of structures from the CCC construction periods). This guided the decision to bridge over and retain the remaining low water ford.
- Access and Circulation (including safe and efficient trail access to the inland forest). This guided the decision to rehabilitate portions of the Fern Canyon Trail).
- Land Use and Development (including the provision of park facilities that create a harmony between human enjoyment and the preservation of valuable park resources). This guided the decision to retain and improve existing recreational opportunities while reducing direct and indirect impacts of visitor use on the park's natural environment; particularly Little River itself.

The plans and policies of other public agencies in Mendocino County, as well as some State and Federal agencies, influence management and planning decisions for Van Damme State Park. The California Coastal Commission has produced policies and guidelines for the use and development of the coast, and retains enforcement authority (2003). These policies are regarded as planning constraints, or parameters, which guide future land use and development decisions affecting the coastline and lands within the coastal zone. Generally policies of the Commission support recreational use and public access as a priority for shoreline areas and do not appear to be in conflict with State Park system policies.

The Mendocino County General Plan Update (2003) addresses issues related to the development and use of State Park lands. In particular, the Coastal Element of the County General Plan (Local Coastal Plan) (1999) establishes policies for protection of public access and use of the coastline, guidelines for planning and development of facilities, and preservation of coastal resources. Under the County's permit authority for coastal development, these policies serve as constraints on coastal land use and development.

A portion of Van Damme State Park lies within the Coastal Zone as defined by the California Coastal Commission, and the lower (westernmost) part of the proposed project area is therefore within Local Coastal Plan jurisdiction. DPR will, therefore, apply for a Coastal Development Permit covering project activities within this area (DPR 1995).

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with the applicable land use plan, policy, or regulation of any agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

- a) The proposed project site is wholly within the boundaries of Van Damme SP, in rural Mendocino County. The site does not contain or define an established community and no project activities would disrupt or divide any community functions. Project activities or operations following construction would not prevent access to adjacent parcels. No impact.
- b,c) As noted in the Environmental Setting and Discussion IX(a), above, the proposed project site is located entirely within the state park and is subject to land restrictions contained in the Van Damme State Park General Plan (DPR 1995), the Mendocino County General Plan (1999) and General Plan update (2003), and regulatory agency requirements, including the Local Coastal Plan. No project elements are in conflict with the zoning, regulatory policies, land use plans, conservation plans or ordinances for this area. All appropriate consultation would be undertaken, and permits would be acquired, in compliance with all applicable local, state, and federal requirements. No impact.

X. MINERAL RESOURCES

ENVIRONMENTAL SETTING

The California Surface Mining and Reclamation Act (SMARA) of 1975 requires the State Geologist to classify land into Mineral Resources Zones (MRZs) according to the known or inferred mineral potential of that land regardless of land use or land ownership. An MRZ-1 classification indicates that no significant mineral deposits are present or likely to be present; MRZ-2 indicates that significant mineral deposits are present or there is a high likelihood for their presence and development should be controlled; in MRZ-3 mineral deposits cannot be determined from the available data; and MRZ-4 areas lack sufficient data to assign any other MRZ designation.

Mendocino County is listed as a county in which no SMARA classification has occurred (CGS 2001).

The most predominant mineral resources in Mendocino County are aggregates comprised of sand and gravel found along rivers and streams. There are 29 permitted commercial extraction operations for aggregate hard rock within the county (Mendocino County 2003). The closest hard rock quarry to the site is Tunzi Quarry over ten miles away from Van Damme State Park.

No significant mineral resources have been identified within the boundaries of Van Damme State Park. In accordance with Public Resource Code § 5001.65, commercial exploitation of resources in the units of the state park system is prohibited.

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
a) Result in the loss of availability of a known mineral resource that is or would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

a, b) As stated in the Environmental Settings above, no significant mineral resources have been identified within the park boundaries. Therefore, the project would not result in the loss of availability of a known mineral resource nor a locally important mineral resource recovery site. No impact.

XI. NOISE

ENVIRONMENTAL SETTING

Van Damme State Park features 2,337 acres of coastal, riparian, and forested terrain along the Little River and its mouth at the Pacific Ocean. The park is situated in a relatively undeveloped rural area and all construction activities associated with the project would occur within the park boundaries. No noise-sensitive land uses (such as schools or hospitals) are located in the vicinity of any part of the project area. Two existing staff residences are located a short walk's distance from the Group Camp, the nearest area where project activities are planned (Braudrick 2004).

Little River Airport is located approximately 4 miles southeast of Van Damme SP by road; less than one mile by air. The airfield consists of a single runway with a heading of 16-34. Although aircraft using the airport are generally the single-engine fixed-wing general aviation variety, twin-engine planes and business jets can also be accommodated. On an annual average basis, there are approximately 53 operations here per day; most using the southeast approach on Runway 29 (Mendocino County 2003).

The project has been designed so that most of the work can be accomplished by a California Conservation Corps crew using hand-tools and small power equipment. Previous work in and along Little River has been accomplished successfully in this manner. Heavy equipment required for the proposed activities may include (but not be limited to) dump trucks, backhoes, and one or two small, rubber-tired cranes. Most construction equipment would be transported to the site and remain there until the associated work is completed. Transport vehicles for building components, material delivery trucks, and crew vehicles would also be present intermittently at the site. Construction materials needed in inaccessible areas (particularly on the Fern Canyon Trail) will be hand-carried to their point of use (Braudrick 2004).

Noise is often described as unwanted sound. Sound is defined as any pressure variation in air that the human ear can detect, with these variations expressed in decibels (dB). Using the hearing threshold (0 dB) as its point of reference, the decibel scale represents levels of sound that correspond closely to human perception of relative loudness (Mendocino County 2003). The table below, adapted from a Congressional Research Service Report (CRS 2000), shows examples for several common noise sources and environments.

Sound Levels Generated by Various Sources of Noise

Sound Level	dbA
Quiet library, soft whisper at 2 feet	30
Background Level, single-family residence	40
Light traffic, quiet office background	50
Air conditioner at 20 feet, sewing machine	60
Vacuum cleaner, hair dryer, noisy restaurant	70
Average city traffic, garbage disposals, alarm clock at 2 feet	80
Constant exposure to the following sound levels can lead to hearing loss:	
Subway, motorcycle, truck traffic, lawn mower	90
Garbage truck, chain saw, pneumatic drill	100
Rock band concert in front of speakers, thunderclap	120
Threshold of Pain	130
Gunshot blast near shooter's ear, jet aircraft take-off at 110 feet	140

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
a) Generate or expose people to noise levels in excess of standards established in a local general plan or noise ordinance, or in other applicable local, state, or federal standards?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Generate or expose people to excessive groundborne vibrations or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Create a substantial permanent increase in ambient noise levels in the vicinity of the project (above levels without the project)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Create a substantial temporary or periodic increase in ambient noise levels in the vicinity of the project, in excess of noise levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Be located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport? If so, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be in the vicinity of a private airstrip? If so, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

- a) There are no known regulations governing noise levels for the project site; the upper limit of exterior noise standards for rural residential areas (Mendocino County 1991) is 60 dBA between 7 a.m. and 10 p.m. This is comparable to existing uses at Van Damme SP, as well as anticipated uses following completion of the project. Construction noise levels at and near the project area will fluctuate, depending on the type and number of construction equipment operating at any given time, and may exceed ambient noise levels in the immediate vicinity of the work for brief periods of time. The distance from residences in the project vicinity are sufficient to prevent an objectionable level of noise. However, depending on the specific construction activities being performed, short-term increases in ambient noise levels could result in speech interference at the work site and a potential increase in annoyance to visitors and staff. Implementation of Condition **NOISE-1** will ensure that such interference is minimized and the project will have no significant impact.

CONDITION NOISE-1
<ul style="list-style-type: none">▪ Construction activities will generally be limited to the daylight hours, Monday-Friday. If work during weekends or holidays is required, no work will occur on those days before 7:30 a.m. or after 8 p.m.▪ Internal combustion engines used for any purpose at the job site will be equipped with a muffler of a type recommended by the manufacturer. Equipment and trucks used for construction will utilize the best available noise control techniques (e.g. engine enclosures, acoustically-attenuating shields or shrouds, intake silencers, ducts, etc.) whenever feasible and necessary.▪ Stationary noise sources and staging areas will be located as far from sensitive receptors as possible. If they must be located near sensitive receptors, stationary noise sources will be muffled to the extent feasible and/or, where practicable, enclosed within temporary sheds.

- b) Construction activity will not involve the use of explosives, pile driving, or other intensive construction techniques that could generate significant ground vibration or noise. Any minor vibration immediately adjacent to grading equipment, delivery vehicles, etc. would be temporary. Therefore, groundborne vibration or noise generated by the project will have a less than significant effect.
- c) Once the proposed project is completed, all related construction noise will disappear. Nothing within the scope of the proposed project will result in a permanent increase in ambient noise levels. No impact.
- d) See Discussion XI(a), above. Less than significant impact.
- e,f) This project is not located within an airport land use plan; however, the Little River Airport is situated approximately $\frac{3}{4}$ mile south of Fern Canyon. The aircraft using this airport do not generate excessive noise, and residents and workers would experience no change from existing conditions. No impact.

