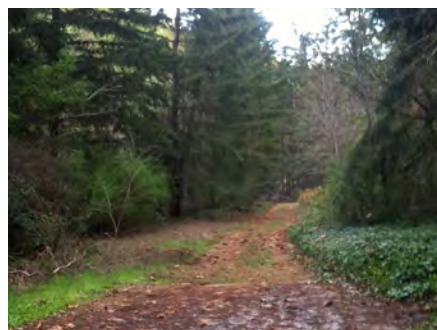
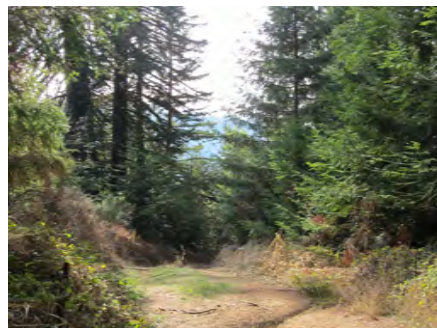




# SAN VICENTE REDWOODS PUBLIC ACCESS PLAN

PUBLIC REVIEW DRAFT  
AUGUST 26, 2014





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PUBLIC REVIEW DRAFT

August 26, 2014

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# 1 INTRODUCTION

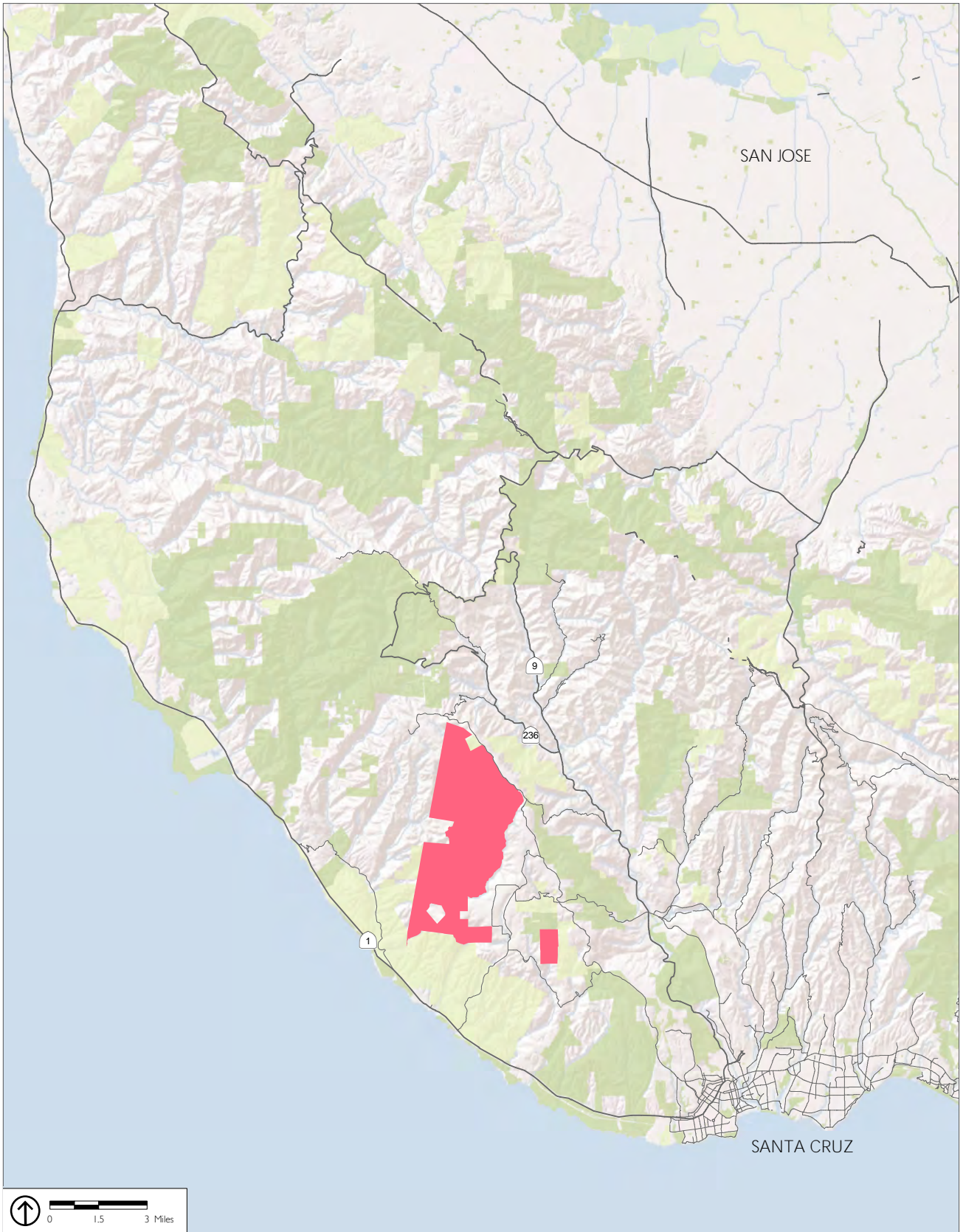


The San Vicente Redwoods is an approximately 8,500-acre property located in the Santa Cruz Mountains between the Davenport and Bonny Doon communities. As shown in Figure 1-1, San Vicente Redwoods is continuous property with the exception of the 373 acre area located to the southeast of the main property that is referred to as San Vicente Redwoods: Laguna.

The purchase of the property by the Peninsula Open Space Trust (POST) and Sempervirens Fund in December 2011 resulted in the creation of approximately 27,500 acres of contiguous protected land, as it fills a long standing gap between the numerous protected lands that surround it. Although San Vicente Redwoods was purchased by just two organizations, the protection of the San Vicente Redwoods is due to the successful collaboration between these organizations and the Land Trust of Santa Cruz County (Land Trust) and Save the Redwoods League (League), with additional assistance (or anticipated assistance) from six other organizations. The two owners, along with the Land Trust and the League are currently responsible for the protection and management of the property and are referred to as the Conservation Partners.

The land uses and activities envisioned for the San Vicente Redwoods property are both as complementary and diverse as the stakeholders that have come together towards the property's protection. The Conservation Vision for the property envisions integration of preservation, restoration, and sustainable timber harvesting with research, education, and recreation. Recreation,

**LAND TRUST OF SANTA CRUZ**  
**SAN VICENTE REDWOODS PUBLIC ACCESS PLAN**



- SV Redwoods Boundary
- Public Lands - Open Access
- Public Lands - Restricted Access
- State Highways
- Major Roads

**FIGURE 1-1**  
**REGIONAL CONTEXT**



education, and research activities at the property provide unique opportunities to further the conservation values, which lead to the property's protection. Recreation and education increases public exposure to and therefore understanding of these unique ecosystems and natural processes, and research can inform successful management of San Vicente Redwoods and other properties. Together, such uses have the potential to make a substantial impact towards the conservation goals for San Vicente Redwoods.

## PURPOSE OF THE PUBLIC ACCESS PLAN

The provision of access for the purposes of recreation, research, and education is a core component of the vision, and is a requirement of the Conservation Easement that protects the property. The San Vicente Redwoods Public Access Plan defines the vision for providing this access as well as the tools that will be necessary to establish initial access and maintain appropriate access into the future.

The Public Access Plan includes a recreational Access Plan and a Research and Education Access Plan. While all research and educational activities are not necessarily open to the public, they are included as part of the Public Access Plan because of the education potential and because research and education will be supported by the same trails and access features required for recreational access and managed by the same entities.

This Plan will be used by current and future owners and any partners to guide the management of public access on the property, as well as by members of the organized groups and/or general public with an interest in public access at San Vicente Redwoods. The Plan is intended to guide the provision of access for 10 years, at which point it may be revisited and updated as necessary, in accordance with the Conservation Easement, Conservation Plan, and Management Plan.

## THE PLANNING PROCESS

The development of the Public Access Plan included background and on-site research, coordination with related planning efforts, and extensive public outreach. The outcomes of background research and field reconnaissance are summarized in Chapter 2, San Vicente Redwoods Overview. A summary of





related planning efforts and the community engagement conducted as part of the planning process are provided below.

### **RELATED PLANNING EFFORTS**

Prior to the development of this Plan, substantial planning work was conducted for the San Vicente Redwoods property, including the preparation of the Conservation Vision, the Conservation Plan, and the Draft Conservation Easement. In addition, a Management Plan and Timber Harvest Plan are being prepared currently with the Public Access Plan. These documents informed the development of the Plan and are summarized below as they pertain to public access.

#### **SAN VICENTE REDWOODS CONSERVATION PLAN**

The Conservation Plan for the San Vicente Redwoods property was finalized in May 2013. The Plan mapped and analyzed various features of the site, including aquatic, marbled murrelet, and mountain lion habitat; climate resilience based on stream buffers and topographic shading; vegetation communities; geology, soils, and erosion sensitivity; and road density, usage, steepness, and hydrologic connectivity. Relative conservation values were applied for each feature type to the 21 “Planning Watershed” units that were identified on the property. Based on the cumulative analysis, the “Planning Watersheds” were further grouped and delineated as two Preservation Reserves, three Restoration Reserves, and two Working Forest Reserves of various acreages.

#### **SAN VICENTE REDWOODS PROPERTY DRAFT CONSERVATION EASEMENT**

The general purpose of the Conservation Easement is to preserve and protect in perpetuity the natural, ecological, habitat, scenic, open space, and forestry resources located on the property, including management and maintenance by the Grantor (POST and Sempervirens Fund) and the Grantor’s successors. The Conservation Easement gives the League the right and responsibility to provide public access.

#### **MANAGEMENT PLAN AND TIMBER HARVEST PLAN**

Other pertinent documents that are currently underway include the San Vicente Redwoods Management Plan and a Timber Harvest Plan for the first harvest, both of which are being prepared under the direction of POST. The Management Plan dictates management prescriptions for the entire property

and will be revised every ten years, while the Timber Harvest Plan will provide a plan for timber harvesting and various road and stream enhancement projects within one of the Working Forest Reserves that covers 409 acres. Both documents are anticipated to be completed in the 2014 and will be consistent with the Conservation Plan, as well as the Public Access Plan. Contents of the Management Plan, such as determination of Timber Harvest Units, may influence the implementation of the strategies in this Public Access Plan.

## PUBLIC OUTREACH AND ENGAGEMENT

Public outreach for the project consisted of interviews with key stakeholders, including the owners, partners, and potential buyers/leasers; two facilitated meetings, one with recreation stakeholders and the other with research/education stakeholders; a community meeting in March 2014, which built upon the initial public meeting held in May 2012; and an online questionnaire open to the public. Public outreach will continue into the future, including a community meeting scheduled for September 2014. The public was notified of the opportunity to participate through extensive media coverage of the topic, including newspaper articles (five in the Santa Cruz Sentinel, one in the Contra Costa Times), television stories (one on KSBW, two on KION), and news websites (three stories on Hilltromper.com). Adjacent property owners and several government agencies were contacted by phone or email. Outreach efforts are summarized below.

- **Interviews.** A series of interviews and small meetings with interested parties was conducted by the Land Trust between October 2013 and July 2014. This effort focused on people and organizations that could be substantially affected by the project, such as: owners of adjacent lands, emergency service providers, water purveyors, utilities, law enforcement, and local community groups. Local experts and agencies were also consulted from the following fields: biology, geology, forestry, cultural resources, recreation, and education. Approximately 150 individuals and groups were identified and contacted. In total, such meetings were held with approximately 190 people. The meetings covered a range of topics typically set by the interviewee.
- **Stakeholder Meetings.** In addition to interviews, two small group meetings were held, one for education and research interests, and one for

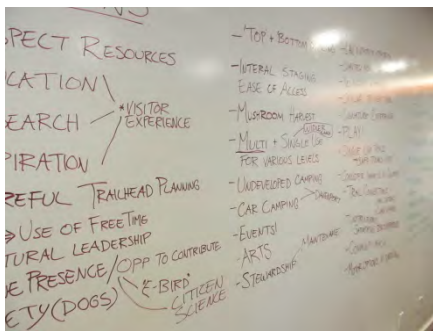




representatives of recreational user groups. Both meetings were facilitated by PlaceWorks and involved a short overview of the project, followed by a roundtable discussion about opportunities and constraints. Attendees of the education meeting included representatives from Swanton Pacific Ranch and University of California Santa Cruz. Attendees of the recreational meeting included hikers, mountain bikers, equestrians, dog-walkers, nature interpreters, and representatives from the Sierra Club, the Mountain Bikers of Santa Cruz County, Bureau of Land Management, the Santa Cruz Bird Club, the 8 Shields Institute, and the Fungus Federation.



- **Questionnaire.** To gain a broad understanding of public concerns and interest in public access, an online questionnaire was hosted from November 2013 through April 2014 to seek public input from neighbors, residents, agency staff and others. Survey participants were asked to express their hopes and concerns for the project by indicating their preferences for various recreational activities, by selecting their top concerns, and by judging proposed access points. The survey also allowed participants the opportunity to provide public and private feedback. To reach individuals without computer access, hard-copies of the survey were distributed by request. Additionally, in May 2014, questionnaires were also shared with a local non-profit to interface with the local Spanish speaking community. In total 2326 people filled out the questionnaire. In June 2014, questionnaire responses were downloaded and summarized. Public comments were also organized. The results and public comments are posted and accessible on the Land Trust’s website, and provided in Appendix 1, Questionnaire Summary.



- **Community Meeting, March 2014.** A community meeting was hosted in March 2014 by the Land Trust. Over 300 people attended the meeting to share their views on public access. At the meeting, the draft access map was presented, and attendees were asked to form small groups to discuss opportunities and constraints. Each group was given the opportunity to share their views and conclusions in front of all the attendees as well as the planners.