XII. POPULATION AND HOUSING

ENVIRONMENTAL SETTING

Van Damme State Park is located in a rural residential area along the Pacific coastline in Mendocino County. The largest towns close to the Park are Fort Bragg and Mendocino, located approximately 15 miles and 6 miles north, respectively. The small community of Little River is within 1 mile of the park, to the south (City Guide for Mendocino 2006).

In the year 2004, approximately eight percent of Mendocino County's total population resided in Fort Bragg. According to the California Department of Finance's City/County Population Estimates with Annual Percent Change, from January 1, 2000 to January 1, 2005 (DOF 2004a), Fort Bragg's population has increased 7 percent, from 6,912 to 6,963. The current population of Mendocino is 824. The U.S. Post Office serves 610 postal customers in the community of Little River (USPS 2005). According to the *2004 Population Projections by Race/Ethnicity, Gender and Age* report (2004b), the population for Mendocino County will reach 118,621 people in 2050, a 36 percent increase over 2000 population levels (then at 86,852).

Housing within the park boundaries is limited to two existing staff residences. Thus, the permanent population of the park is relatively static, based on DPR staffing requirements, and no significant growth is anticipated in the foreseeable future. The park is a recreational resource utilized by both locals and out-of-town visitors. No business or residential opportunities are offered within the park boundaries.

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

a,b,c) The project will not have a housing component and all work will take place within the confines of the park boundary, with no additions or changes to the existing local infrastructure. It will neither modify nor displace any existing housing and will displace no one, either temporarily or permanently. Jobs are not expected to be generated as a result of this project therefore it will have no impact on population growth or housing.

XIII. PUBLIC SERVICES

ENVIRONMENTAL SETTING

The district's ranger staff is responsible for all park functions involving contact with the visiting public. These include entrance station operations, campground registration, information and interpretation, patrol and law enforcement, and medical emergencies. As Van Damme State Park is located right off State Route 1, emergency access is readily available via its main entrance (DPR 1995).

State Park Rangers are POST certified law enforcement officers and provide immediate police protection within the park boundaries. Additional police support is also available from the Mendocino County Sheriff's Department Substation in the town of Mendocino, and the California Highway Patrol (County Sheriff's Department 2006). There are 12 rangers assigned to the district, with Van Damme having one ranger assigned to the park specifically (Braudrick 2005).

The California Shock Trauma Air Rescue (CALSTAR) service helicopters, based at Ukiah Municipal Airport, provide air ambulance service for Mendocino, Lake, Humboldt, and Sonoma Counties, and are available for medical emergencies, search and rescue, and fire support 24 hours a day, 7 days a week. Response time is generally under 30 minutes (CALSTAR 2006). Ambulance service is provided by the Mendocino Coast District Hospital (MCDH 2006).

Fire protection is provided by the California Department of Forestry and Fire protection (CDF), supported by the Mendocino Fire Department, Albion-Little River Fire Department, and Fort Bragg Fire Department, as necessary (Albion-Little River FD 2006, CDF 2006). Additional manpower is available from the California Department of Corrections' Parlin Fork Conservation Camp, situated about 14 miles away from the park. CDF also maintains an Air Attack Base at the Ukiah Municipal Airport (approximately 60 miles and 15-20 minutes flight time away). The CDF Helitack Base is located in Willits, approximately 52 miles to the east of Van Damme (Coastal Valleys EMS Agency 2006).

Van Damme State Park is located within the Mendocino Unified School District. The nearest schools are located in the town of Mendocino, more than two miles away from Van Damme State Park (Mendocino Unified School District 2006).

Most Mendocino County Offices are located in Ukiah, although several departments maintain satellite offices in Fort Bragg. There are no other public utilities, other than the state highway, in the vicinity of the project area.

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
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WOULD THE PROJECT:

- | | | | | |
|--|--------------------------|--------------------------|-------------------------------------|-------------------------------------|
| a) Result in significant environmental impacts from construction associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, to maintain acceptable service ratios, response times, or other performance objectives for any of the public services: | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Fire protection? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Police protection? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Schools? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Parks? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Other public facilities? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

DISCUSSION

- a) This project will be limited to the rehabilitation of sections of the Fern Canyon Trail along Little River, including footbridge replacement and associated modifications; and campground improvements including the construction of a Group Camp ramada and the relocation of four extant streamside campsites. All work will take place within the boundaries of the park unit. This project will not result in a significant impact to acceptable service ratios, response times, or other performance objectives for public services. Any jobs generated as a result of the project will be short-term, with no permanent connection to the park location. No significant increase in public service requirements.

Fire Protection: Use of construction equipment around flammable annual vegetation presents an increased fire risk that could result in additional demands on CDF and local fire response teams. Any impact on services would be temporary and nothing in the project scope will contribute to the need for an increase in the existing level of public service. Integration of **HAZMAT CONDITIONS 3 and 4**, combined with the availability of on-site fire suppression equipment and support from State Park rangers, will reduce the potential impact on fire protection services to a less than significant level.

Police Protection: State Park Rangers with law enforcement authority patrol the park and its boundaries, police the public use areas and grounds, enforce the public resource code, and guard against misuse of park property and resources. While backup is usually provided by other State Park Rangers, in times of extreme need either the Mendocino County Sheriff's Department or California Highway Patrol will respond to emergency calls and assist with criminal investigations. The project is not expected to result in any need for increased police services. No impact.

Schools: No schools exist within two miles of the project area and there are no elements to this project that would result in an increased school enrollment of the area. No changes will occur that will require additional schools or school personnel. No impact

Parks or Other Public Facilities: Work related to this project could cause minor temporary delays and inconveniences at park access points and around the staging areas. All project activity areas will be closed to park visitors; however, due to the seasonal use of the campgrounds and the availability of other Van Damme SP facilities during project activities, the proposed project will neither require additions or changes to park facilities to maintain acceptable levels of service, nor increase use of other parks in the area. No significant impact.

XIV. RECREATION

ENVIRONMENTAL SETTING

Located three miles south of the town of Mendocino, Van Damme SP is a semi-rural, coastal recreation area encompassing 2,337 acres, including 20 acres of marine environment under lease from the State Lands Commission. The park extends about 3 miles inland encompassing nearly 60% of the Little River watershed, from Gordon Lane to the north to Little River Airport Road to the south. Total ocean frontage for the park is just over one mile.

The park had 297,057 visitors in 2004 with 60,000 people making use of the overnight facilities (Veliquette 2005). The campground in the park has 74 developed sites with one group campsite. There are 10 environmental campsites 1.5 miles up Fern Canyon, which follows Little River. 7.8 miles of trails extend from the Pygmy Forest off of Little River Airport Road to the sea. Highway 1 bisects the park, separating the campground areas and the Fern Canyon Trail on the east from the beach on the west. Van Damme's star attraction is the Fern Canyon Trail, a 5-mile round-trip hiking and biking trail with an elevation gain of only 200 feet (DPR 1994).

Van Damme State Park is one of the busiest units in the Mendocino District. The campground operates at capacity on weekends from April through mid-October, and weekdays from mid-June through Labor Day. The beach parking lot is used for enroute camping throughout the year, and absorbs some of the overflow from the campground during the busy season. There is a large amount of free day use in Van Damme State Park. The free day use areas include: the beach parking lot, Pygmy Forest parking lot, and Chapman Point. These areas are used all year, but most attendance generally corresponds with the abalone season and summer vacation periods (DPR 1995).

This project has two components, one inland approximately two miles up the river on the trail system consisting of trail improvements and footbridge construction/relocation and the other within the campground area near the mouth of the stream in the developed area of the Park. For the latter project component four riverside camp sites will be removed and reassembled on the east side of the Upper Meadow Campground. A new cooking shelter and fish cleaning station will be constructed in the existing Group Camp area.

The District anticipates starting work on the project in late September or October, the time of year when the number of park visitors drops dramatically. All work will likely be completed before the rainy season; however, if work must be delayed and resumed in late winter, it will adhere to the seasonal restrictions described in **Bio-3** and **Bio-4**, and therefore will not continue into the following year's peak visitor period. The park will not be closed to the public during the course of the work and there will be no net increase in the number of campsites at the park.

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
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WOULD THE PROJECT:

- | | | | | |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|
| a) Increase the use of existing neighborhood and regional parks or other recreational facilities, such that substantial physical deterioration of the facility would occur or be accelerated? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

DISCUSSION

- a) Work proposed by this project will repair, restore, rehabilitate, as well as construct new, small features within the core of the park. The work, when completed will enhance the recreational experience of individual and group users. While the work is underway, it might result in some limited inconveniences to the visiting public; however, the work will occur in limited areas and associated activities will not require the park to shut down completely. The movement of the campsites will occur during the off-season and should not affect visitors. Improvements to the trails and campgrounds are not expected to significantly increase the number of visitors to the park. Any impacts to other recreational facilities as a result of this work would be less than significant.
- b) As noted in Discussion XIV(a) above, the project will repair, restore, rehabilitate, as well as construct some features within the core of the park. The new and/or moved facilities will be available once construction is completed. As the facilities will be built and rehabilitated in order to improve visitor services while reducing recreational effects on the Little River, Fern Canyon, and the park's natural resources in general, use of the trail and camping facilities by current and future visitors will little or no adverse effect on the environment.

XV. TRANSPORTATION/TRAFFIC

ENVIRONMENTAL SETTING

There are currently three points of vehicle access to Van Damme State Park: (a) the beach parking access on the west side of State Route 1 (SR 1); (b) the Park's main entrance and access to camping and day use facilities on the east side of SR 1, and (c) access to the Pygmy Forest parking area off Little River Airport Road. All park access depends on SR 1, which parallels the Pacific Coast. The California Department of Transportation (Caltrans) and Mendocino County Department of Public Works are the agencies responsible for maintaining the highway and roads around Van Damme State Park.

According to Caltrans' 2004 *Traffic Volumes on California State Highways*, the peak hour traffic on southbound SR 1 in the park vicinity was 450 vehicles per hour (northbound, 730) and the peak month and annual southbound Average Daily Traffic are 4000 and 3200 (northbound, 7600 and 6200), respectively (Caltrans 2004, 2006). Highway capacity is measured using "level of service" (LOS) designations ranging from A to F, with an LOS A representing free flow conditions and an LOS F representing forced flow or breakdown conditions. Caltrans considers LOS E to be acceptable for peak traffic periods on rural road segments of SR 1. When Mendocino County adopted its Local Coastal Program in 1985, SR 1 was projected to operate at LOS E or better throughout most of the county "at build-out." In 1994, an updated traffic study verified that all rural road segments in the county were remaining at or under the LOS E threshold. Additional analysis by the County in 1998 indicated a projected increase of up to 83 additional peak hour trips throughout the coastal zone; a level which would not exceed the satisfactory LOS E threshold (Mendocino County 1999).

The Mendocino County Local Coastal Program Review (1999) states, "Section 30254 of the Coastal Act requires Highway One to remain a scenic two-lane road, which has a limited capacity..." Many visitors reach the coast on State Route 101 via State Route 128 along the Navarro River, or over Highway 20 through the mountains to Fort Bragg. Both of these are winding mountain roads. All of these routes constrain the amount and ease of travel to and along the coast. Because of the restrictive language in the Coastal Act, the County proposes only minimal improvements such as the installation of slow vehicle turnouts, passing and left-turn lanes, and signals at selected intersections (in Fort Bragg). It also calls for improved transit service along this corridor (DPR 1995).

General circulation in and around Mendocino County is largely dependent on the private automobile. Public transportation in the community is generally limited to fixed bus routes and on-demand shuttle van service. The major local transit systems with park-serving potential are the Mendocino Transit Authority's Dial-a-Ride, and the Mendocino Stage. The latter provides regular bus service throughout the county and along the Mendocino Coast (MTA 2006).

Little River Airport is situated approximately $\frac{3}{4}$ mile south of the nearest part of the project area. It is a small non-commercial facility, operating during daylight hours only and open to the public (AirNav.com 2006).

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
a) Cause a substantial increase in traffic, in relation to existing traffic and the capacity of the street system (i.e., a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Exceed, individually or cumulatively, the level of service standards established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Cause a change in air traffic patterns, including either an increase in traffic levels or a change in location, that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Contain a design feature (e.g., sharp curves or a dangerous intersection) or incompatible uses (e.g., farm equipment) that would substantially increase hazards?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Result in inadequate parking capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

- a) No transportation-related change will result from this project. No impact.
- b) As noted in Discussion XV(a) above, the project will result in no transportation-related change. The limited number of construction-related vehicles visiting the site daily would not substantially increase traffic volume or congestion on Little River Airport Road or SR 1 in the Mendocino area. No significant impact.
- c) The project site is not located within an airport land use plan. Although a portion of the project area (Fern Canyon Trail rehabilitation near the Pygmy Forest) is within ¼ mile of the Little River Airport's runway, the park does not serve as a normal reporting point for air traffic in the area. Nothing in the proposed project will in any way affect or change existing air traffic patterns in the area. Therefore, no impact will occur as a result of this project.
- d) No transportation-related change will result from this project. No impact.
- e) All construction activities associated with the proposed project will occur within the boundaries of Van Damme SP and work will not restrict access to or block any road outside the immediate construction area. The use of internal circulation routes, such as the Fern Canyon Trail along Little River, and the road to Upper Meadow Campground may be

temporarily restricted to project personnel and park staff, but the project is scheduled to begin in autumn, after the end of the major tourist season with little effect on visitors. Minimum access requirements for emergency vehicles will be maintained at all times. No significant impact.

- f) The existing Group Camp parking area would scarified and rehabilitated with a new, permeable surface as part of this project. No increase in the number of parking spaces or expansion of use over current levels is proposed. No significant impact.
- g) There are no policies, plans, or programs supporting alternative transportation that apply to this project; however, as noted in the Environmental Setting section above, local bus service is available to the park. No impact.

XVI. UTILITIES AND SERVICE SYSTEMS

ENVIRONMENTAL SETTING

Van Damme SP is located in rural, coastal Mendocino County and is served by various public utility systems, with internal collection and distribution systems generally owned by DPR and maintained by park maintenance staff. Pacific Gas and Electric provides all electricity to the parks which comprise the Mendocino District. Overhead power lines parallel State Route 1 and county roads surrounding Van Damme SP. Generally, utilities are placed underground along road corridors through open, visible park locations such as the main park entrance and in campgrounds; however, power line easements do exist along the park boundary and penetrate into some forested areas. Electric lines serving the park were upgraded in recent years (Braudrick 2004), and all its developed areas have adequate, existing power supplies (DPR 1995).

Telephone service is provided by SBC Pacific Bell, with the phone line installed underground, parallel to the Little River stream bank (Braudrick 2004). The park is situated within the Mendocino-Unincorporated Solid Waste Jurisdiction (CIWMB 2006) of the Mendocino County Solid Waste Authority. Fort Bragg Disposal provides solid waste removal and recycling services for the area (Mendocino County 2006).

DPR owns and operates its own drinking water system within Van Damme SP to serve operational needs. The park has a stream collection system on the Little River, with a water treatment plant near the Fern Canyon lower trailhead. The plant, installed in 1990, uses microfiltration, chlorination, and a post-chlorination Memcor system. Treated water is pumped through a single high pressure water line (about 110 psi) to a water tank located above the Highland Meadow campground. Water is not currently provided to the Pygmy Forest or Van Damme headlands (DPR 1995; Braudrick 2004). The collection, treatment and distribution system operates under a non-community small water system permit issued by the Department of Health Services, Drinking Water Field Operations Branch (DHS 2006).

Van Damme State Park has a sewer system and leach field that adequately serves existing park facilities. In remote areas (beach parking area, environmental trail camps, and the Pygmy Forest), sanitary facilities are pump-out vault or portable toilets (DPR 1995). Most comfort stations in park are on its sewer system, and there are numerous extant septic tanks. Sewer and water lines cross the river and its tributary streams in conduits connected to several bridges. A lift station with automatic pumps is situated behind the visitor center, and delivers wastewater to two leach fields located across the river and uphill on the south side.

The proposed group camp ramada (an open building) with fish-cleaning station would connect to the park's extant potable water and sewage disposal systems. New grinder equipment would be added to process wastewater from the ramada prior to treatment. With the exception of water and sewer hookups for the group camp ramada, the project has no components requiring additions to, or modification of existing utility systems.

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
a) Exceed wastewater treatment restrictions or standards of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No		
Would the construction of these facilities cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Would the construction of these facilities cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in a determination, by the wastewater treatment provider that serves or may serve the project, that it has adequate capacity to service the project's anticipated demand, in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations as they relate to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DISCUSSION

- a) Van Damme State Park is within the jurisdiction of the North Coast Regional Water Quality Control Board. The project will be in compliance with all applicable water quality standards and waste discharge requirements (see **Hazmat Condition 1** regarding potential impacts from accidents, spills, or upset). No impact.
- b) The project would relocate four campsites to an existing campground with no associated expansion over current use of the park's drinking water or wastewater treatment systems. Hookups for the new group camp ramada and fish cleaning station require only the addition of wastewater grinding equipment and no expansion of the existing facilities.
- c) The project has no stormwater drainage component, and will not affect any existing facility.
- d) As indicated in the Environmental Setting above, potable water is supplied for both the

construction site and the park in general, from DPR-owned and/or controlled private water supplies. Current supplies are adequate for existing demands and projected future use. No impact.

- e) Wastewater treatment services are provided by DPR personnel operating DPR-owned facilities. No impact.
- f) Solid waste disposal services are provided by a local company under the jurisdiction of the Mendocino County Solid Waste Authority. The project would not increase the park's solid waste disposal needs. No impact.
- g) The proposed project would comply with all federal, state and local regulations on solid waste. No impact.

CHAPTER 4 - MANDATORY FINDINGS OF SIGNIFICANCE

	<u>POTENTIALLY SIGNIFICANT IMPACT</u>	<u>LESS THAN SIGNIFICANT WITH MITIGATION</u>	<u>LESS THAN SIGNIFICANT IMPACT</u>	<u>NO IMPACT</u>
WOULD THE PROJECT:				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have the potential to eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means the incremental effects of a project are considerable when viewed in connection with the effects of past projects, other current projects, and probably future projects?)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Have environmental effects that will cause substantial adverse effects on humans, either directly or indirectly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

DISCUSSION

- a) The proposed project was evaluated for potential significant adverse impacts to the natural environment and its plant and animal communities. The project area is known to support certain special status animal species. It has been determined that the project may have the potential to disturb coho salmon, steelhead trout, southern seep (torrent) salamander, marbled murrelet, northern spotted owl and/or other raptors, red tree vole, California red-legged frog, sensitive natural communities (trees), and wetlands. However, full integration of the conditions and implementation of all mitigation measure incorporated into this project would reduce those impacts, both individually and cumulatively, to a less than significant level.