Public outreach will be an ongoing component of the project. Future public outreach will include a community meeting in September 2014 where the draft

Plan will be presented followed by an invitation for public input on the draft Plans. Finally, the Land Trust continues to engage and reach out to local stakeholders during the planning process.

## ORGANIZATION OF THE PLAN

The Public Access Plan is organized as follows:

- Chapter 1– Introduction
- Chapter 2 – San Vicente Redwoods Overview
- Chapter 3 – Goals and Policies
- Chapter 4 – Recreation Access Plan
- Chapter 5 – Research/Education Access Plan
- Chapter 6 – Implementing the Plan
- Chapter 7 – Design and Maintenance Guidelines

The first three chapters of the Plan provide an overview of the property and establish broad goals and objectives for the project. The Recreational Access Plan and the Research and Educational Access Plan are provided as Chapters 4 and 5, respectively. Chapters 6 and 7 provide further detail to guide the development and management of public access.

LAND TRUST OF SANTA CRUZ  
SAN VICENTE REDWOODS PUBLIC ACCESS PLAN  
INTRODUCTION

## 2 SAN VICENTE REDWOODS OVERVIEW



This chapter provides a brief overview of properties' biological resources, cultural resources, existing access and circulation system, views, and adjacencies, as well as opportunities for regional connectivity, as they pertain to access opportunities and constraints. An overview of the property is provided in Figure 2-1. The Conservation Plan provides greater detail regarding the property's rich resources.

### BIOLOGICAL RESOURCES

San Vicente Redwoods is comprised of a range of habitat types, including redwood forest, chaparral and riparian habitats, which together support a wide range of plant and animal species. An existing conditions review and biological sensitivity analysis was conducted by WRA Environmental Consultants (WRA) with the purpose of identifying potential biological constraints in relation to the implementation of the San Vicente Redwoods Public Access Plan. The review and analysis was based on review of existing plans and data, including the Conservation Blueprint for Santa Cruz County (2011), the San Vicente Redwoods Conservation Plan (2013), a California Department of Fish and Wildlife (CDFW) California Native Diversity Database (CNDDDB) search (2014), the United States

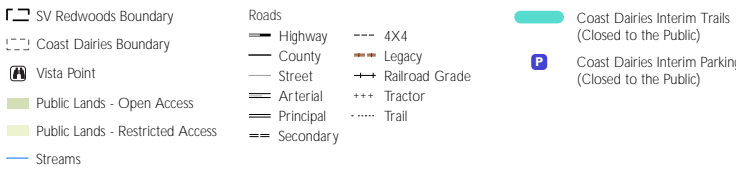
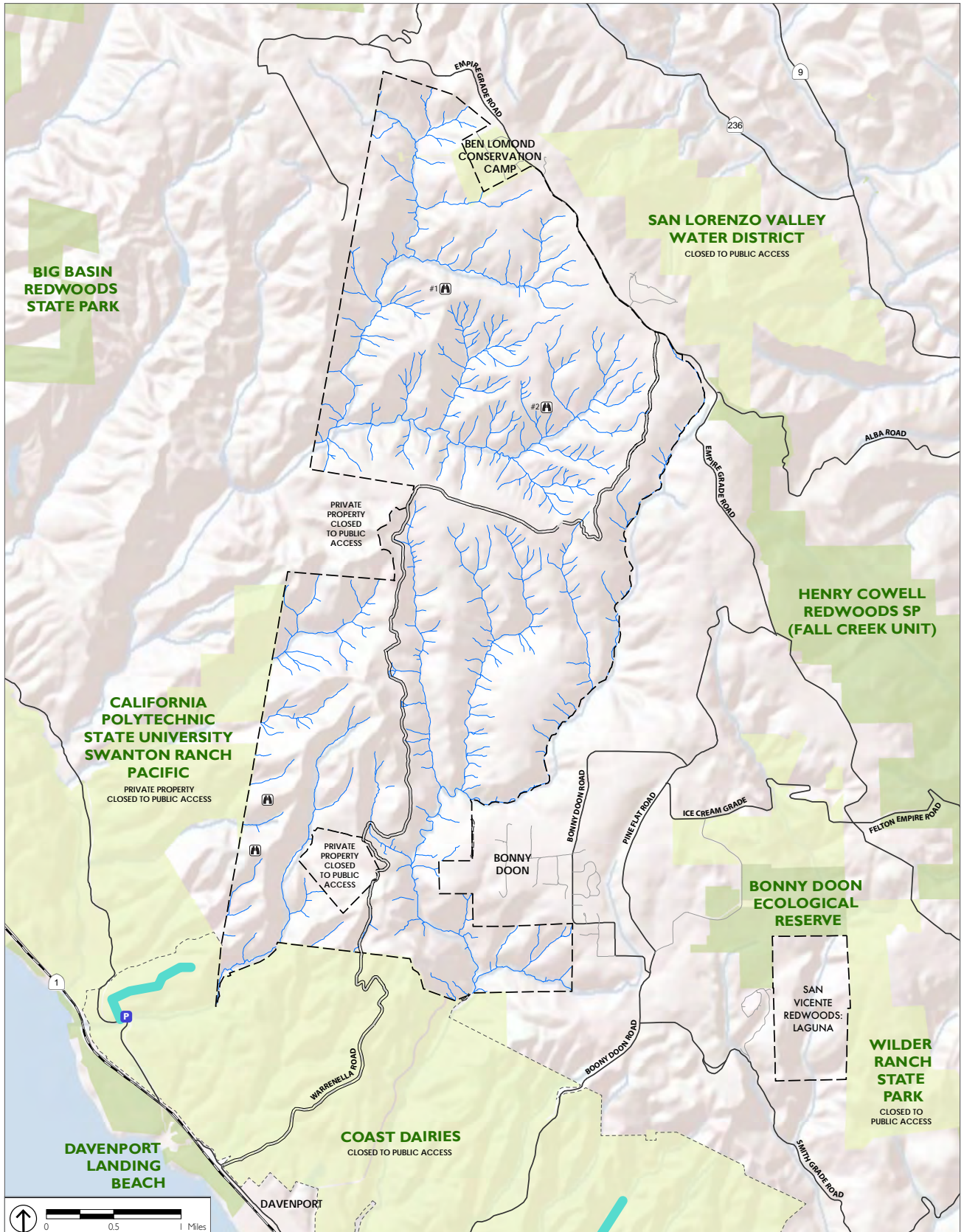


FIGURE 2-1  
 EXISTING CONDITIONS



Fish and Wildlife Service (USFWS) Santa Cruz County quadrangle list of listed species (2014), the California Native Plant Society (CNPS) rare plant list (2014), and with staff of the UC Santa Cruz Puma Project. Based on this analysis, the following sensitive biological resources are present on the San Vicente properties:

- Habitat for four special-status species: the anadromous steelhead (*Oncorhynchus mykiss*), the coho salmon (*Oncorhynchus kisutch*), and the California red-legged frog (*Rana draytonii*) habitat, as well as for the marbled murrelet (*Brachyramphus marmoratus*).
- Movement corridors for mountain lions along gentle slopes and broad ridge top lands.
- Five unique and sensitive habitat types: maritime chaparral, coastal scrub, redwood forests, the endangered Anderson's manzanita (*Arctostaphylos andersonii*) habitat, and Zayante sandhills habitat, which supports a unique and sandy soil that itself is home to several rare plants and insects.

## CULTURAL RESOURCES

During the time of European settlement, the land that is now the San Vicente Redwoods properties was controlled by the Ohlone, who were hunter-gatherers that lived in large settlements, often near fresh water sources and surrounded by diverse and abundant plant and animal life. Through the second half of the 19<sup>th</sup> century, the majority of the land was part of the San Vicente (Escamilla) Land Grant and homesteading occurred on portions of the property. Logging activities began in the early 20<sup>th</sup> century on the northern portion of the property by the San Vicente Logging Company. Ocean Shore Railroad built a rail line that connected the property down to the coast, which was then sold to San Vicente Logging Company in 1920 and abandoned when the logging company went out of business in 1922. The Santa Cruz Portland Cement Company also constructed a rail line from their cement plant on the coast to a limestone quarry on the property, following San Vicente Creek. This quarry supported the small community of Bella Vista, which was destroyed in a 1962 landslide.

Based on the available historical and archeological data from the Northwest Information Center (NWIC), as well as additional sources, there are



approximately 25 cultural resources located on the properties. The property has not been subjected to a survey that covers the entirety of the property, and there is the potential for more resources to be identified as additional studies are conducted for areas where development is planned as part of the Public Access Plan.

## EXISTING ACCESS AND CIRCULATION

Existing access points, internal roads and trails, and the potential for regional trail connectivity are discussed below.

### EXISTING ACCESS POINTS

Perimeter and internal gates restrict access on the San Vicente Redwoods roads. Perimeter access points are located along the northern edge of Empire Grade Road, the western edge of Bonny Doon Road, and along the southern edge that borders the Coast Dairies property on San Vicente Avenue and Warrenella Road.

### EXISTING ROADS AND TRAILS

There are a variety of existing road and trails on the San Vicente Redwoods property, including double lane and single lane roads, the railroad line, tractor roads used for timber harvest operations, and narrow trails. The primary road that extends from the north to the south of the property is the Warrenella Road. This road is used for timber harvest activities and also serves as the sole access road for several private properties. While the Warrenella and many other of the existing roads are currently used and maintained, others are not passable due to overgrowth of vegetation and maintenance needs. The road assessment conducted as part of the planning process determined that some of the existing roads are suitable for use as recreational trails. The assessment was based on numerous factors, including trail grade and alignment and the viability of water crossings.

### REGIONAL TRAIL CONNECTIVITY

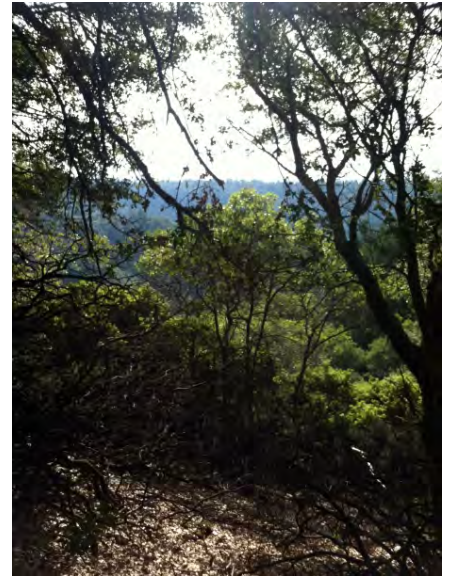
San Vicente Redwoods is well situated to increase connectivity between inland and coastal open space, and between open space to the east and west of the property. Adjacent and nearby open space includes, but is not limited to, Big Basin and Little Basin Redwoods State Parks, Henry Cowell Redwoods State Park (Fall Creek Unit), San Lorenzo Valley Water District property (closed to the

public), the Bonny Doon Ecological Reserve, Cal Poly State University's Swanton Pacific Ranch property (closed to the public), and the Bureau of Land Management's Coast Dairies property.

A key opportunity is to create a trail connection through San Vicente Redwoods from the Fall Creek Unit to Coast Dairies, which would require bridging the gap between the Fall Creek Unit and the San Vicente Redwoods property.

Potential connectivity between the Bonny Doon Ecological Reserve and San Vicente Redwoods: Laguna is relatively unconstrained as existing, informal trail connections exist between these properties. However, coordination will still be necessary to address access and management concerns.

Other trails could connect San Vicente Redwoods to nearby State Parks and other recreational sites, such as Henry Cowell Redwoods State Park, Bonny Doon Ecological Reserve, and Wilder Ranch State Park to the west, and Big Basin Redwoods State Park to the east.



## EXISTING VIEWS AND ADJACENCIES

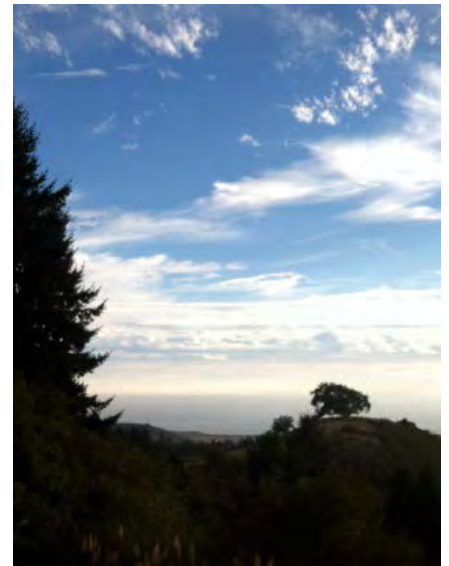
### SCENIC VIEWS

San Vicente Redwoods offers breathtaking views over Coast Dairies to the Pacific Ocean coastline, as well as internal views of the dramatically sculpted topography of the quarry and the thickly forested valley of Deadman Gulch. Vista points in the northern half of the property look down into Deadman Gulch with glimpses of the ocean in the distance on clear days, while vista points in the southern half of the property look south out over the Coast Dairies to the ocean.

### NEIGHBOR VIEWS AND ADJACENCIES

San Vicente Redwoods is surrounded by a variety of neighbors, including single-family residential, institutional, and recreational uses. The following properties border San Vicente Redwoods.

- Ben Lomond Conservation Camp, a California Department of Corrections facility, to the north, on the same side of Empire Grade Road.
- Bureau of Land Management Coast Dairies to the south.



- California Polytechnic State University's Swanton Pacific Ranch to the southwest.
- Private residential property inholding.
- Other private properties, including the private residences in the town of Davenport and the Swanton Road area.

### 3 GOALS AND POLICIES



The Public Access Plan identifies goals and policies that will guide the development of public access at San Vicente Redwoods are identified below. Each goal is listed in bold and followed by a list of respective policies that support it. Policies are also referenced in Table 6-2 of Chapter 6, Implementing the Plan, showing how the policies guide implementation.