- b) The proposed project was evaluated for potential significant adverse impacts to the cultural resources of Van Damme SP. It has been determined that activities associated with the proposed project could have the potential to significantly affect historic or archaeological resources (in particular, one remaining historic-era low-water ford). However, full integration of the conditions and implementation of all mitigation measures incorporated into this project would reduce those impacts, both individually and cumulatively, to a less than significant level.

- c) DPR often has smaller maintenance programs and rehabilitation projects planned for a park unit. However, no other projects, other than routine maintenance, are planned for the

proposed project area in the foreseeable future. Additionally, impacts from other environmental issues addressed in this evaluation do not overlap in such a way as to result in cumulative impacts that are greater than the sum of the parts. Less than significant impacts.

- d) Most project-related environmental effects have been determined to pose a less than significant impact on humans. However, possible impacts from construction emissions (Air Quality), construction accidents, seismic events, and fire (Hazards and Hazardous Materials), and noise, though temporary in nature, have the potential to result in significant adverse effects on humans. These potential effects will be reduced to a less than significant level if all conditions are fully integrated into project design and construction documents.

CHAPTER 5 - SUMMARY OF MITIGATION MEASURES AND AVOIDANCE CONDITIONS

The following mitigation measures and conditions for avoiding adverse effects would be implemented by DPR as part of the Little River Fern Canyon Trail and Campground Improvements Project at Van Damme State Park:

AIR QUALITY

CONDITION AIR-1

- All active construction areas will be watered at least twice daily during, dry, dusty conditions.
- All trucks hauling soil, sand or other loose materials on public roads will be covered or required to maintain at least two feet of freeboard.
- All equipment engines will be maintained in good mechanical condition (according to manufacturer's specifications), and in compliance with all State and federal requirements.
- Excavation and grading activities will be suspended when sustained winds exceed 25 mph, instantaneous gusts exceed 35 mph, or dust from construction might obscure driver visibility on public roads.
- Earth or other material that has been transported onto paved streets by trucks, construction equipment, erosion, or other project-related activity will be promptly removed.

BIOLOGICAL RESOURCES

MITIGATION MEASURE BIO-1 (COHO SALMON AND STEELHEAD TROUT)

- To avoid potential impacts to steelhead and coho, demolition and construction work within the stream shall be limited to the period between June 1 and November 1, or until the first significant rainfall.
- If it is necessary to divert water, a DFG and USFWS approved-biologist shall implement measures (slope protection, fish screens, temporary cofferdams, etc.) to rescue fish within the work site prior to dewatering.
- To the maximum extent possible, concrete shall be broken up outside of the stream channel.
- Silt fencing, straw wattles, or other approved forms of sediment entrapments shall be installed to insure that no silt, soil or debris enters the stream.

MITIGATION MEASURE BIO-2 (SOUTHERN SEEP [TORRENT] SALAMANDER)

- Where possible, relocated stream crossings shall avoid suitable habitat for sensitive amphibian species.
- A DPR-qualified biologist shall monitor all potential southern torrent salamander habitat sites during construction.
- Any southern torrent salamanders found within the work zone shall be moved by a qualified biologist to a safe location upstream or downstream of the work site, prior to construction.

CONDITION BIO-3 (MARBLED MURRELET)

- No project construction-related activities shall occur during the breeding season (March 24 through September 15) to avoid direct or indirect (noise) take of Marbled Murrelets.
- All construction related activities shall not begin until 2 hours after sunrise and shall cease 2 hours before sunset.

- No trees greater than 12 inches dbh shall be removed as a result of this project.
- All tree removal work will occur between September 15 and February 1 to protect nesting birds.
- All construction personnel will be instructed by a DPR-qualified biologist in the life history of the marbled murrelet and its habitat.

CONDITION BIO-4 (NORTHERN SPOTTED OWL AND OTHER RAPTORS)

- No project construction-related activities shall occur during the breeding season (February 1 through August 31) to avoid direct or indirect (noise) take of northern spotted owls and raptors.
- All construction related activities shall not begin until 2 hours after sunrise and shall cease 2 hours before sunset.
- No trees greater than 12 inches dbh shall be removed as a result of this project.
- All tree removal work will occur between September 15 and February 1 to protect nesting birds

CONDITION BIO-5 (RED TREE VOLE)

- No trees greater than 12 inches dbh shall be removed as a result of this project.
- All trees to be trimmed or removed shall be inspected by a DPR-qualified biologist for the presence of red tree vole nests prior to tree trimming or removal work.
- Any red tree vole nests encountered at a work site shall be flagged and avoided during construction.

MITIGATION MEASURE BIO-6 (CALIFORNIA RED-LEGGED FROG)

- In areas where vehicles or heavy equipment may be used, a DPR-qualified biologist will conduct a visual inspection of the construction zone, immediately prior to the start of work each morning.
- If a red-legged frog is found, start of work at that project site would be delayed until the species moves out of the site on its own accord, or is temporarily relocated by a DPR-approved biologist.
- Project excavations will be covered at night with plastic, or another approved method that prevents animals from being trapped.

CONDITION BIO-7 (SENSITIVE NATURAL COMMUNITIES)

- No roots with a diameter of one inch or greater within the root health zone (5 times dbh [diameter at breast height]) of any native tree with a dbh of 12 inches or greater will be cut.

CONDITION BIO-8 (WETLANDS)

- The Department will obtain a Section 404 permit if directed to do so by the USACE.

CULTURAL RESOURCES

MITIGATION MEASURE CULT-1 (INADVERTENT DISCOVERY)

- In the event that previously unknown cultural resources (including but not limited to dark soil containing shellfish, bone, flaked stone, groundstone, or deposits of historic trash) are encountered during project construction by anyone, the state representative shall put work on hold at the specific location and contractors shall be redirected to other tasks. A DPR-qualified archaeologist will record and evaluate any such find and work with State Representative to implement avoidance, preservation, or recovery measures as appropriate prior to any work resuming at that specific location.

- In the event that significant cultural resources are identified in the Area of Potential Effects, a qualified historian, archaeologist, and /or Native American representative (if appropriate) will monitor all subsurface work including trenching, grading, and excavation in that area.

MITIGATION MEASURE CULT-2 (HUMAN REMAINS)

- In the event that human remains are discovered, work will cease immediately in the area of the find and the project manager/site supervisor will notify the appropriate DPR personnel. Any human remains and/or funerary objects will be left in place. The DPR Sector Superintendent (or authorized representative) will notify the Mendocino County Coroner, in accordance with §7050.5 of the California Health and Safety Code, and the Native American Heritage Commission (NAHC) will be notified within 24 hours of the discovery if the Coroner determines that the remains are Native American. The NAHC will designate the “Most Likely Descendent” (MLD) of the deceased Native American. The MLD will recommend an appropriate disposition of the remains. If a Native American monitor is on-site at the time of the discovery and that person has been designated the MLD by the NAHC, the monitor will make the recommendation of the appropriate disposition.
- If it is determined the find indicates a sacred or religious site, the site will be avoided to the maximum extent practicable. Formal consultation with the State Historic Preservation Officer and review by the Native American Heritage Commission/Tribal Cultural representatives would also occur as necessary to define additional site mitigation or future restrictions.

GEOLOGY AND SOILS

CONDITION GEO-1 (POST-EARTHQUAKE INSPECTIONS)

- State Park staff will inspect bridges and trails for damage as soon as feasible after a large earthquake, and close trails if they pose a danger to park users.

CONDITION GEO-2 (EROSION CONTROL)

- Best Management Practices (BMPs) will be used in all areas to control soil and surface water runoff during excavation and grading activities. Grading and excavation activities should not be planned during the rainy season (October 1 to May 1), but if storms are anticipated during construction or if construction must occur during winter months, “winterizing” will occur, including the covering (tarping) of any stockpiled soils and the use of temporary erosion control methods to protect disturbed soil. Temporary erosion control measures (BMPs) must be used during all soil disturbing activities and until all disturbed soil has been stabilized (recompacted, re-vegetated, etc.). DPR-approved BMPs, such as silt fences, fiber rolls, mulch or other applicable techniques will be utilized. Information on approved BMPs can be found in the Stormwater Best Management Practice Handbook for Construction, available on-line at www.cabmphandbooks.com.
- Permanent BMPs for erosion control will consist of properly compacting disturbed areas and revegetation of appropriate disturbed soil areas with native species using seed collected locally, where possible. If local seed is not available, a weed-free native mixture shall be used. Final design plans will incorporate BMP measures to be incorporated into the project.