The Management Plan will define goals related to conservation, restoration, timber harvest, and natural and cultural resources.

#### GENERAL ACCESS GOALS AND POLICIES

- |                 |  |
|-----------------|--|
| <b>ACCESS 1</b> | <b>Provide sustainable access consistent with the conservation values of the property.</b>                               |
| ACCESS 1.1      | Follow appropriate steps to minimize impacts to sensitive resources when opening any areas, roads, or trails for access. |
| ACCESS 1.2      | Open designated trails to the public and ensure baseline level of public access.   |
| ACCESS 1.3      | Develop framework/strategies to ensure financial sustainability of public access.  |
| ACCESS 1.4      | Implement permit system to control and monitor access.   |
| ACCESS 1.5      | Coordinate public access with other property uses, including timber harvest, restoration, and conservation.              |



ACCESS 1.6 Monitor the condition of access features, including staging areas trails, to assess condition of features and impacts to resources; utilize findings for adaptive management.

ACCESS 1.7 Abide by the requirements of the Conservation Plan and Conservation Easement, Management Plan and Timber Harvest Plan.

**ACCESS 2 Provide safe public access.**

ACCESS 2.1 Provide surveillance, security, and signage for public safety and protection of resources.

ACCESS 2.2 Provide trail etiquette coaching to users and safety monitoring.

ACCESS 2.3 Work with partners to ensure adequate provision of emergency services.

**ACCESS 3 Engage a variety of partners in public access management.**

ACCESS 3.1 Establish user-agreements with organized user groups that identify responsibilities of user groups

ACCESS 3.2 Engage organized groups and individuals in stewardship activities, such as volunteer patrols, interpretation, and trail construction and maintenance, where appropriate.

**ACCESS 4 Minimize the impact on the security, privacy, and rural character of the neighborhoods near the property, while achieving the other goals of the Plan.**

ACCESS 4.1 Provide buffers between public access features and neighboring properties where feasible.

ACCESS 4.2 Utilize signage and surveillance to minimize impacts to neighboring properties caused by trespassing or other activities.

ACCESS 4.3 Design access features to complement the natural character of the San Vicente Redwoods and the Santa Cruz Mountains, as well as adjacent rural neighborhoods.

## RECREATIONAL ACCESS GOALS AND POLICIES

### **RECREATION 1 Provide opportunities for passive recreation.**

- RECREATION 1.1 Open areas of San Vicente Redwoods for low impact recreation.
- RECREATION 1.2 Allow hiking on designated trails.
- RECREATION 1.3 Allow bicycle use on designated trails.
- RECREATION 1.4 Allow dogs on leash on designated trails.
- RECREATION 1.5 Allow equestrian use on designated trails.
- RECREATION 1.6 Allow for quiet enjoyment of nature.

### **RECREATION 2 Provide for public staging/parking.**

- RECREATION 2.1 Provide staging area(s) off of Empire Grade Road.
- RECREATION 2.2 Coordinate with adjacent open space managers regarding the potential for off-site staging area(s) to be utilized by San Vicente Redwoods trail users.

### **RECREATION 3 Provide a trail network that supports multiple uses while minimizing conflicts.**

- RECREATION 3.1 Provide trail opportunities that offer a variety of experiences through different habitats, different trail lengths, and difficulty levels.
- RECREATION 3.2 Follow appropriate steps to ensure that trail routes avoid the following, to the extent possible: neighbor views, safety hazards, impacts to sensitive resources, and interference with timber harvest operations.
- RECREATION 3.3 Provide multi-use access on designated existing roads in the initial phases of trail development.
- RECREATION 3.4 Construct new trails that allow for separate-use trails or improve sustainability of multi-use trails.
- RECREATION 3.5 Provide loop trails, especially in the northern part of the property where they can be accessed from the Empire Grade staging area(s).

RECREATION 3.6 Provide through-trails that connect from the Empire Grade staging area(s) to the Coast Dairies property.

RECREATION 3.7 Collaborate with the Bureau of Land Management on potential loop trails accessible from the Coast Dairies property.

**RECREATION 4 Promote regional trail connections.**

RECREATION 4.1 Designate a Skyline-to-Sea Trail corridor through San Vicente Redwoods, extending from Empire Grade to Coast Dairies.

RECREATION 4.2 Provide additional trail connections to other public open space lands where feasible.

**RECREATION 5 Provide amenities that support passive recreation activities.**

RECREATION 5.1 Provide trail-related amenities, such as signage and benches.

RECREATION 5.2 Provide amenities at staging areas; amenities may include signage, benches, trash receptacles, restrooms and water fountain.

RECREATION 5.3 Provide picnic facilities and allow for informal gathering in designated areas.

**RESEARCH AND EDUCATION ACCESS GOALS AND POLICIES**

All of the recreation goals listed above also apply to research and education, but additional goals include the following.

**RESEARCH 1 Provide the opportunity for partners to conduct research and education about the resources and activities at San Vicente Redwoods, establishing it as a living laboratory.**

RESEARCH 1.1 Allow partners to interpret the natural and cultural resources of San Vicente Redwoods, as well as active uses of the property (sustainable timber harvest and restoration activities).

RESEARCH 1.2 Allow for use of property by school groups, tours, and other educational groups.



RESEARCH 1.3 Facilitate a variety of research projects (short-term, long-term, various topics).

**RESEARCH 2 Utilize research as a management tool.**

RESEARCH 1.4 Encourage research projects that will inform management of public access, such as studies that monitor environmental impacts of visitors on the reserves.

RESEARCH 1.5 Consider research outcomes in management decisions and any updates to the Public Access Plan.

**RESEARCH 3 Promote collaborative research.**

RESEARCH 3.1 Encourage collaborative research efforts.

RESEARCH 3.2 Encourage compilation and sharing of research data and findings.

LAND TRUST OF SANTA CRUZ  
SAN VICENTE REDWOODS PUBLIC ACCESS PLAN  
GOALS AND POLICIES

## 4 RECREATION ACCESS PLAN



The Recreation Access Plan is intended to guide the development of high-quality passive recreation opportunities that meet the goals for access defined in Chapter 3, Goals and Policies, as well as the conservation goals for the property. Passive recreation activities appropriate for San Vicente Redwoods are defined as allowable uses, below.

The types of recreational use that are allowable at San Vicente Redwoods, as well as concepts for providing baseline (minimum) and maximum levels of trails and other access features to support recreational use, are identified in this Plan. The Plan aims to provide immediate and long-term recreational access for the local and regional communities, and to build regional connectivity. Additional guidance for implementing this Plan is provided in Chapters 6, Implementing the Plan, and Chapter 7, Design and Maintenance Guidelines. All components of the Plan must be in compliance with the California Environmental Quality Act (CEQA), the purpose of which is to identify and reduce environmental impacts.

### ACCESS OVERVIEW AND ALLOWABLE USES

The Conservation Easement for San Vicente Redwoods gives Save the Redwoods League (League) the right and responsibility to provide public access. San Vicente Redwoods will provide opportunities for passive recreation activities as identified in this section. Figure 4-1 shows the Recreation Access Plan at buildout.

## ALLOWED RECREATIONAL USES

The following uses are allowed during daylight at designated trails and/or use areas:

- Hiking
- Biking
- Horse-riding
- Dog-walking (on-leash)
- Picnicking and small group gatherings
- Nature observation

Allowable uses at the Laguna property are limited to hiking, horseback riding, and nature observation from designated trails.

Other low-impact recreational activities that require limited infrastructure may be allowed as determined appropriate by the Public Access Manager, defined in Chapter 6, and its partners.

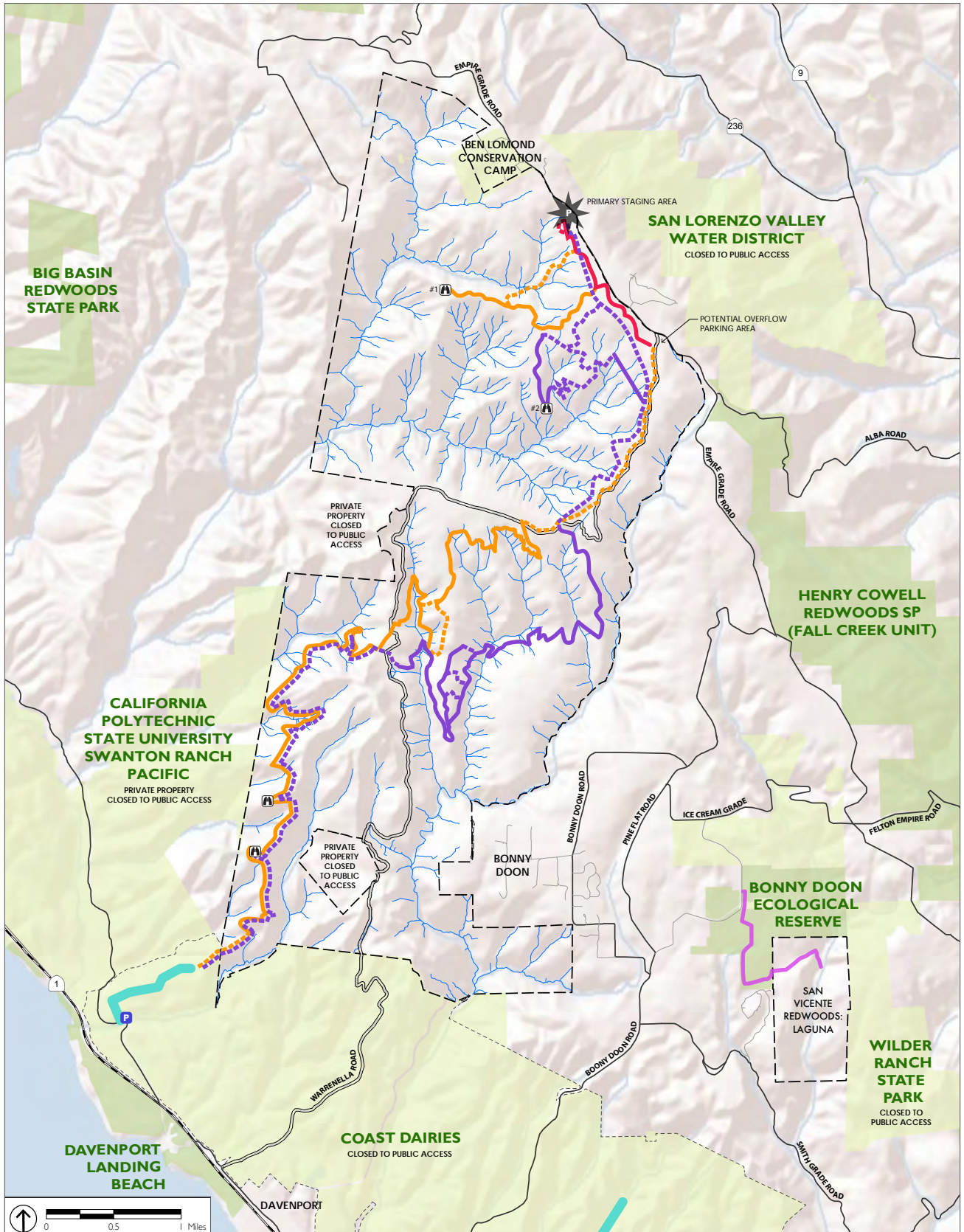
## PERMIT REQUIREMENTS

Recreational activities will require a permit if they are either (1) not identified as an allowed use; (2) would take place outside of daylight hours, or (3) would not be limited to designated public access trails and use areas.

Permits may also be required for parking at designated staging areas and/or for certain on-trail recreational use at the discretion of the Public Access Manager, Owner(s), and Conservation Easement Holder.

Commercial uses may be allowed only with a permit and fee at the discretion of the Public Access Manager, Owner(s), and Conservation Easement Holder. Commercial uses include but are not limited to harvesting (such as mushrooms), shuttle drop-offs, tours, and ecotourism activities.

Implementation of a permit program is further discussed in Chapter 6, Implementing the Plan.



SV Redwoods Boundary  
 Coast Dairies Boundary  
 Vista Point  
 Public Lands - Open Access  
 Public Lands - Restricted Access  
 Streams

**Roads**  
 Highway  
 County  
 Street  
 Arterial  
 Principal  
 Secondary  
 4X4  
 Legacy  
 Railroad Grade  
 Tractor  
 Trail

Coast Dairies Interim Trails (Closed to the Public)  
 Coast Dairies Interim Parking (Closed to the Public)  
 SV Redwoods Parking

**Conceptual Trail Alignments**  
 (Dashed Line for New Trails; Solid Line for Existing Roads/Trails):  
 Hike/Equestrian Trails (Dog Walking Allowed)  
 Hike/Equestrian Trails  
 Bike Trails (Hiking Allowed, but Discouraged)  
 Laguna-BDER Trail Connection (Hike/Equestrian Only)

FIGURE 4-1  
 ACCESS AT BUILDOUT



### PROHIBITED USES

Recreational uses that will not be allowed on the property under any circumstance include, but are not limited to, smoking, unpermitted alcohol use, fire making, collecting, hunting, fishing, off-road vehicles or motorized dirt biking, rock climbing, and rappelling. Any commercial use including commercial harvesting, shuttle drop-offs, ecotourism and tours, would require permits. Commercial uses may be allowed with a fee at the discretion of the Public Access Manager and Conservation Easement Holder.



### STAGING AREAS

Staging areas on the San Vicente Redwoods property are to be limited to a maximum of two staging areas located off Empire Grade Road. The primary parking lot should be opened with capacity for at least 30 cars as part of Phase 1, and represents the minimum amount of staging to be provided. The primary staging area may be expanded and improved in Phase 2, and secondary or overflow parking would be developed and opened in Phase 2 as needed to accommodate parking demand and minimize impacts to neighbors. Staging areas should be designed to meet the accessibility requirements of the United States Access Board’s Final Guidelines for Outdoor Developed Areas (ODA). See Chapter 7 for additional details and design guidance.

Access features associated with staging areas may include entry gates, signage, informational kiosks, benches, picnic area/gathering area, trash and recycling receptacles, dog-courtesy stations, restrooms (composting or pump-out toilet) and drinking fountains.

Where trail connections are established between San Vicente Redwoods and adjacent open space, the adjacent open space may provide additional staging opportunities for San Vicente Redwoods trail users. This is anticipated at the Coast Dairies and Bonny Doon Ecological Reserve, and will require coordination with managing entities.

## TRAIL NETWORK

Public access on the San Vicente Redwoods property will be supported by a network of multi-use and separate-use trails, as well as loop and through trails for all use types. The conceptual alignments are intended to identify existing roads that should be converted to trails, as well as general corridors and connection points for newly constructed trails. Actual alignments may vary depending on further field reconnaissance, available funding, and other considerations.

Key design goals for development of the trail network are listed below. Chapter 7, Design and Maintenance Guidelines, provides greater detail regarding requirements for trail design and maintenance.

- Provide for a variety of experiences through different habitats.
- Concentrate loop trails in the northern part of the property, where they can be accessed from the Empire Grade staging area(s).
- Establish through trails connecting the Empire Grade staging areas down to the Coast Dairies property.
- Provide buffers around private property.
- Accommodate other property uses, including timber harvest and research uses.
- Avoid, to the extent possible: neighbor views, safety hazards, and impacts to sensitive resources including water sources, mountain lions, and cultural resources.
- Allow for sustainable trail grades and orientation. Use of existing roads as recreational trails should be limited to roads identified as suitable (grades under 15 percent and without fall-line alignment) where possible, and new trail construction should emphasize narrow trails and should result in separate use trails.

The plan outlines two implementation phases, Phase 1 for years 1-3 following completion of the planning process, and Phase 2, for the period extending out 10 years.



### TRAIL NETWORK – PHASE 1

Trails opened to the public in Phase 1 would be multi-use trails located on existing roads, and would be accessed from the Primary Staging Area, as shown in Figure 4-2. The approximately 3.5 miles of existing roads that would be opened within the main property for trail use in Phase 1 would provide opportunities for short loop experiences, and provide access to two scenic overlooks into Deadman Gulch and beyond. Hiking, equestrian and mountain biking would be allowed on all Phase 1 trails, and on-leash dog walking would be allowed on the frontage trail that parallels Empire Grade. No new water crossings would be required.

In addition, an approximately 0.5-mile trail would be opened for public access at the Laguna property, accessible from the 1-mile trail that extends to the property from the Martin Road Parking Lot of the Bonny Doon Ecological Reserve. This trail would be limited to hiking and horseback riding. Staging for this trail would be accommodated by the Martin Road Parking Lot. The opening of this trail would be independent of the Phase 1 trails for the main property, but is anticipated to occur within the Phase 1 time frame (1- 3 years).

A comparison of trail development in Phase 1 and Phase 2 within the northern area of the property is provided in Figure 4-3.

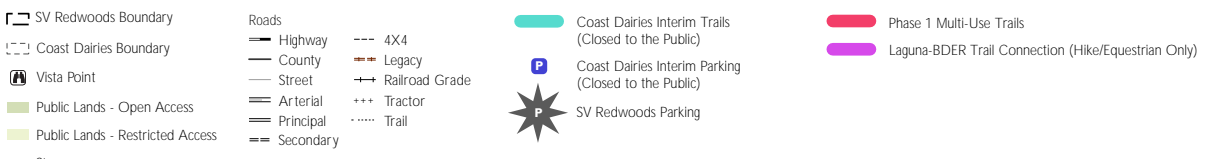
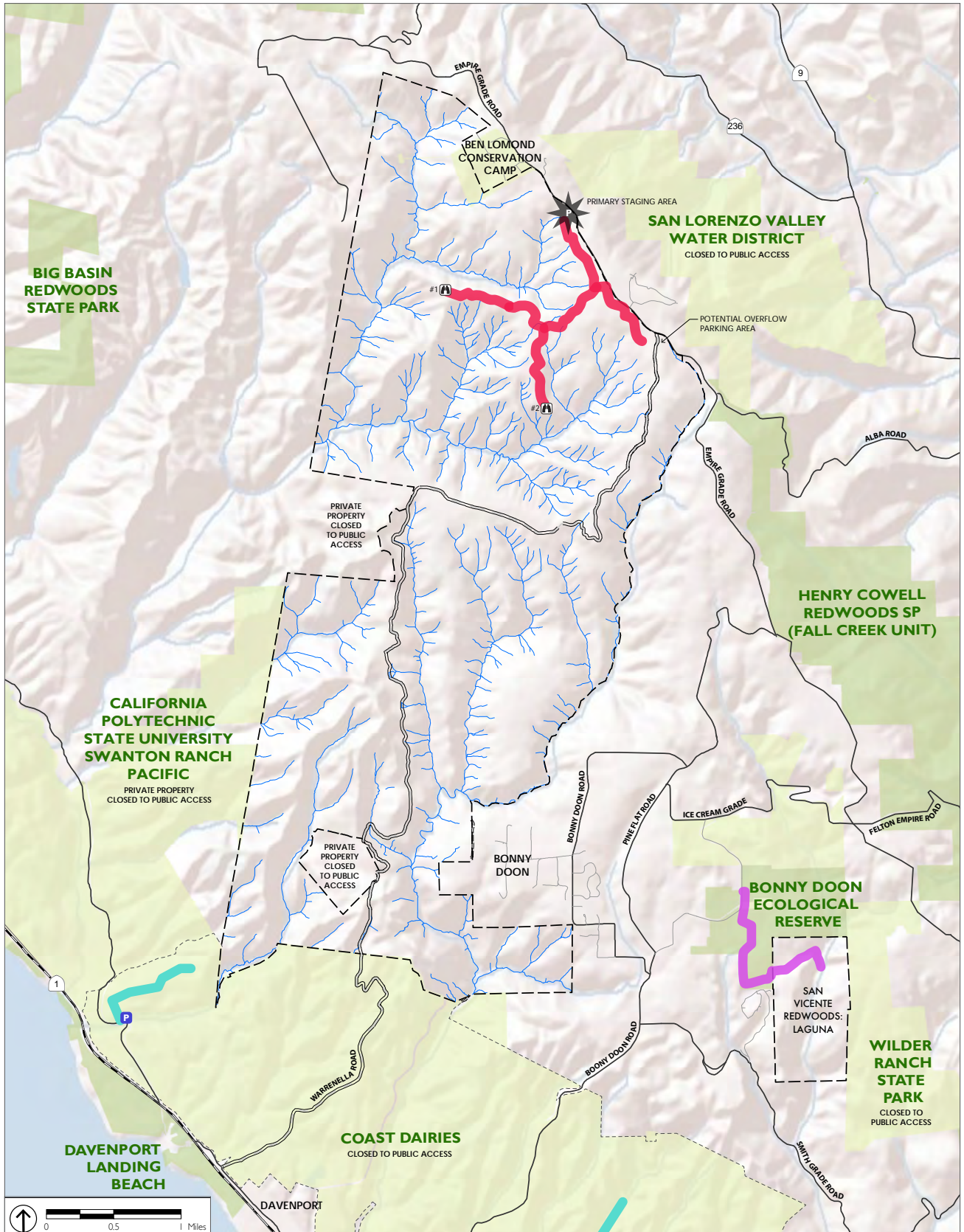
### TRAIL NETWORK AT COMPLETION

Complete implementation of the Public Access Management Plan would result in over 38 miles of recreational trails. Where feasible and compatible with recreational and other uses, trails will be located on existing roads. New trail construction will be informed by the Roads Management portion of the Management Plan (under development), and if possible, new trails will be developed in conjunction with the decommission of roads elsewhere on the property. A preliminary estimate is that approximately 46 percent of the trails will be located on existing roads.

As discussed above, actual alignments may vary from what is shown in Figure 4-1 as necessary to better meet the concepts and goals described above and respond to future opportunities and constraints. Trail mileage estimates for trails located on existing roads are estimated based on GIS analysis of existing road length. Trail mileage estimates for newly constructed trails is measured



using GIS and increased by 50 percent to allow for sinuosity, grade changes, and other anticipated variations in trail alignment. Trail mileage at buildout is summarized in Table 4-1.



**FIGURE 4-2**  
**PHASE I: BASELINE ACCESS**

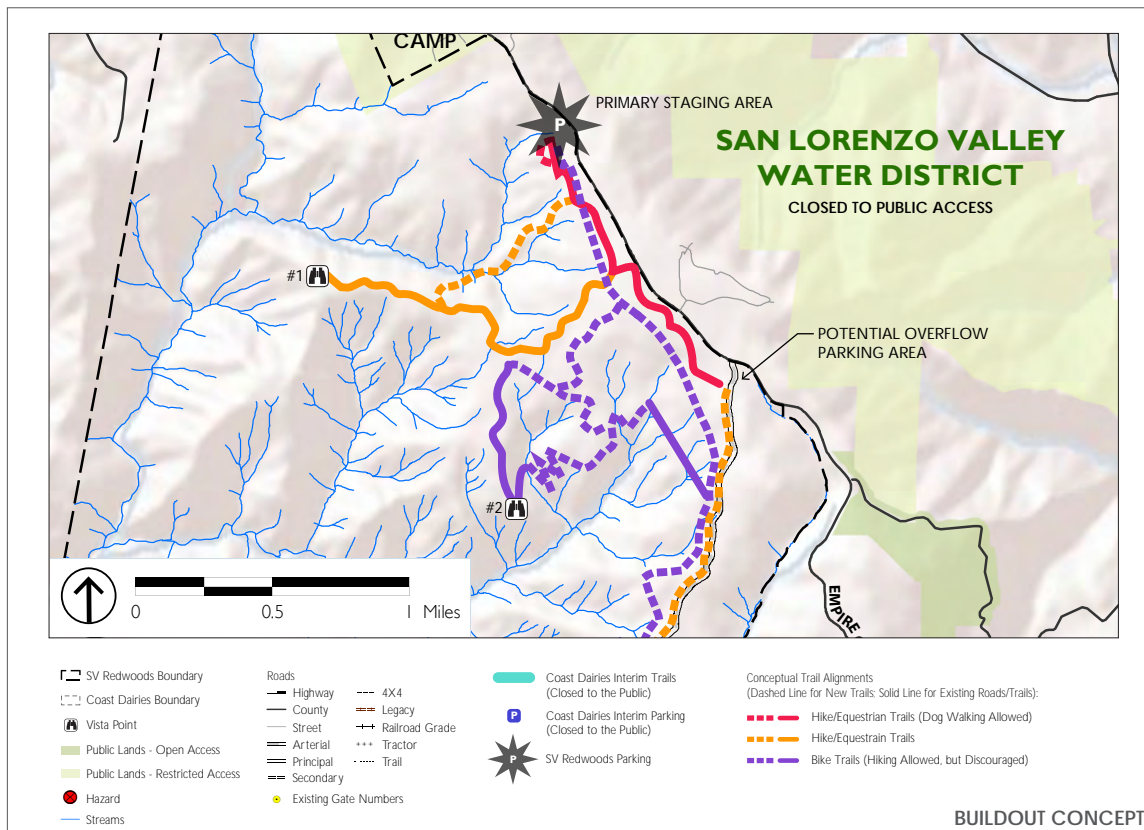
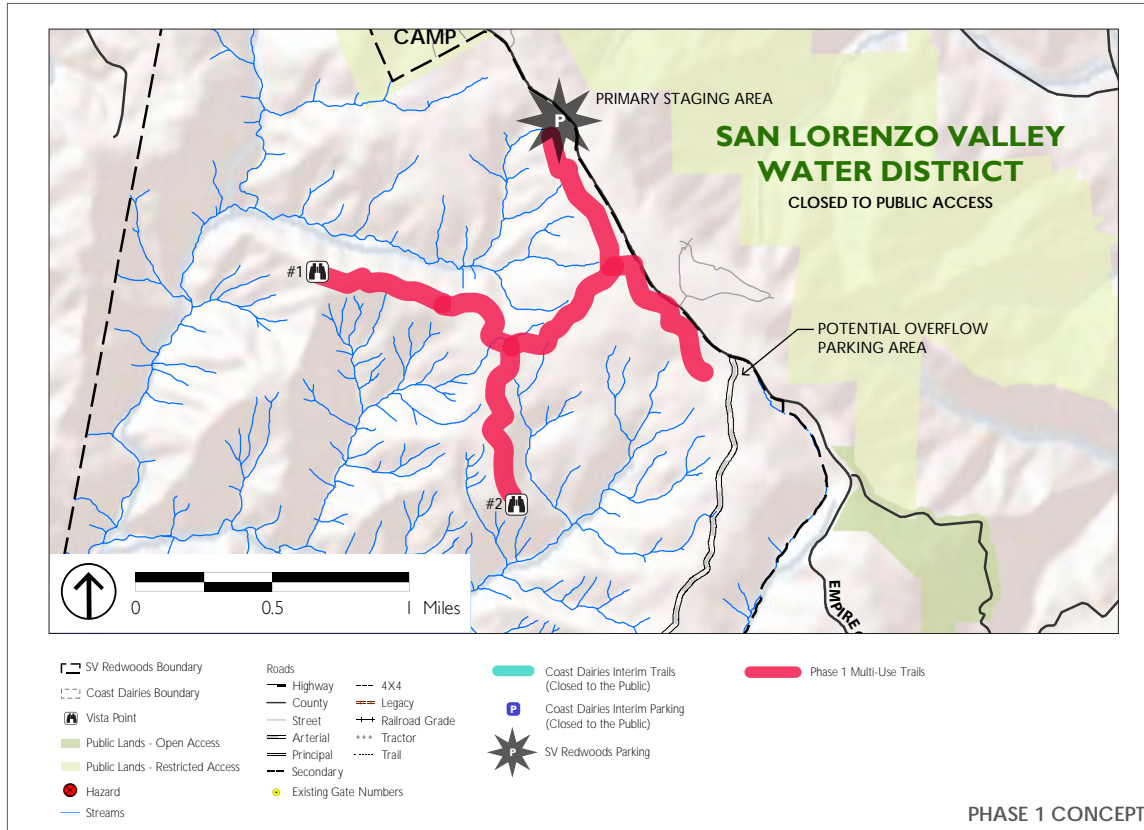


FIGURE 4-3  
 PHASE COMPARISON

#### MULTI-USE TRAILS

At full implementation, multi-use trails would be limited to short segments where separate use trails are not feasible. While this summary of trails assumes that most trails are separate at full implementation, it is possible that certain areas could remain as multi-use trails due to various constraints. Such areas may include the southern portion of the through-trail, the portion of the through-trail that borders Warrenella Road, and segments near staging areas.