HAZARDS AND HAZARDOUS MATERIALS

CONDITION HAZMAT-1 (SPILL PREVENTION AND RESPONSE)

- All equipment will be inspected by the contractor for leaks immediately prior to the start of construction, and regularly inspected thereafter until equipment is removed from park premises.
- Prior to the start of construction, the contractor(s) and/or DPR will prepare an emergency Spill Prevention and Response Plan and maintain a spill kit on-site throughout the life of the project. This plan will include a map that delineates construction staging areas, where refueling, lubrication, and maintenance of equipment may occur. The Spill Prevention and Response Plan will be incorporated into a Storm Water Pollution Prevention Plan if it is determined that the project requires an NPDES construction permit.
- Equipment will be cleaned and repaired (other than emergency repairs) outside of the park boundaries. All contaminated water, sludge, spill residue, or other hazardous compounds will be disposed of outside of park boundaries, at a lawfully permitted or authorized destination.

CONDITION HAZMAT-2 (FIRE SAFETY)

- Prior to the start of construction, the Project Contractor will develop a DPR-approved Fire Safety Plan. The plan will include the emergency calling procedures for both CDF and the Albion-Little River Fire Volunteer Fire Department.
- Spark Arrestors or turbo charging (which eliminates sparks in exhaust) and fire extinguishers will be required for all heavy equipment.
- Construction crews will be required to park vehicles away from flammable material, such as dry grass or brush. At the end of each workday, heavy equipment will be parked over mineral soil, asphalt, or concrete to reduce the chance of fire.

HYDROLOGY AND WATER QUALITY

CONDITION HYDRO-1 (WATER QUALITY)

- Implementation of Condition Geo 2 to provided BMPs to control erosion and runoff during the construction phase.
- The project would be in compliance with all applicable water quality standards and waste discharge requirements as specified in the NCRWQCB Basin Plan.
- Implementation of Condition **HAZMAT-1** will ensure avoidance of impacts to water quality from possible pollutants (fuels and other vehicle fluids) released from vehicles and or other equipment during construction.

NOISE

CONDITION NOISE-1

- Construction activities will generally be limited to the daylight hours, Monday-Friday. If work during weekends or holidays is required, no work will occur on those days before 7:30 a.m. or after 8 p.m.
- Internal combustion engines used for any purpose at the job site will be equipped with a muffler of a type recommended by the manufacturer. Equipment and trucks used for construction will utilize the best available noise control techniques (e.g. engine enclosures, acoustically-attenuating shields or shrouds, intake silencers, ducts, etc.) whenever feasible and necessary.
- Stationary noise sources and staging areas will be located as far from sensitive receptors as possible. If they must be located near sensitive receptors, stationary noise sources will

be muffled to the extent feasible and/or, where practicable, enclosed within temporary sheds.

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CHAPTER 7 - REPORT PREPARATION

CALIFORNIA DEPARTMENT OF PARKS AND RECREATION

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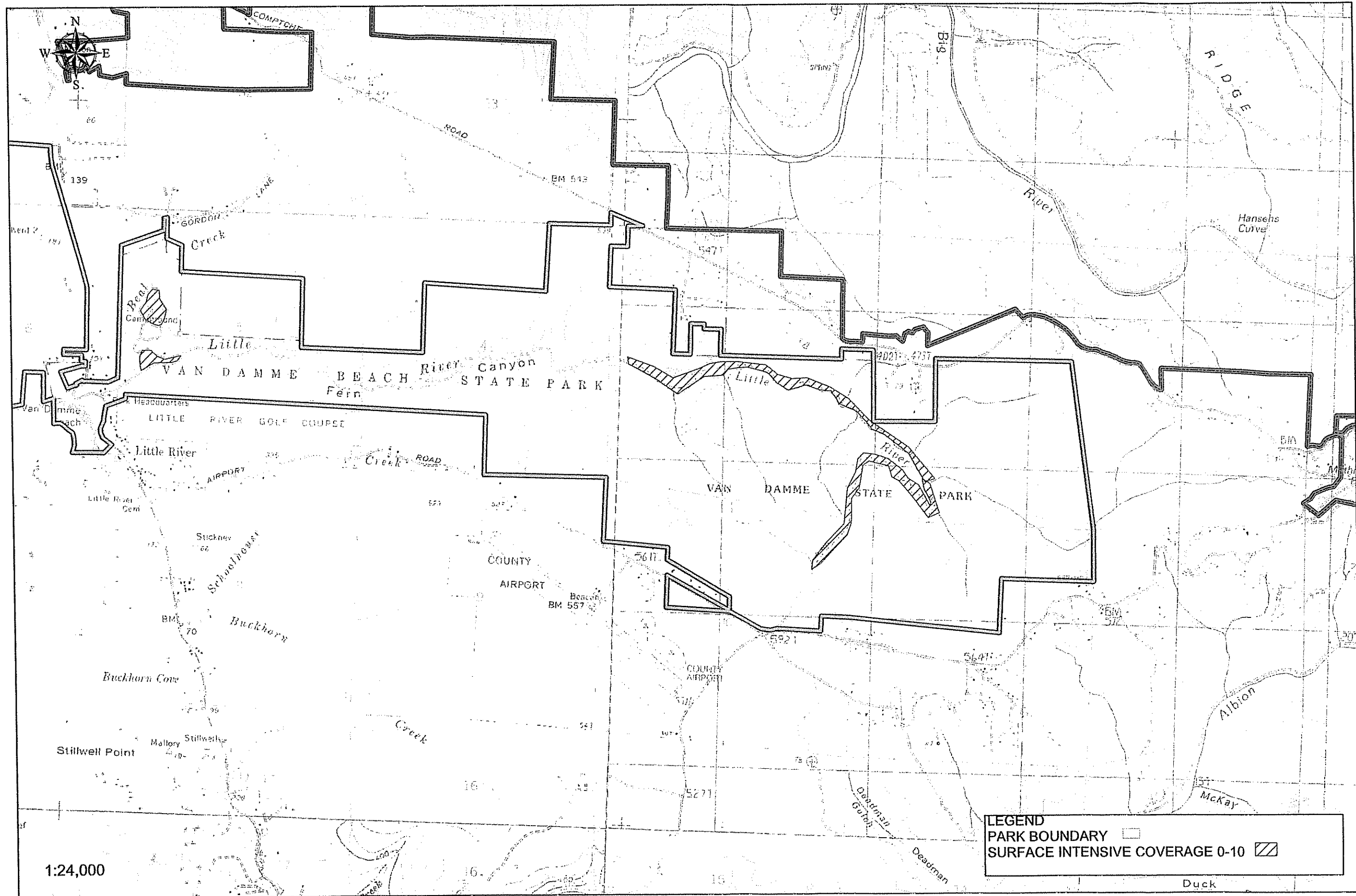
Susan Wilcox, Associate Park and Recreation Specialist, Northern Service Center

APPENDIX A

MAPS AND GRAPHICS

APPENDIX B
ACRONYMS

APPENDIX C
GEOLOGICAL GLOSSARY

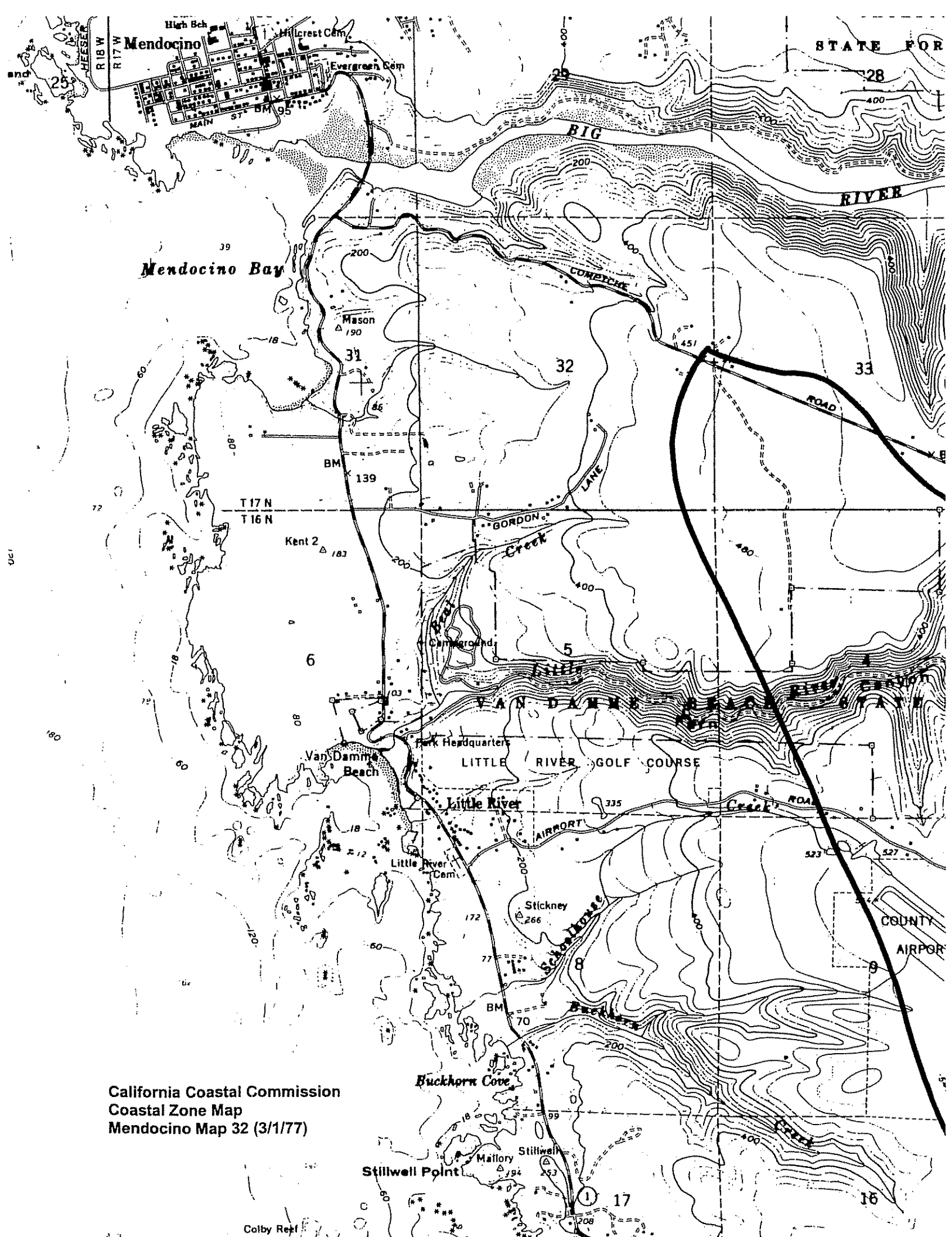


RESOURCE SERVICES SECTION

Van Damme State Park
 Little River Fern Canyon Trail
 and Campground Improvements Project

▨ = Project Area

Source: US Geologic Survey
 Projection: California Albers 83



California Coastal Commission
 Coastal Zone Map
 Mendocino Map 32 (3/1/77)

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PROJECT SITE PHOTOS

PROJECT NAME: Van Damme SP – Little River Trail and Campground Improvements Project
DATE: November 16, 2004
Page 1 of 5



PHOTO DESCRIPTION: Fern Canyon Trail along the Little River, Van Damme State Park.
Photo on left shows compaction and channelization. Photo on right shows redwood roots exposed in trail.

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PROJECT SITE PHOTOS

PROJECT NAME: Van Damme SP – Little River Trail and Campground Improvements Project
DATE: November 2004 & February 2006
Page 2 of 5



Fern Canyon Trail along Little River, Van Damme State Park. Steps down slope to puncheon bridge.



Fern Canyon Trail along Little River, Van Damme State Park. Puncheon bridge.

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PROJECT SITE PHOTOS

PROJECT NAME: Van Damme SP – Little River Trail and Campground Improvements Project
DATE: March 23, 2005
Page 3 of 5



PHOTO DESCRIPTION: Overview of group campground located on a cut and fill pad. This area is going to be modified to include a new food preparation area (ramada) and fish cleaning station. **View:** SW

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PROJECT SITE PHOTOS

PROJECT NAME: Van Damme SP – Little River Trail and Campground Improvements Project
DATE: March 23, 2005
Page 4 of 5



PHOTO DESCRIPTION: Road/parking in the group campground which is going to be scarified and capped with a new permeable surface.

View: W/NW

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PROJECT SITE PHOTOS

PROJECT NAME: Van Damme SP – Little River Trail and Campground Improvements Project
DATE: March 23, 2005
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PHOTO DESCRIPTION:

Overview of Upper Meadow campground where the existing riverside campsites are to be relocated.

View: SW

APPENDIX B

LIST OF ACRONYMS

APE - Area of Potential Effects
APEFZ - Alquist-Priolo Earthquake Fault Zone
BGEPA - Bald and Golden Eagle Protection Act
BMPs - Best Management Practices
CARB/ARB - California Air Resources Board
CCC - Civilian Conservation Corps (historic); California Conservation Corps (current)
CCR - California Code of Regulations
CDF - California Department of Forestry and Fire Protection
CEQA - California Environmental Quality Act
CGS - California Geological Survey
CNDDDB - California Natural Diversity Database
CNPS - California Native Plant Society
CRHR - California Register of Historic Resources
dB - decibel
DBH - diameter at breast height
DFG - California Department of Fish and Game
DHS - California Department of Health Services
DPR - California Department of Parks and Recreation
EIR - Environmental Impact Report
FEMA - Federal Emergency Management Agency
IS/MND - Initial Study/Mitigated Negative Declaration
LOS - Level of Service
MBTA - Migratory Bird Treaty Act
mph - miles per hour
MLD - Most Likely Descendant
MRZ - Mineral Resources Zone
NAHC - Native American Heritage Commission
NCAB - North Coast Air Basin
NCAQMD - North Coast Air Quality Management District
NCRWQCB - North Coast Regional Water Quality Control Board
NPDES - National Pollution Discharge Elimination System
NRCS - Natural Resources Conservation Service
NRHP - National Register of Historic Places
PM_{2.5} - Particulate Matter with an aerodynamic diameter of 2.5 microns or less
PM₁₀ - Particulate Matter with an aerodynamic diameter of 10 microns or less
SMARA - California Surface Mining and Reclamation Act
SP - State Park
SR - State Route (State Highway)
SWPPP - Stormwater Pollution Prevention Plan
USACE - United States Army Corps of Engineers
USEPA - United States Environmental Protection Agency
USFWS - United States Fish and Wildlife Service
VRP - visibility-reducing particles

GLOSSARY OF GEOLOGIC TERMS

Definitions in this glossary are predominately excerpted from the American Geology Institute (AGI) Dictionary of Geological Terms and Dictionary of Dictionary of Mining, Mineral, and Related Terms with some definitions supplemented from the USGS Geologic Glossary webpage and the Lake and Water Word Glossary at http://www.nalms.org/glossary/lkword_s.htm. Other references are cited at the end of the entry.

Active Fault - A fault that has undergone movement in recent geologic time (the last 10,000 years) and may be subject to future movement. Also see *Fault*

Alluvium – sand, gravel, silt, and clay deposited by rivers and streams in valley bottoms, floodplains, or deltas.

Alquist-Priolo Act - Zoning act passed in 1972 -- in response to the 1971 San Fernando earthquake to prevent building across the traces of active faults. More information about the Alquist-Priolo Act, and Earthquake Fault Zone Maps is available from the California Geological Survey.

Cascadia Subduction Zone - Plate boundary located off the coast of Northern California (north of the Mendocino Triple Junction), Oregon and Washington. The western Gorda Plate is being subducted underneath the eastern North American Plate, resulting in earthquakes (potentially up to magnitude 9) and the volcanic activity in the Cascade Range.

Coastal Belt Rocks - - The coastal belt of the Franciscan Complex is composed of the youngest and least deformed units and makes up the western quarter of all Franciscan rocks. The rocks of the coastal belt are composed of arkosic sandstones, andesitic graywackes, and quartzofeldspathic graywackes interbedded with radiolarian chert (turbidite deposits). These sedimentary rocks suggest a depositional environment of deep-sea fan systems with both oceanic and continental provenance. Parts of the belt show evidence of later metamorphism, principally due to subduction. Low-grade blueschist mineral facies are indicated by the presence of minerals such as laumontite and prehnite-pumpellyite. All rock units show evidence of thrust (imbricate) faulting due to the compressional forces of subduction. Ages of the coastal belt run from as little as 40 Ma (Eocene) to as old as 100 Ma (middle Cretaceous). Reference: Blake & Jones, 1981.

Coast Range Geomorphic Province - The Coast Ranges are mountains that trend northwest along the north and central California coast, subparallel to the San Andreas Fault. The province terminates on the east where the strata dip below the alluvium of the Great Valley; on the west by the Pacific Ocean with mountains rising from the uplifted and terraced wave-cut coast; on the north by South Fork Mountain; and on the south by the Transverse Range. The Coast Ranges are composed of thick late Mesozoic and Cenozoic sedimentary strata, including the Franciscan Formation.

Clay – A particle of sediment less than 1/256 of a millimeter in diameter. Also, a family of platy silicate minerals that commonly form as a product of weathering.

Conglomerate – a coarse-grained clastic (composed of fragments) sedimentary rock, composed of rounded to sub-angular fragments larger than 2 mm diameter set in a fine-grained matrix of sand and/or silt and commonly cemented with calcium carbonate, iron oxide, silica, or hardened clay.

Cretaceous – the earliest period of the Mesozoic era, after the Jurassic period and before the Tertiary period of the Cenozoic era. The Cretaceous covers the time period of 135 to 65 million years before present.

Expansive Soils- soils or soft bedrock that increase in volume as they get wet and shrink as they dry out. They are also commonly known as bentonite, swelling, or montmorillonitic soils.

Farallon Plate – The Farallon Plate was an ancient, wholly oceanic tectonic plate, which began subducting under the west coast of the North American Plate, then located in modern Utah, as Pangaea broke apart during the Jurassic period. Over time the central part of the Farallon Plate completely subducted under the southwestern part of the North American Plate. The remains of the Farallon Plate are the Juan de Fuca Plate subducting under the northern part of the North American Plate, the Cocos Plate subducting under Central America and the Nazca Plate subducting under the South American Plate. Source: http://en.wikipedia.org/wiki/Farallon_Plate

Fault - A fracture or zone of fractures along which there has been displacement of the sides relative to one another, parallel to the fracture.