As new trails are constructed, multi-use trails located along existing roads may be converted to equestrian/hiking trails and/or closed to public access where the routes are not sustainable.

#### EQUESTRIAN/HIKING TRAILS

At full implementation, there would be approximately 16.5 miles of equestrian/hiking trails, of which approximately 60 percent of the trails would be located on existing routes.



- **Northern Loop Trail.** This trail is approximately 2.5 miles long and is primarily located on existing roads. The trail route connects to Scenic Overlook #1. Spur trails may be added for access to interesting trees and/or views.
- **Northern Frontage Trail.** The existing route that runs parallel to Empire Grade Road is designated as a dog-on-leash walking trail. This trail is approximately 1.5 miles long and uses existing fire roads, which are consistently within 0.5 miles from Empire Grade Road. Buildout may require shifting the alignment to avoid viewing homes, and should include small loops at either end to avoid backtracking to turn around. Potential conflicts between equestrians and dogs should be reduced through strategic trail design and signage. The trail should also be designed to meet ADA accessibility guidelines, to the extent possible. Additional guidance on ADA accessibility is provided in Chapter 7.
- **Through-Trail.** This trail is approximately 12 miles long from Empire Grade Staging Area #2 to Coast Dairies. At full implementation, existing fire roads can be used for equestrians/hikers with a newly constructed, parallel single-track for mountain bikes. The northern portion of the trail from Staging Area #2 to Gate 4 would require significant new trail construction in order to avoid the Warrenella Road, which will be closed to recreational use.

From Gate 4 south to Coast Dairies, the trail follows existing fire roads, crossing Warrenella Road between Gate #9 and #11. Where the fire road ends in the southwest corner of the property, new trail construction will be required.

- **Laguna Trail (Equestrian/Hiking Only).** The approximately 0.5-mile trail within the Laguna property would be opened for public access as described above. This existing trail connects to the Bonny Doon Ecological Reserve.

#### MOUNTAIN BIKING/HIKING TRAILS

At full implementation, there would be approximately 21.5 miles of mountain bike trails of which approximately 30 percent of the trails would be located on existing roads. Hikers are allowed, but not encouraged to be on these trails.. The condition of stream crossings along the existing roads should be evaluated and the crossings should be improved or replaced, as needed. New trail alignments should be designed to minimize the number of stream crossings. All new mountain bike trails should be narrow single track trails and avoid ridges with fire roads downslope to discourage impromptu, fall-line trail construction. Mountain bike trails would include the following:

- **Northern Loop Trails.** The northern biking loop trails are accessible from the primary Empire Grade parking area, located at Gate #20.5. There would be approximately 5.5 miles of trails and approximately 1.5 miles of which would be on existing roads, including usable portions of the Pacific Gas & Electric (PG&E) access road. The trail route would connect to Scenic Overlook #2 and avoid spurs and dead-end trails where possible.
- **Through-Trail (with internal loops and alternate trails in working forest).** This trail is approximately 16 miles long, connecting from the secondary Gate #1A to Coast Dairies property. The northern end of the trail runs parallel to Warrenella Road. The trail leaves Warrenella Road around Gate 4 to follow existing fire roads. The trail crosses Warrenella Road between Gate #9 and #11, and follows the existing fire road toward the southwest corner of the property until it ends. Alternate routes may be necessary in the working forest to allow for avoidance of areas closed for timber harvest. In addition, new construction may be utilized to allow avoidance of unsustainable roads and create internal loop trails.



## OTHER ACCESS FEATURES

Other access features may include signage, limited site furnishings, and gates and fencing for security and safety. Signage should be used to communicate regulatory, directional, hazard, and interpretive information to the public. Limited site furnishings may include benches along the trail network and at scenic vistas or other destinations, as well as picnic tables in designated areas. See Chapter 7, Design and Maintenance Guidelines, for additional information on access features.

**TABLE 4-1 TRAIL NETWORK SUMMARY (BUILDOUT)**

Trail Type*	Located on Existing Road/Trails (Miles)	New Construction (Miles)	Total Trails at Buildout (Miles)
<b>Equestrian/Hiking Trails</b>			
Northern Loop Trail	2	0.5	2.5
Northern Frontage Trail (Dogs on Leash Allowed)	1.5		1.5
Through- Trail	7	5	12
Laguna Trail (Equestrian/Hiking Only)	0.5		0.5
<i>Total (Equestrian/Hiking)</i>	<i>11</i>	<i>5.5</i>	<i>16.5</i>
<b>Mountain Biking/Hiking Trails</b>			
Northern Loop Trails	1.5	4	5.5
Through Trail	5	10	16
<i>Total (Mountain Bike/Hiking)</i>	<i>6.5</i>	<i>14</i>	<i>21.5</i>
<b>Total (All Trails)</b>	<b>17.5 miles</b>	<b>19.5 miles</b>	<b>38</b>

\* Approximately 3.5 miles of multi-use trail will be opened for access as part of Phase 1. Multi-use trails will transition to separate uses as new trails are constructed. Although some trail segments may be utilized as multi-use trails in perpetuity, mileage estimates assume transition of all multi-use trails to separate use trails.

## 5 RESEARCH/EDUCATION ACCESS PLAN



Research and educational uses are similar in that they share the goal of increasing knowledge and understanding. While research uses strive to generate new information and understanding, education is focused on sharing experiences, concepts, and information. While such uses are complimentary to recreational access, the requirements and implications of successful research and educational access programs are unique and therefore addressed independently in this chapter.

This chapter identifies potential research and education uses appropriate for San Vicente Redwoods, as well as the facilities and management framework necessary for successful programs. Goals and policies for research and education are provided in Chapter 3, Goals and Policies.

### **ACCESS OVERVIEW AND ALLOWABLE USES**

There are endless opportunities for research and educational activities at San Vicente Redwoods. However, permits will be required for all research projects and for educational uses, except where such uses are indistinguishable from recreational uses and will only occur on publicly accessible trails and staging area(s). Potential research and educational uses are discussed below.



## RESEARCH USES

Research uses may include a variety of project types ranging from short- to long-term projects; private projects to student or class projects; and site-based to landscape scale studies. San Vicente Redwoods provides ample opportunities for both natural and social science studies, as well as for research that extends across multiple protected open space areas. As the Conservation Plan supports field research in all units, research may be conducted within restoration, conservation reserves, or the working forest, pending a permit as discussed under Permit System, below, and in Chapter 6, Implementing the Plan.

## EDUCATION USES

Education uses supported by the property may include but are not limited to interpretive tours, field classes, eco-tourism, and restoration-based education and stewardship activities. San Vicente Redwoods is well situated to provide rich experiences for students of all ages, although group size may be limited depending on the intended location and duration of the activity.

Educational programs may be organized by schools, non-profit organizations, or other partners. Research themes will include the ecological, historical, and social aspects of the property.

In addition to the cultural and ecological topics identified above, San Vicente Redwoods may become an ideal location to showcase the synergist relationship between public access, resource protection, and resource management (timber harvest).

## PHYSICAL REQUIREMENTS

The physical and spatial requirements for research and education projects will vary according to the project and/or activity. However, the following physical requirements generally satisfy the key demands of uses appropriate for the properties:

**On-Road Access.** Given that research and education may be permitted at various areas throughout the property, use of access points and roads beyond those identified for public access may be required in many situations. Such use will need to be carefully coordinating with other property uses, including restoration and timber harvest.



**Off-Road Access.** In addition to utilizing existing roads, research and education uses may require off-road access throughout the property, including but not limited to, watercourses, sensitive habitats, and active areas of the working forest. During the permit review process, areas affected by proposed projects and/or programs and their potential impacts will need be assessed.

**Field Research Facility.** A research facility was identified by stakeholders as desirable but not necessary. Although a research facility is not envisioned as part of Phase 1 or Phase 2 of the Public Access Plan, the Conservation Plan identifies a potential location for a permanent field research facility in the Ferrari Creek area of the San Vicente Restoration Reserve. Should a research facility be considered for future development, considerations for locating a facility should include avoidance of impacts to sensitive resources and vehicular accessibility.

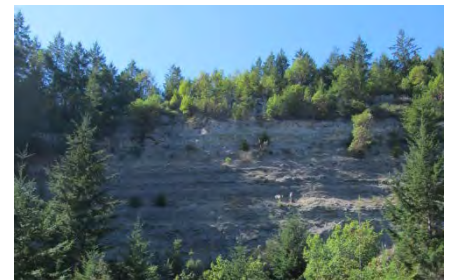
**Gathering Space.** Gathering spaces may be necessary for certain research and education projects and programs, depending on the specific project and the number of individuals involved. Gathering spaces can be informal, and should be located in areas where tree removal and/or vegetation clearing will not be required. The intent of establishing such areas is to concentrate impacts in specified areas while creating desirable places to gather in terms of meaningful views, physical comfort and unique experiences. Chapter 7, Design and Maintenance Guidelines, provides additional guidance for the development of informal gathering spaces.

## CONTROLLING AND MONITORING ACCESS

This section presents three key strategies for controlling and monitoring research and educational access at San Vicente Redwoods.

### PERMIT PROGRAM

A permit program/system is the primary tool for reviewing, monitoring, and documenting research projects. Both research and education access permits would be reviewed by the Public Access Manager and the Conservation Easement Holder, with consultation of the Owner(s) and other advisors as they deem necessary.



Permits will be required for all research projects and for educational uses, except where such uses are indistinguishable from recreational uses and will only occur on publicly accessible trails and staging area(s). Research that leaves materials behind or manipulates the environment will require a greater level of review and may not be permitted.

Any commercial use would require permits, including for-profit educational tours and eco-tourism. Commercial uses may be allowed with a fee at the discretion of the Public Access Manager and Conservation Easement Holder. Any uses must be in compliance with the Conservation Easement and consistent with requirements for 501(c)(3) status. Additional detail regarding permit programs is provided in Chapter 6.



#### ARCHIVE/DATABASE

A database and/or archive that will identify research projects conducted at San Vicente Redwoods should be established as part of the permit program. The database may include data generated by projects and/or project findings as appropriate. The database should serve to facilitate communication and scheduling amongst the Public Access Manager, Easement Holder, and property owner; facilitate long term monitoring and documenting of activities; and inform adaptive management of the properties. Furthermore, such a database would facilitate the process of sharing research data sets and findings as appropriate with other researchers or entities.

Educational permits granted may also be included in the database for purposes of documentation and scheduling.

#### COLLABORATION

Collaboration amongst various entities, such as UCSC Natural Reserves, Swanton Pacific Ranch (Cal Poly), and others, has the potential to lead to exciting research with meaningful implications. In addition to establishing and maintaining a database, permit reviewers should consider prioritization of permits for collaborative projects, and the Public Access Manager and its partners should maintain relationships with key research partners in order to identify and explore opportunities for collaboration and/or partnerships.

The implementation of the research and education should consider experiences of other institutions, including the UCSC Natural Reserves, Swanton Pacific Ranch (Cal Poly), and CalFIRE Demonstration State Forests.



## 6 IMPLEMENTING THE PLAN



This chapter is intended to guide implementation of the Public Access Plan, including development of public access features and management of recreational, research and educational uses. Key components of this chapter include identification of appropriate management framework under various ownership scenarios; a phasing plan that also defines the baseline and maximum level of access to be provided; implementation strategies; financial considerations; and a discussion of future planning and environmental review. Specific design and maintenance guidelines are provided in Chapter 7, Design and Maintenance Guidelines.

### MANAGEMENT FRAMEWORK

Although Save the Redwoods League (League) is responsible for providing public access due to its role as the Conservation Easement Holder, it is anticipated that other entities will be take on management responsibilities under contracted agreements with the League.

The distribution of management responsibilities amongst key parties will depend on the ownership of the property. In order to provide clear guidance as well as flexibility given the unknown future ownership of the properties, three scenarios for management structure are identified in this Plan. The first scenario, Interim Access, assumes current ownership. The other scenarios are intended for Future Access under new ownership.

This section describes the key parties responsible for providing, or supporting provision of, public access at San Vicente Redwoods; identifies the legal agreements that will define relationships and responsibilities; and describes potential organizational structure under the Interim and Future Access Scenarios.



Photo courtesy of Nadia Hamey.

## KEY PARTIES

Key parties with responsibility to provide management, or support the provision of public access at San Vicente Redwoods, are identified below. Responsibilities of each party are detailed in the Implementation Plan.