Flood Plain, also Floodplain - 1) A strip of relatively smooth land bordering a stream, built of sediment carried by the stream and dropped in the slack water beyond the influence of the swiftest current. 2) The lowland that borders a stream or river, usually dry but subject to flooding. 3) That land outside of a stream channel described by the perimeter of the *Maximum Probable Flood*. Also referred to as a *Flood-Prone Area*.

Franciscan Complex - An assemblage of rocks found in the Coast Range province of California, Jurassic to Cretaceous in age. Lithologically, the Franciscan is dominated by greywacke (lithic sandstone) formed by rapid erosion of a volcanic highland and then deposition of the sediments in a deep marine basin by turbidity currents. These rocks were buried quickly in a trench and subjected to low temperature and high pressure metamorphism, then were uplifted. Other associated rock types are shales, radiolarian cherts, limestone, blueschists, volcanic rocks (basalt), and ultrabasic igneous rocks; some now altered to serpentinite. This rock assemblage has been strongly sheared, folded, and faulted into lenses and blocks referred to as *mélange*.

G or g - the force of gravity (an acceleration of 9.78 meters/second²). When there is an earthquake, the forces caused by the shaking can be measured as a percentage of the force of gravity, or percent g.

Geomorphic – pertaining to the form of the earth or of its surface features; e. g. a geomorphic province.

Geomorphology - the study of the classification, description, nature, origin, and development of landforms and their relationships to the underlying geologic structures, and the history of geologic changes as recorded by these surface features.

Glacial – 1) Pertaining to the activities of glaciers, or to the features or materials produced by a glacier. 2) Pertaining to an ice age or a region of glaciation.

Glacier – a large mass of ice formed on land by the compaction and recrystallization of snow, creeping downslope or outward due to the stress of its own weight, and surviving from year to year.

Graywacke – a type of sandstone consisting of large detrital quartz and feldspar (silicate mineral), and rock fragments, in a clay matrix.

Groundwater—(1) Water that flows or seeps downward and saturates soil or rock, supplying springs and wells. The upper level of the saturate zone is called the Water Table. (2) Water stored underground in rock crevices and in the pores of geologic materials that make up the earth's crust. Ground water lies under the surface in the ground's *Zone of Saturation*, and is also referred to as *Phreatic Water*.

Hardpan - A hard impervious layer composed chiefly of clay or organic materials cemented by relatively insoluble materials, that does not become plastic when wet, and definitely limits the downward movement of water and roots.

Intensity - A measure of the effects at a particular place produced by shaking during an earthquake. (Not to be confused with magnitude.)

Joint – a surface of fracture or parting in a rock, without displacement. Joints may occur as parallel and perpendicular joint sets.

Landslide - a general term for a wide variety of processes and landforms involving the downslope movement, under gravity, of soil and rock material. There is a broad range of landslide morphology, rates, patterns of movement, and scale. Types include rockfall, mudflow, slump, and many others.

Liquefaction - In cohesionless (sand and silt) soil, the transformation from solid to a liquid state due to increased pore water pressure and resulting reduction of effective stress (loss of soil strength). Often induced by earthquake shaking.

Loam – a rich, permeable soil composed of a mixture of clay, silt, sand, and organic matter.

Maacama Fault - An active right lateral strike slip fault with movement during the past 10,000 years. The fault has a slip rate is 9 mm/year and is capable of generating a magnitude 7.1 earthquake. It parallels and lies east of the San Andreas Fault, marking the boundary of the North American and Pacific plates.

Maximum Moment Magnitude - is an estimate of the size of a characteristic earthquake capable of occurring on a particular fault. Moment magnitude is related to the physical size of a fault surface and movement along that surface.

Magnitude - A general term for a measure of the strength or energy of an earthquake as determined from seismographic information.

Marine Terrace – 1) a narrow coastal strip, formed of deposited material, sloping gently seaward. 2) A wavecut platform that has been exposed by uplift along a seacoast or by lowering of sea level; an elevated marine-cut bench.

Maximum Credible Earthquake - The MCE is the largest reasonable earthquake at a fault without regard or consideration of how often the earthquake might occur (the return period).

Mendocino Triple Junction - The Mendocino Triple Junction (MTJ) is formed where the Pacific, North American, and Juan de Fuca/Gorda plates interact, presently just to the south of Eureka in California. It has migrated northwards by about 1,000 kilometers (620 miles) over the past 29 Ma (million years), so that MTJ processes have modified the structure of the entire California margin. Also, see Cascadia

Peak Ground Acceleration – this is the most commonly used measure of the amplitude of a particular ground motion. The peak ground acceleration for a given component of motion is the largest value of horizontal acceleration obtained from a seismograph. Peak ground acceleration is expressed as the percentage of the acceleration due to gravity (g), which is approximately 980 centimeters per second squared.

Permeability – for a rock or an earth material, the ability to transmit fluids; the rate at which liquids pass through soil or other materials in a specified direction. It is measured by the rate at which a fluid of standard viscosity can move through a material in a given interval of time under a given Hydraulic Gradient. Permeability for underground water is sometimes expressed numerically as the number of gallons per day that will flow through a cross section of 1 square foot, at 60°F, under a hydraulic gradient of 100 percent. Permeability is equal to velocity of flow divided by hydraulic gradient.

Plate Boundaries – these are the areas where the rigid plates that comprise the earth's crust meet. The plates move slowly on the molten material beneath in a process called continental drift. As the plates meet, the boundaries can be classified as divergent (plates move apart, such as at the Atlantic mid-ocean ridge); convergent (plates collide, such as the Himalaya Mountains); and transform (plates slide past each other, such as the San Andreas Fault).

Plate Tectonics - The unifying theory of geology, which hypothesizes that the Earth is broken into a mosaic of rigid lithospheric plates which move across the Earth's surface. The theory has helped to explain much in global-scale geology, including the formation of mountains and the distribution of earthquakes and volcanoes. (See diagram at end of glossary)

Pleistocene – an epoch of the Quaternary Period, after the Pliocene of the Tertiary and before the Holocene. It began 1.6 million years ago and lasted until about 8,000 years ago (Holocene). Syn: *ice age; glacial epoch*

Podzol – a group of zonal soils having an organic mat and a very thin organic-mineral layer overlying a gray, leached A2 horizon and a dark brown, illuvial B horizon enriched in iron oxide, alumina, and organic matter.

Quaternary – The period of geologic time starting 1.6 million years ago and continuing to the present day. It is divided into two epochs: the Pleistocene and the Holocene, with the division between these two falling at about 10,000 years before the present. Late Quaternary refers to the time between 700,000 years ago and the present day. It does not necessarily exclude the Holocene epoch. Pre-Quaternary refers to any time before 1.6 million years ago.

Richter Scale- introduced in 1935 by Charles F. Richter, the Richter scale is a numerical scale for quantifying earthquake magnitude -- typically it refers to local magnitude, but for larger quakes, it often refers to surface-wave magnitude. (Currently, large quakes are generally assigned a moment magnitude, which is scaled to be similar, but is based on seismic moment, and a better measure of the *energy* of an earthquake.) Since the Richter scale is logarithmic, *very small* earthquakes (microearthquakes) can have a negative magnitude. While the scale has no theoretical upper limit, the practical upper limit, given the strength of materials in the crust, is just below 9 for local or surface-wave magnitudes (and just below 10 for moment magnitudes).

San Andreas Fault - The San Andreas Fault is a right-lateral strike-slip fault that runs roughly northwest to southeast along the western coast of North America. This is a transform boundary between the Pacific Plate and the North American tectonic plates. Many major earthquakes have been caused by slipping and ruptures of this fault. The San Andreas Fault system is part of a complex system of faults, isolated segments of the East Pacific Rise, and scraps of plates lying east of the East Pacific Rise that collectively separate the North American plate from the Pacific plate. On a more generalized or global scale, the North American plate can be thought of as lying across and partly covering the northern part of the Pacific system of plates. In simplified terms, the Pacific system of plates includes three elements: a westward expanding plate (the Pacific plate), an eastward-expanding plate (the Juan de Fuca plate), and a spreading center (the East Pacific Rise) from which the plates expand as new material is added. To the north, the Pacific plate is underriding, or being subducted under, the North American plate along the Aleutian thrust.

Sand – loose particles of rock or mineral that range from 0.0625-2.0 millimeters in diameter.

Sandstone – a clastic sedimentary rock composed of grains of sand-sized particles in a matrix of silt or clay, and more or less firmly united by a cementing material (commonly silica, iron oxide, or calcium carbonate). The sand-sized particles usually consist of quartz, but other minerals or rock fragments may also be present.

Sedimentary Rock: A layered rock formed by the accumulation and cementation of mineral grains transported by wind, water, or ice to the site of deposition or chemically precipitated at the depositional site.

Seiche – an oscillation of a body of water in an enclosed or semi-enclosed basin that varies in period, depending upon the physical dimensions of the basin, from a few minutes to several hours, and in height from several centimeters to a few meters.

Shale – A fine-grained detrital sedimentary rock, formed by the deposition and compaction of clay, silt, or mud. It has finely laminated (layered) structure, which gives it a fissility along which the rock splits readily, especially on weathered surfaces. Shale is well indurated, but not as hard as argillite or slate. It may be red, brown, black, or gray.

Silt - loose particles of rock or mineral that range from 0.002-0.0625 millimeters in diameter.

Subduction Zone – an elongate region along which a crustal block descends relative to another crustal block, such as the descent of the Pacific plate beneath the Andean plate along the Andean trench.

Subsidence – gradual settling or sinking of the ground surface with little or no horizontal movement, usually as a result of the withdrawal of oil, natural gas, or groundwater, or hydrocompaction.

Surface Rupture - The breakage of ground along the surface trace of a fault caused by the intersection of the fault surface area ruptured in an earthquake with the Earth's surface.

Tropaquepts - Tropaquepts are poorly drained soils that are periodically flooded. They occur as nearly level flood plains at elevations from sea level to 200 feet. The annual rainfall amounts to 20 to 150 inches. These soils have been flooded for varying lengths of time, and soil development differs in degree from place to place. Generally, the surface layer, about 10 inches thick, consists of dark-gray, soft, mucky silt loam. This layer overlies firm to compact silty clay loam, 5 to 10 inches thick, that is mottled with gray, yellow, and brown. The mottled layer overlies friable alluvium.

Tsunami – a tsunami is a series of sea waves generated by large earthquakes (or volcanic activity) that create vertical movement on the ocean floor. Tsunamis, once they reach the shallow coastal shelf, can reach more than 50 feet in height, move inland several hundred feet and threaten life and property. Often, the first wave of a tsunami is not the largest. Tsunamis can travel from one side of the Pacific to the other in a day, at a velocity of 600 miles an hour in deep water. A locally generated tsunami may reach the shore within minutes.

Volcanic rock – an igneous rock that cools and solidifies at or very near the Earth's surface.

Watershed - (1) All lands enclosed by a continuous hydrologic drainage divide and lying upslope from a specified point on a stream. Also referred to as *Water Basin* or *Drainage Basin*. (2) A ridge of relatively high land dividing two areas that are drained by different river systems. Also referred to as *Water Parting*.

Additional References

Blake, M.C. Jr., and Jones, D.L.

1981 The Franciscan Assemblage and Related Rocks in Northern California: A Reinterpretation, in, W.G. Ernst (ed.), *The Geotectonic Development of California*. Englewood Cliffs, NJ, Prentice-Hall.

The Geologic Time Scale

Eon	Era	Period	Epoch	
Phanerozoic	Cenozoic	Quaternary	Holocene	0.01 Ma
			Pleistocene	1.6 Ma
		Tertiary	Pliocene	5.3 Ma
			Miocene	23.7 Ma
			Oligocene	36.6 Ma
			Eocene	57.8 Ma
			Paleocene	66.4 Ma
	Mesozoic	Cretaceous	144 Ma	
		Jurassic	208 Ma	
		Triassic	245 Ma	
	Paleozoic	Permian	286 Ma	
		Pennsylvanian	320 Ma	
		Mississippian	360 Ma	
		Devonian	408 Ma	
		Silurian	438 Ma	
		Ordovician	505 Ma	
		Cambrian	570 Ma	
	Precambrian	Proterozoic	2500 Ma	
		Archean	3900 Ma	
Hadean		4550 Ma		

WHAT ON EARTH IS PLATE TECTONICS?

The Earth is covered by a thin skin of solid crust and uppermost mantle called the lithosphere. The lithosphere is broken up into interconnected slabs that geologists call plates. Plate tectonics is the theory that describes how these plates move about and interact with each other at their boundaries.

To find out more about plate tectonics works, start with the explanation and diagram and explanation labeled ①.

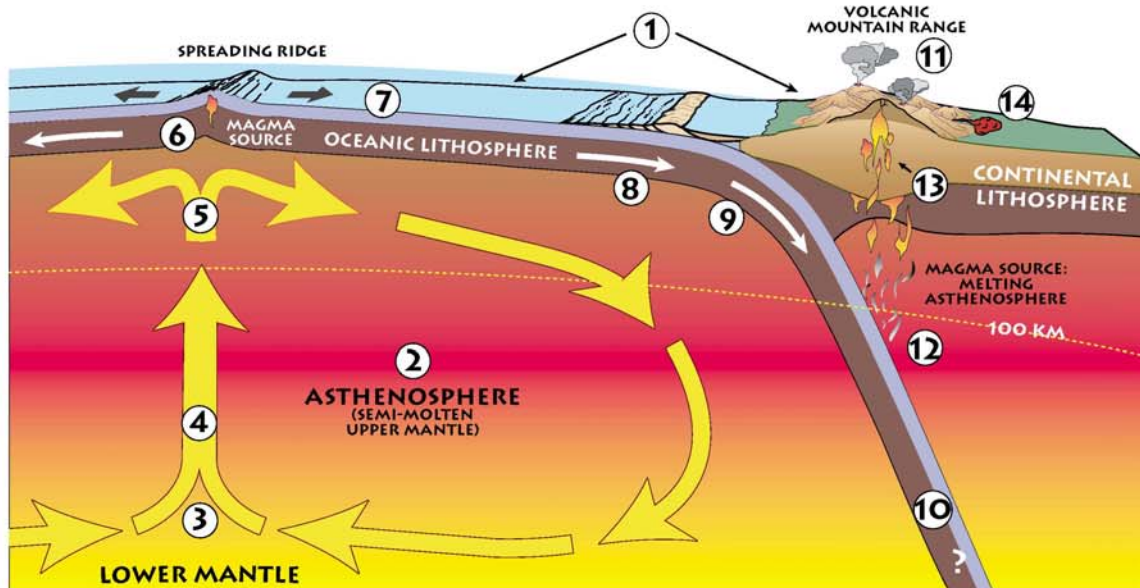
- 1) There are two basic types of lithosphere, CONTINENTAL and OCEANIC. Continental lithosphere is made of relatively light-weight minerals, so it has a low density. Oceanic lithosphere is more dense than continental lithosphere because it is composed of heavier minerals. A single plate may be partly oceanic and partly continental lithosphere.
- 2) Beneath the lithospheric plates lies a layer semi-molten rock called the ASTHENOSPHERE. The asthenosphere is more dense than either continental or oceanic lithosphere. This means that the plates are floating on top of the asthenosphere.

3) Deep within the asthenosphere the pressure and temperature are so high that the rock softens and partially melts. This softened, dense rock can flow very slowly (think of Silly Putty). Where temperature instabilities exist near the core/mantle boundary, slowly moving CONVECTION CURRENTS may form within the semi-fluid asthenosphere

4) Convection currents bring hot material from deeper within the mantle up toward the surface.

5) Convection currents diverge where they approach the surface. The diverging currents exert a weak tension or "pull" on the plate above it. Tension and high heat flow weakens the floating, solid plate, causing it to break apart. The two sides then move away from each other in opposite directions, forming a DIVERGENT PLATE BOUNDARY.

6) The 'gap' between these diverging plates fills with molten rock from below. Sea water cools the molten rock, which quickly solidifies, forming new oceanic lithosphere. This continuous process builds a chain of volcanoes and rift valleys called a MID-OCEAN RIDGE or SPREADING RIDGE.



7) Little by little, as new molten rock is extruded at the mid-ocean ridge, the newly created oceanic lithosphere moves away from the ridge where it was created.

8) As distance from the hot spreading ridge increases, the oceanic plate cools down. The colder the oceanic plate gets, the denser ('heavier') it gets. Eventually the edge of the plate that is farthest from the spreading ridge cools so much that it becomes more dense than the asthenosphere beneath it.

9) As you know, denser materials sink, and that's exactly what happens to the oceanic plate—it starts to sink into the asthenosphere! Where one plate sinks beneath another a SUBDUCTION ZONE forms.

10) The sinking leading edge of the oceanic plate actually 'pulls' the rest of the plate behind it—evidence suggests this is the main driving force of SUBDUCTION. Geologists are not sure how deep the oceanic plate sinks before it melts, but we do know that it remains solid far beyond depths of 100 km beneath the Earth's surface.

11) Subduction zones are one type of CONVERGENT PLATE BOUNDARY, the type of plate boundary that forms where two plates converge. Notice that although the cool oceanic plate is sinking, the buoyant continental plate floats like a cork on top of the more dense asthenosphere.

12) When the subducting oceanic plate sinks deeper than about 100 kilometers below the Earth's surface, huge temperature and pressure increases cause water and other volatile gasses trapped in the minerals of sinking plate to be released. These gasses work their way upward, MELTING THE MANTLE above the subducting plate.

13) The newly generated molten mantle is less dense than the surrounding rock, so it rises toward the surface. On its way upward, dense minerals solidify from the magma and are left behind, making the magma increasing less dense as it approaches the Earth's surface. Most of the molten rock cools and solidifies in magma chambers far below the Earth's surface. Large INTRUSIVE rock bodies that form the backbones of great mountain ranges such as the Sierra Nevada form by this process.

14) Some molten rock may break through the Earth's surface, instantly releasing the huge pressure built up in the gas-rich magma chambers below. Gasses, lava and ash explode out from the surface breach. Over time, layer upon layer of erupting lava and ash build volcanic mountain ranges above the simmering cauldrons of crystals and magma below.

WORKING DRAFT. For more information contact mmoreno@usgs.gov
See accompanying diagrams 'Into the Earth' and 'World Plates'