- **Conservation Easement Holder.** The League will hold the Conservation Easement, and therefore will have the right and responsibility to provide for public access.
- **Property Owner.** The owner is the entity(ies) holding title to the land. The role of the owner(s) in providing for public access will depend upon the owner(s)' mission and/or goals as well as their organizational capacity. At a minimum, the owner will need to facilitate coordination between the Public Access Manager and managers of other property activities, such as timber harvest.
- **Public Access Manager.** The Public Access Manager will manage public access under a contracted agreement with the League (referred to as the Access Management Agreement). The Public Access Manager could be the owner or a separate entity, such as the Land Trust of Santa Cruz County or another Conservation Partner. The Public Access Manager may issue permits for recreational, research, and educational uses as identified in Chapter 4, Recreation Access Plan, and may establish Use Agreements with organized user groups. The Public Access Manager does not need to conduct all of the tasks identified in the Implementation Plan, but will be responsible for ensuring that they are carried out through coordination with and oversight of partners.

The Public Access Manager will continue to implement the Financial Management Plan for public access and the Road and Trail Maintenance Plan, manage maintenance and security of areas opened for public access, and manage use permits for recreation and research. In addition, the Public Access

Manager will monitor access demand and impacts, and update management and maintenance plans pertaining to public access as necessary to ensure that the Public Access Goals identified in this Plan are met.

### LEGAL FRAMEWORK/AGREEMENTS AND LIABILITY

- **Conservation Easement.** The Conservation Easement is the legal agreement between the landowners (POST and Sempervirens Fund) and the Easement Holder that identifies specific terms for conservation and potential uses of the property. As the holder of the Conservation Easement, the League has the right and responsibility to provide public access.
- **Access Management Agreement.** An Access Management Agreement will be established between the League and the Public Access Manager, giving right and responsibility for management responsibilities identified in the Implementation Plan to the Public Access Manager.
- **Use Agreements.** Use Agreements may be established between the Public Access Manager and organized user groups. Such agreements may be used to establish conditions under which user groups may access the property, and specify the type of access allowed. For instance, an agreement with a recreational user group may allow them to construct and utilize a trail as long as it is maintained to meet specified criteria.

It is important that all responsible parties, including the Property Owner, Conservation Easement Holder, and Public Access Manager maintain appropriate liability protection insurance. However, successful control and monitoring of access will minimize liability concerns for all responsible parties, as well as potential for conflicts between the various uses of the property (including recreational, research, educational, conservation, restoration, and timber harvest, and other). For instance, liability can be reduced by ensuring that the all users are aware of allowed activities, appropriate behavior and trail etiquette, hazards, and any other access limitations (including boundaries). Strategies for ensuring that users understand and agree to conditions include implementing a



permit program; providing on-site signage identifying regulations, allowed uses, and user responsibilities; and conducting orientation programs for user groups.

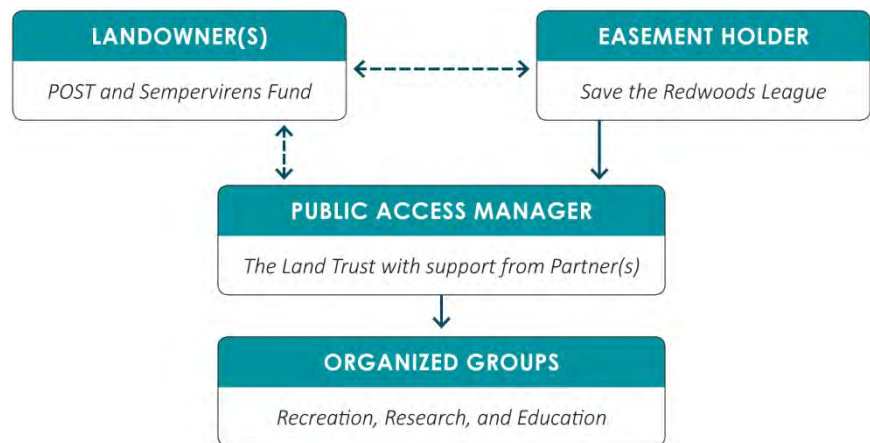
### ORGANIZATIONAL STRUCTURE

Organizational structure under the Interim Access and Future Access Scenarios is described below and illustrated in Figures 6-1, 6-2 and 6-3. Within the figures, solid arrows indicate decision making authority, while the dashed arrows denote coordination between entities. As discussed above, the League has the right and responsibility to provide public access regardless of property owner or management structure.

#### INTERIM ACCESS

The management structure for providing interim access is applicable as long as POST and Sempervirens Fund retain ownership of the property. Under this management structure, the owners would not be responsible for managing public access. The Public Access Manager will be the Land Trust, and would manage access under an agreement with the League (Figure 6-1).

**Figure 6-1 Interim Access Organizational Structure**

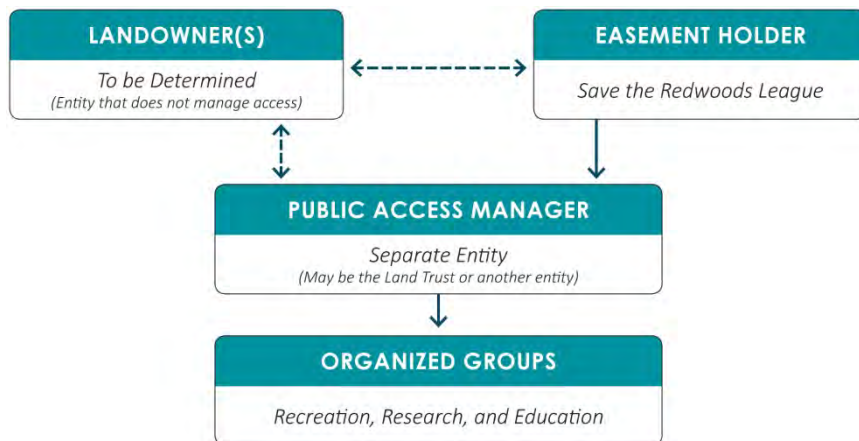




FUTURE ACCESS (SCENARIO 1)

The Future Access- Scenario 1 would apply if the future owner(s) of the property does not have capacity to manage access. This could be relevant for a range of potential owners, including but not limited certain not-for-profit organizations, institutions, and private owners. The management structure under this scenario would be similar that for Interim Access, in that a separate entity would serve as the Public Access Manager and manage access under an agreement with the League (Figure 6-2).

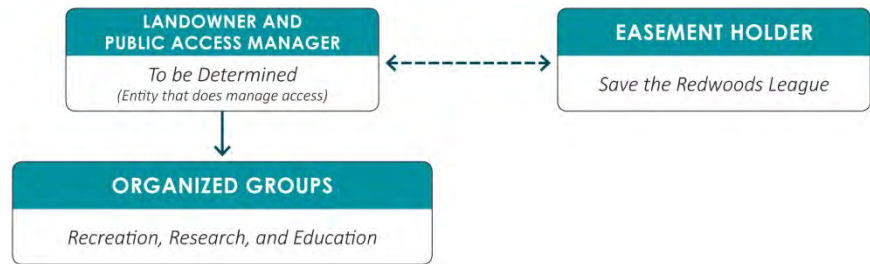
Figure 6-2 Future Access (Scenario 1) Organizational Structure



### FUTURE ACCESS (SCENARIO 2)

The Future Access- Scenario 2 would apply if the future owner(s) of the property had the interest and capacity to manage access. This could be relevant for a range of potential owners, including but not limited to certain not-for-profit organizations, as well as public agencies that have a mission to provide for public access. Under this scenario, the Owner(s) would serve as the Public Access Manager under an agreement with the League (Figure 6-3).

Figure 6-3 Future Access (Scenario 2) Organizational Structure



### ADDITIONAL PARTNERS

Partnerships with user groups, institutions, and others will be important to successful implementation. Potential partners include but are not limited to recreational user groups, such as Mountain Bikers of Santa Cruz County and the Santa Cruz County Horsemen’s Association; institutions such as UCSC and Cal Poly Swanton Pacific Ranch; local schools and school districts; concessionaires; and other groups with interest and capacity to help realize the conservation vision for the properties. Tasks that partners may assist with may include trail development and maintenance, trail etiquette and safety patrol, provision of educational programming and interpretation, and research. Written agreements, such as Use Agreements described above, will need to be developed where there use of the property is contingent upon fulfillment of specified responsibilities.

## PHASING PLAN

The Public Access Plan provides a guide for implementation sequencing. However, adjustments may be required based on future unknown conditions such as available funding, contributions of partner organizations, opportunities for creating regional connections, and changes in ownership and management.

Two phases of implementation are identified for San Vicente Redwoods: (1) Phase 1: Baseline Access, which also represents the baseline level of public access that should be provided regardless of property ownership and management structure, and (2) Phase 2: Buildout, which represents complete implementation of the public access features identified in this Plan and is anticipated to be implemented as multiple projects. These phases are summarized in Table 6-1 and further described below. Chapter 4 provides a more detailed discussion of trails and illustrates conceptual alignments.

### PHASE 1: BASELINE ACCESS (YEARS 1 TO 3)

The focus of the first phase of implementation is to provide the baseline level of public access. This includes establishing the primary staging area, improving 3.5 miles of existing roads as multi-use trails (Phase 1 trails are identified in Chapter 4), and providing necessary signage and security measures. The staging area may be developed as a smaller parking lot with minimal amenities in Phase 1, and be expanded as additional trails are opened to the public and visitor use increases. Hiking, equestrian and mountain biking would be allowed on all



**TABLE 6-1 PHASING STRATEGY**

Summary	Phase 1 Baseline Access	Phase 2 Buildout
Miles of Trail	4 miles*	38 miles
Other Public Access Features	Staging Area, Picnic Area, Benches, Security features	Expanded Staging Area, Picnic Area, Benches, Security features

\*The Laguna property includes a 0.5-mile existing trail that will be for hiking only. The opening of this trail would be independent of the 3.5 miles of Phase 1 trails for the main property, but is anticipated to occur within the Phase 1 time frame (1- 3 years).

Phase 1 trails, and on-leash dog walking would be allowed on the frontage trail that parallels Empire Grade. No new water crossings would be required. Trail use conflicts may be managed through the use of separate use scheduling.

In addition to the development of these access features, the Public Access Manager will be responsible for developing a Financial Management Plan for public access, assisting property owner(s) with the preparation of a Road and Trail Maintenance Plan, managing maintenance and security of areas opened for public access, and managing use permits for recreation and research.

**PHASE 2: BUILDOUT (YEARS 3 TO 10)**

Phase 2 of the Plan will focus on extending the trail network, establishing regional trail connections, and providing adequate staging to accommodate use. Staging will be concentrated at the primary staging which has the estimated capacity for 70 parking spaces, with the secondary staging area being improved and opened only as necessary to accommodate demand and prevent parking along Empire Grade Road. Approximately 50 spaces could be provided at the secondary staging area if needed.

Extending the trail network will require the construction of new trails, and will allow for the transition from multi-use to separate-use trails, as further described in Chapter 4. The sequencing of new trail construction will be determined based on the following considerations:

- High priority should be given to establishing a through-trail from Empire Grade to the Coast Dairies property. However, timing of this trail will be

dependent on the development of a trail connection on the Coast Dairies property. Portions of the through-trail may begin as multi-use trails and transition to separate use as new trails are constructed.

- Contributions of partners, including user groups, will affect sequencing of trail development. For instance, if a partner organization commits resources to the construction and maintenance of a specific trail, development of the trail in question may be prioritized over unsponsored trails.
- Other considerations include but are not limited to funding sources, coordination with other activities on the property, and coordination with activity on adjacent properties.

## IMPLEMENTATION PLAN

The Implementation Plan identifies tasks and responsible parties for implementation under each of the three possible organizational structures described under Management Framework, above. The Plan, shown in Table 6-2, presents the implementation tasks and related policies, which are defined in Chapter 3, Goals and Policies.

Three broad categories of tasks are identified in the Implementation Plan: Implement Capital Improvements; Provide Ongoing Maintenance and Security; and Manage Public Access. All tasks will need to be conducted in both Phase 1 and Phase 2, with the possible exception of construction new trails. Implementation tasks and recommended strategies for completing the tasks are discussed below according to category.

**TABLE 6-2 IMPLEMENTATION PLAN**

Task	Related Policies
<b>Capital Improvements Implementation Tasks</b>	
Improve existing roads for use as trails.	ACC.1.2 REC.3.3
Design and construct new trails.	REC.3.1 REC.3.2 REC.3.4
Construct/install other access features (staging, signage, benches, restrooms, trash receptacles, etc.).	ACC.2.1 ACC.4.3 REC.2.1 REC.5.1 REC.5.2
Construct/install security features	ACC.2.1 ACC.4.2
<b>Safety, Security and Maintenance Tasks</b>	
Open and close trail access as necessary.	ACC.1.5 REC.3.2
Maintain public access features.	ACC.1.6
Provide professional security and safety patrol.	ACC.1.6 ACC.2.1
Provide emergency services.	ACC.2.3
Provide trail etiquette and safety monitoring.	ACC.2.2
<b>Other Management and Administrative Tasks</b>	
Establish research and recreation permit system program.	ACC.1.4
Manage research and education use permits, recreation use permits, and use agreements with organized groups.	ACC.3.1 RES.1.2
Coordinate with timber harvest, restoration, and other on-property activities.	ACC.1.5
Coordinate with adjacent open space managers and other neighbors.	REC.2.2
Develop and implement the Financial Management Plan; update as needed.	ACC.1.3
Develop and implement the Road and Trail Maintenance Plan; update as needed.	ACC.1.1 RES.2.3
Conduct visitor use surveys	ACC.1.7

## CAPITAL IMPROVEMENTS

The design and construction of capital improvements should adhere to the guidelines provided in Chapter 7, Design and Maintenance Guidelines, as well as any permit requirements.

Access features may include staging, signage, benches, restrooms, trash receptacles, dog courtesy stations, and other site furnishings. Security features installed on site are anticipated to include gates, fencing, signage, and cameras. In addition, a caretakers residence and cell tower may be installed if deemed appropriate by the Public Access Manager, the League, and Owner(s), with consideration to other uses of the property and management needs.

## SAFETY, SECURITY, AND MAINTENANCE

Recommended strategies for implementing safety, security and maintenance tasks are provided below.

### OPEN AND CLOSE TRAIL ACCESS

The Public Access Manager will be responsible for opening and closing staging area(s) and trails using gates and/or signage as described below:

- Daily opening and closing of gates for staging area(s).
- Close trails and/or staging areas based on seasonal or extended closures, as necessary to accommodate other property uses including timber harvest, conservation, restoration, and extreme fire danger.
- Utilize temporary re-routes and/or trail closures to minimize potential conflicts with timber harvest activities. All requirements identified in the Management Plan and Timber Harvest Plan should be adhered to, including specified time frames for closures post-harvest.
- Utilize separate use time frames (days or hours of use) for different user groups in order to reduce user group conflicts on multi-use trails where warranted given level of use and potential for conflict.
- Close trails that do not meet the maintenance criteria identified in Chapter 7, until the trails are improved to meet criteria.

#### MAINTAIN PUBLIC ACCESS FEATURES

Trails and public access features should be monitored and maintained to meet guidelines and criteria provided in Chapter 7. Features that do not meet conditions specified in Chapter 7 should be improved or closed to public use until improvements can be completed.

#### PROVIDE PROFESSIONAL SECURITY AND SAFETY PATROL

Public access features, including staging area(s) and trails, should be patrolled on a regular basis by professional staff. It is anticipated that a combination of security contractors and Sherriff's Deputies will be contracted to provide patrol and law enforcement. Estimated labor cost for provision of patrol is identified under Financial Considerations, below. In addition to patrol, trails may be monitored using photographic monitoring and a trailer may be located at the primary staging area to house a caretaker should this be determined advantageous given access demand and trends.

#### PROVIDE EMERGENCY SERVICES

Emergency services include police, fire, and medical services. It is anticipated that emergency services will be provided primarily by the Santa Cruz County Sheriff and CalFIRE.

#### PROVIDE TRAIL ETIQUETTE AND SAFETY MONITORING

Patrol requirements may be offset by volunteer patrol efforts provided by organized user groups under a formal Use Agreement. Other strategies for ensuring user safety and reducing liability of owners and managers include conducting orientations for user groups, as well as use of permit system to ensure users are aware of and agree to conditions of use.

#### OTHER MANAGEMENT AND ADMINISTRATIVE TASKS

Recommended strategies for conducting other management and administrative tasks are provided below.

#### ESTABLISH AND MANAGE PERMIT PROGRAMS/FEE PROGRAMS

Permit programs are an effective way to ensure that all users agree to conditions of use and to monitor and document use. In addition, any fees necessary to offset maintenance and management costs may be collected as a condition of the permit. Different permits will require different levels of review



by the Public Access Manager and its partners. Permits for approved uses such as parking at dedicated staging areas or recreational use of dedicated public access trails should be obtainable through an on-site and/or on-line permit system. Other permits may require direct coordination with the Public Access Manager and its partners. Permits would be revoked if conditions of use are not met.

Five types of permits which may be required for public access include:

- **Parking Permits.** Parking permits for use of the staging area(s) will allow for monitoring of daily use, and provide a framework by which each party agrees to the conditions of use for public access.
- **Recreational Use Permits.** As discussed in Chapter 4, any use that does not take place on dedicated public access trail or at a staging area requires a permit. In addition to requiring permits for activities located off designated trails, the Public Access Manager may implement a permit program for use of public access trails in order to provide specific information to certain trail users and to offset specific costs accrued due to the use type. Such permits could be required for all users or limited to specific use types. For instance, a permit system could be used to regulate mountain bike use either through a day-pass program or annual membership program.
- **Research Permits.** Review of research permits will be conducted by the Public Access Manager and the Conservation Easement Holder, with consultation of the Owner(s) and other advisors as they deem necessary. Depending on the type of research project, the intensity and duration of the access will vary. Permit review for research projects will need to consider duration of the project, number of individuals involved, location of the project, potential conflicts with other property uses and activities, and potential impacts to the properties resources, including those relating to proposed sampling and/or collecting. Review and permitting of research may also consider merit of the project, and the spectrum of other permitted projects being conducted. Criteria for selecting proposals will need to be determined by reviewers and revised as needed to reflect research needs and future conditions of the property. Under the Conservation Easement, a 30-day notice must be given to the Easement Grantors (POST and Sempervirens Fund) prior to any research activity being

conducted. While adhering to this requirement, it is important to establish a stream-lined review process that allows for efficient review of time-sensitive projects, such as student projects that are limited by an Academic schedule.

- **Educational Access Permits.** Permit review for educational access should also consider duration and timing of the activity, the number of individuals involved, proposed location(s), potential conflicts with other property uses and activities, and potential impacts to the properties resources, including those relating to proposed collecting. Under the Conservation Easement, a ten-day notice must be given to the Easement Grantors (POST and Sempervirens Fund) prior to any research activity being conducted.
- **Commercial Use Permits.** Commercial uses may be allowed with a permit and fee at the discretion of the managing entity, owner(s), and conservation easement holder. Commercial uses include but are not limited to, harvesting (such as mushrooms), tours, events, and ecotourism activities.

Fees may be charged for parking permits and commercial uses, as well as recreational, research, and educational uses at the discretion of the Public Access Manager and partners. A fee schedule should be developed as part of the Financial Management Plan.

#### COORDINATE WITH TIMBER HARVEST, RESTORATION, AND OTHER ON-PROPERTY ACTIVITIES

The Public Access Manager will be responsible for coordinating with the property owner, the League, and managers of other property uses to determine when actions are needed to minimize potential conflicts. In addition, coordination will be a key component of the permit review process. Although most potential conflicts and opportunities will be identified in advance, there is potential for unforeseen conflicts (such as those requiring trail closures) or opportunities (new discoveries or research needs) to arise. For this reason, it is recommended that a system for regular communication be established in addition to the permit-review process.

#### COORDINATE WITH ADJACENT OPEN SPACE MANAGERS AND OTHER NEIGHBORS

Ongoing coordination will also be necessary with adjacent open space managers and neighboring residents and property owners. It is recommended that a system for recording and responding to neighbor input be established. The level of coordination required with adjacent open space managers will depend upon the status of trail connection projects and unforeseen opportunities. Given the anticipated connection to the Coast Dairies property and the Bonny Doon Ecological Reserve, coordination with the Bureau of Land Management and the California Department of Fish and Wildlife is of high importance.

#### DEVELOP AND IMPLEMENT THE FINANCIAL MANAGEMENT PLAN

The Public Access Manager will be responsible for developing a financial management plan for the provision of public access and research/education access. The Plan will be informed by the financial considerations and preliminary cost estimates provided in this chapter, and will be updated as needed. The Plan should identify fee schedules, operating costs, and strategies for ensuring long-term financial sustainability.

#### DEVELOP AND IMPLEMENT THE ROAD AND TRAIL MAINTENANCE PLAN

The Road and Trail Maintenance Plan will be developed by the Public Access Manager and Owner(s). This Plan will address all roads and trails on the property, including those designated for public access. The maintenance guidelines provided in Chapter 7 are intended to be incorporated into the Plan, including the requirement that trails be inspected every spring and fall.

#### CONDUCT VISITOR USE SURVEYS

The Conservation Plan recommends that visitor-use surveys be conducted every other year. The Public Access Manager will be responsible for conducting visitor-use surveys by monitoring environmental impacts of visitors on reserves, in compliance with the Conservation Plan. However, the surveys may be conducted by other partners, such as research groups or educational groups, under an agreement with the Public Access Manager. The surveys should result in estimated use counts, a greater understanding of user experience and types of use taking place, impacts to resources and facilities, as well as perceived issues and/or opportunities for improved access. The Public Access Manager will

be responsible for utilizing the surveys to inform management. Research conducted by partners may supplement visitor-use surveys or otherwise contribute to the monitoring of access at San Vicente Redwoods.

## FINANCIAL CONSIDERATIONS

This section provides an overview of projected capital improvement costs, annual operations and maintenance costs and potential revenue generated by the implementation of the Plan. Table 6-3 summarizes the financial analysis conducted.

**TABLE 6-3 SUMMARY OF FINANCIAL ANALYSIS**

Description	Phase 1	Phase 2
Capital Improvements	\$500,00- \$800,000	\$2-4 Million <sup>b</sup>
Projected Annual Operations Costs	\$150,000- 250,000 <sup>a</sup>	\$400,000- 550,000 <sup>c</sup>
Projected Annual Revenue <sup>d</sup>	\$10,000-50,000	\$50,000-150,000
Projected Annual Value of Contributed Services (Trail maintenance and Patrol)	\$0	\$130,000

<sup>a</sup> These costs would be partially offset by reductions in maintenance and security costs by owners.

<sup>b</sup> These costs would be partially offset by volunteer trail construction (equestrian and mountain bike).

<sup>c</sup> These costs would be partially offset by volunteer trail maintenance/patrol (equestrian and mountain bike), and by reductions in maintenance and security costs by owners. If actual O&M costs were projected to exceed a certain amount (such as \$200,000), then buildout would be delayed until cost containment strategies were in place.

<sup>d</sup> Revenue is projected to be generated from user fees.

## CAPITAL COSTS

The capital costs to install public access components is estimated at \$500K to \$800K for Phase 1 and \$2 Million to \$4 Million for Phase 2 (in 2014 dollars). The cost of constructing trails as part of Phase 2 is anticipated to be off-set by contributions of materials and labor from organized user groups under a Use Agreement with the Public Access Manager.

## ANNUAL OPERATIONS AND MANAGEMENT COSTS

It is estimated that providing management, patrol, and maintenance of Phase 1 public access will require approximately 0.9 full-time-equivalent staff to be dedicated to the managing access, as well as contracted security services of approximately \$75,000. With consideration to additional operations costs including supplies, equipment and insurance, the Phase 1 operating and maintenance budget is estimated at approximately \$205,000.

The annual cost of providing public access will increase as the number of trails increases; however, the maintenance cost per mile of trail will decrease due to savings in quantity. By completion of Phase 2: Buildout, it is estimated that 3.6 full-time-equivalent staff will be required, and that additional contracted security services costs will increase to approximately \$120,000. With consideration to additional operations costs including supplies, equipment, and insurance, the Phase 2 operating and maintenance budget is estimated at approximately \$508,000. Although the total estimated operations and maintenance cost of Phase 2 is nearly double that of Phase 1, nearly ten times the trail mileage of Phase 1 would be provided.

## POTENTIAL REVENUE

User fees for parking and recreational use permits could generate up to \$50,000 in Phase 1 and \$125,000 at completion of Phase 2. Given the limited revenue anticipated from user fees, it is anticipated that donations and contributions will be the primary revenue source, and will directly affect the level of access provided. Another potential revenue generator would be fees for hosting events such as weddings.

#### FUNDING SOURCES

- **Timber Revenue.** A portion of the revenue generated by timber harvest at San Vicente Redwoods could potentially contribute to the cost of providing public access. This funding source should be considered by property owner(s) and the League.
- **Donations and contributions.** Donations and contributions from individuals and organizations are anticipated to be the primary source of funding other than user fees.
- **Wildlife Conservation Board.** The Wildlife Conservation Board (WCB) provides public access funding and can enter into cooperative project agreements with local agencies or nonprofit organizations for the development of facilities for “public access for hunting, fishing, or other wildlife-oriented recreation,” such as wildlife viewing and bird watching. The WCB may fund the construction of project elements such as trails, boardwalks, interpretive facilities. Applications are accepted on a continuous basis.
- **Federal Land and Water Conservation Fund (LWCF).** This fund can be used to reimburse development costs for outdoor recreation areas and facilities. The funds provide matching grants to cities and counties seeking funds covering up to 50 percent of project costs.
- **Coastal Conservancy.** The California Coastal Conservancy may be a source of additional funding for implementation. The Coastal Conservancy Grant programs fund projects that are consistent with the Agency’s goals to “protect, restore, and enhance coastal resources, and to provide access to the shore.” Proposals for funding from the Conservancy are accepted on a continuous basis, and there are no established grant minimum or maximum amounts.
- **Other Grants.** The Public Access Manager should identify other grants for public access and pursue in partnership with other entities, as appropriate given grant requirements. Resources for identifying grant opportunities include American Trails, which maintains a list of federal grant programs at <http://www.americantrails.org/resources/funding/index.html>; and the

International Mountain Bicycling Association maintains a similar list at <https://www.imba.com/resources/grants>.

## FUTURE PLANNING AND ENVIRONMENTAL REVIEW

This Plan was developed based on an understanding of current environmental, economic, and financial conditions, as well as assumptions regarding recreational demand and other uses of the properties. The Plan is intended to reflect a long-term vision and framework for the public access at San Vicente Redwoods, but should be reviewed and updated on a 10-year basis to ensure that it remains consistent with the original intent, and to ensure that planning reflects current understanding of existing conditions. In addition, further planning may be necessary in order to address future conditions. Future planning efforts may expand upon the information put forward in this Plan, and all efforts should also be consistent with the vision, goals, and guidelines described in this Plan.

Preparation of environmental review documents will be coordinated with Santa Cruz County, who will serve as the lead agency for CEQA review of the Public Access Plan and future projects. It is anticipated that an Initial Study/Mitigated Negative Declaration (IS/MND) will be a sufficient level of environmental review for the Public Access Plan. The Initial Study will include a project-level analysis of Phase 1 improvements. Detailed “project-level” analysis for subsequent development phases will be completed as future phases are planned and designed. [Note: It is anticipated that this Draft Plan will be revised based on the Initial Study to include additional language to reduce impacts of Plan implementation].

## 7 DESIGN AND MAINTENANCE GUIDELINES



This chapter provides guidance for the design and construction of the features outlined in the Plan, as well as for the maintenance of the trails. All development of public access features must comply with requirements of the California Environmental Quality Act (CEQA) to identify and mitigate potential environmental impacts, and must be maintained to meet the standards identified in this chapter.

### TRAIL DESIGN GUIDELINES

Trail design guidelines are intended to guide the design and construction of trails as identified in Chapter 4, and should be incorporated into the Road and Trail Management Plan described in Chapter 6. Trails that do not meet these standards may be closed for public use until maintenance can be completed.

Conceptual trail alignments identified in Chapter 4 indicate appropriate trail corridors in which trails should be located; exact alignment may vary as necessary to address field conditions and meet design guidelines provided in this chapter.

Given the existing conditions and planned uses at San Vicente Redwoods, trail design guidelines are organized based on construction-type rather than trail type: (1) roads to be maintained for -vehicles and used as trails, (2) roads to be decommissioned and converted into trails, and (3) trails to be built along completely new alignments. Trail characteristics according to planned use that



apply to all types of construction are provided below, followed by design guidelines based on construction type. Standard Details providing construction detail relevant to all trail types are provided at the end of the chapter.

### TRAIL GUIDELINES ACCORDING TO PLANNED USE

Regardless of planned use, all trail routes should be designed to provide for a variety of experiences through different habitats, and should be coordinated with other property uses, including timber harvest and research uses. In addition, trail routes should avoid the following, to the extent possible: neighbor views, safety hazards, impacts to sensitive resources, and interference with timber harvest operations. Where feasible, buffers should be provided around private property, and views of neighboring houses should be obstructed by vegetation where necessary.

Table 7-1 provides general trail dimensions for each trail type envisioned at San Vicente Redwoods, including multi-use, hiking and equestrian, and mountain bike and hiking trails. Accessible trails are further discussed below.

**TABLE 7-1 TRAIL DIMENSIONS BY USE TYPE\***

Trail Type	Tread Width	Vegetation Clearance	Maximum Grade
Accessible Trails	5 feet +	2-foot horizontal; 12 feet vertical	<5% (ADA)** 10% (ODA)***
Multi-Use Trails	5 feet+	1-foot horizontal; 12 feet vertical	15% for any extended section
Equestrian Hiking Trails	2 to 5 feet	1-foot horizontal; 12 feet vertical	15% for any extended section
Mountain Biking Hiking Trails	2 to 4 feet	1-foot horizontal; 12 feet vertical	15% for any extended section

\*Where trails utilize roads that are to be maintained for vehicle use, dimensions will be dictated by vehicular requirements.

\*\*Americans with Disabilities Act (ADA)

\*\*\* United States Access Board Final Guidelines for Outdoor Developed Areas (ODA)

## ACCESSIBILITY

Americans with Disabilities Act (ADA) Accessibility guidelines address accessible routes between facilities but currently do not address trails; the Access Board is currently reviewing guidelines for shared use paths and public right-of-way that will include trails but there is no schedule for their anticipated release. The Final Guidelines for Outdoor Developed Areas<sup>1</sup> (ODA) (US Access Board, 2013) are considered best management practices and standards for pedestrian trails and it is recommended that they are used until updated ADA guidelines are released.<sup>1</sup> ODA provides detailed accessibility recommendations for pedestrian/hiker designated trails. Due to constraints related to the natural terrain, most of San Vicente Redwoods trails will not meet ADA or ODA requirements. However, efforts should be made to meet guidelines to the extent practicable. The northern frontage trail can be designed as an accessible trail. ODA guidelines for trail surface, slope, and signage are as follows:



- **Surface.** The ODA guidelines do not provide a list of specific surface materials that are accessible. Instead, the guidelines require that “surface of trails, passing spaces, and resting intervals to be firm and stable. A firm trail surface resists deformation by indentations. A stable trail surface is not permanently affected by expected weather conditions and can sustain normal wear and tear from the expected uses between planned maintenance.” The guidelines also require that openings in trail surfaces, such as grates, be no more than ½-inch and that 2-inch vertical obstacles are allowed surfaces other than asphalt and concrete. The guidelines are clear that surfaces are required to be firm and stable and that materials other than concrete or asphalt are allowed.
- **Slopes.** The ODA guidelines include requirements that running slopes for trails must be less than 10 percent and where slope is steeper than 5 percent resting intervals are included per the ODA guidelines. Cross slope and clear ground spaces of trails must be 2 percent maximum with 5 percent allowed on surfaces other than asphalt, concrete or boards when necessary for drainage.

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<sup>1</sup> January 9, 2014. Webinar. “Trails and the New Federal Accessibility Guidelines” from American Trails (A National Trails Training Partnership).

- **Signage.** Trailhead signage must include length, surface type, typical and minimum trail width, and typical and minimum running and cross slopes.



#### ROADS TO BE MAINTAINED FOR VEHICLES AND USED AS TRAILS

Where existing roads will be used as trails and also maintained for vehicular use, upgrades should be based on the Road and Trail Management Plan and proposed use type. Signage and design will depend on whether the road will be used for regular, intermittent, or emergencies only.

Improvements to existing roads should be designed to minimize erosion and extend the life of the trails while avoiding disturbance of the surrounding landscape. Any drainage structures, such as culverts, should be built for longevity and require minimal maintenance. Refer to Standard Details for additional information on culvert construction.

#### ROADS TO BE DECOMMISSIONED AND CONVERTED INTO TRAILS

Many trails will be created by converting existing roads that are no longer needed for vehicle access to narrower recreational trails. The fill embankment should be excavated and compacted along the inboard road edge with a narrow portion of the road bench preserved as the trail. Existing stream crossings will likewise be narrowed and upgraded for trail use. The following design guidelines, which are organized into layout, general specifications, and use type specifications, will assist in this type of conversion. The conversion of roads to trails is also illustrated in Standard Detail 1.

#### LAYOUT

- **Design:** Road to trail conversion shall be designed and overseen by a qualified design professional with experience in trail management and road rehabilitation.
- **Grade and orientation:** Road to trail conversions are best suited where road grades are less than 15 percent and avoid a fall line orientation. It may be possible to convert steeper gradient roads though a higher maintenance effort will be required.

- **Permitting:** Trails must meet requirements of any permits, such as County grading, United States Fish and Wildlife Service, and the Army Corps of Engineers.

#### GENERAL SPECIFICATIONS

- **Vegetation Removal:** Remove all trees and brush growing in cutbank, roadbed, and fill slope. Stockpile vegetation to be used as mulch.
- **Road Preparation:** Decompact the old road surface 6 inches deep (e.g., rip bed with dozer equipped with rippers).
- **Grading:** Excavate fill material along outer edge of road and compact along inboard road edge and against the cutbank to recontour slope. Compact fill to 85 to 90 percent relative compaction. Maintain portion of old roadbed for trail or reconstruct trail on top of the compacted fill.
- **Drainage:** Install drainage dips (reverse grade dips) into the trail per Standard Details as fill is pulled back. Remove old culverted ditch relief culverts.
- **Wet road segments:** Road segments exposing seeps or springs shall not be recontoured; instead, fill should be pulled back and compacted on adjacent dry section of the old road.
- **Stream Crossings:** Road-stream crossings are fully excavated during road-to-trail conversions. As the road approaches the crossing, the trail alignment is meandered toward the inboard edge of the road to intersect with the stream on contour. Install appropriate crossing structure at stream crossing.
- **Erosion Control:** Treat exposed soils with native stock piled slash. Place branches and logs perpendicular to trail. Do not place logs or branches parallel to the outside edge of trail.



#### NEW TRAILS

New routes may be created when existing routes are not able to provide desired connectivity or have drainage issues or other problems that make trail sustainability infeasible. New trail construction should emphasize narrow trails and should result in separate use trails. As new trails are constructed, multi-use trails located along existing roads may be converted to equestrian/hiking trails and/or closed to public access where the routes are not sustainable. For the



construction of new trails on the San Vicente Redwoods property, the following design guidelines should be utilized.

#### LAYOUT

- The trail should be laid out and construction overseen by a qualified design professional with experience in remote trail management.
- The trail shall be laid out to conform to the natural terrain to create an aesthetically pleasing alignment. The trail should have a curvilinear alignment that avoids long straight reaches. The alignment should incorporate natural terrain features (e.g. trees, rocks) to form required reverse grades.
- The trail should avoid active unstable and other hazardous areas, sensitive plant and animal habitats, steep sideslopes, and unstable watercourse crossings.

#### TRAIL ORIENTATION

- **Cut-Bench Trail:** Trail shall avoid fall line orientations. A fall line trail is a trail that drops directly down the hillside following the same path that water flows, thereby focusing water down the length. These routes are difficult, if not impossible, to drain, and often experience higher rates of ongoing erosion. Instead, trails on slopes should follow the cut bench trail detail. Retaining walls may be required where additional support is needed to ensure trail sustainability on steep slopes. Refer to Details 2 and 3.
- **Half Rule:** As a rule of thumb, the trail should have a grade no steeper than half the grade of the native hillside. For example, a trail crossing a 10 percent gradient hillside shall have a grade no steeper than 5 percent.

The maximum sustained trail grade should generally be less than 10 percent and the trail grade should not exceed 15 percent for a distance of more than 50 feet unless otherwise approved by the project design professional. Trails steeper than 15 percent tend to have greater erosion problems and require more maintenance than trails less than 15 percent.

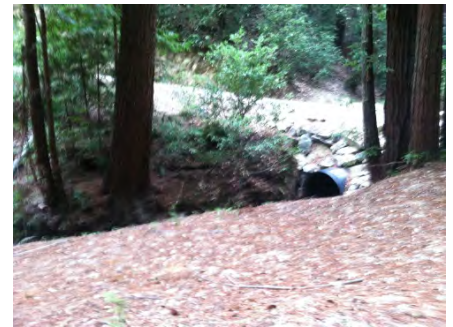
#### SWITCHBACKS AND CLIMBING TURNS

Switchbacks and climbing turns should be constructed to reverse the direction of travel on hillsides and to gain elevation in a limited distance. A switchback is a sharp turn with a flat landing whereas a climbing turn has a wider radius with a constant grade through the turn. The advantage of climbing turns are that they allow for better flow, especially with mountain bikes which sometimes cannot easily navigate a switchback; are easier to construct; and generally require less maintenance. However, they are restricted to moderate gradient slopes less than about 45 percent. To the extent feasible, the trail should be laid out to minimize switchbacks and where necessary avoid stacking.

#### TRAIL DRAINAGE

Trails should be designed, constructed, and upgraded to cause minimal disruption of natural drainage patterns. As a rule of thumb, runoff should not be allowed to concentrate from one catchment to another. Other guidelines for trail drainage include the following:

- **Reverse Grade Dips:** Trail shall be drained with reverse grade dips (rolling dips) or knicks that are incorporated into the trail at the time of construction. Installing dips following construction typically results in undersized and poorly functioning dips. Refer to Standard Details 4 and 5.
- **Dip Spacing:** Reverse grades shall be installed at minimum spacing of 50 to 75 feet. Dip location should be identified and flagged in advance of trail construction by the project design professional.
- **Decomposed Granitic Soils:** Tighter spacing and larger dips are required in areas underlain by decomposed granitic soils, as applies to many areas of San Vicente Redwoods.
- **Wet Soils:** In areas of wet soils, the trail may need to be drained by an inboard ditch and ditch relief culverts. In excessively wet areas the road tread may need to be rocked or the trail built up on a causeway or low puncheon. The locations of these areas are often known prior to construction and should be avoided to the extent possible during trail layout. Refer to Standard Detail 6 for puncheon construction.



#### GRADING AND EXCAVATION

Trails should be constructed at width not to exceed those specified in Table 7-1. Trails should be constructed on a full bench with fill spread downslope of the trail at a depth less than 8 inches (see Standard Detail 2).



#### STREAM CROSSINGS

Trail routes should avoid watercourse crossings where channel gradient is steep, as well as at deeply entrenched streams with potential unstable streamside slopes. Site-specific field review will be needed to determine suitability of new stream crossings. Existing water crossings should be used where doing so would minimize environmental impacts and continue to allow for a desirable trail alignment in terms of sustainability and user experience. Guidelines for stream crossings include the following:

- **Design:** All stream crossings shall be designed to avoid impacts to streams, riparian areas, and wetlands. Stream crossings shall be properly designed by a qualified trail professional.
- **Type:** Appropriate crossings include bridges, rock fords, unsurfaced earth fords, and culverts. Bridges and rock fords are the preferred crossing type. Culverts are appropriate in areas of chronic wet ground or on incised stream channels where elevating the trail will result in lower gradient approach. Refer to Standard Details 7, 8, 9, and 10.
- **Size:** All watercourse crossings shall be designed to accommodate 100-year flood flow, including sediment and debris.
- **Approach:** Avoid steep trail grades leading to stream crossings.
- **Permitting:** This may be required by Santa Cruz County Planning Department, CA Department of Fish and Wildlife, U.S. Army Corps of Engineers, U.S. Department of Fish and Wildlife, CA Regional Water Quality Control Board. Construction that disturbs more than 1 acre of ground (approximately 0.8 miles of 5-foot-wide trail) may also require a Storm Water Pollution Prevention Permit (SWPPP). Watercourse crossings may require permits from applicable regulatory agencies, as described above.

## VEGETATION CLEARING

Guidelines for vegetation at trails include the following:

- The trail corridor extends 1 foot to either side of the trail bed. The trail corridor may be cleared of trees and logs less than 6 inches in diameter at breast height (DBH). Trees greater than 6 inches DBH within the trail bed shall be removed only if indicated on the plans or with the authorization of the landowner representative.
- All roots exposed during construction shall be clean cut to avoid tree damage.
- Trim branches that extend into the trail corridor may be trimmed to leave a minimum 10-foot-high vertical clearance.
- When pruning, prevent branches from damaging tree or stripping the bark when the branch falls to the ground.

## TRAIL CONSTRUCTION PROTOCOLS

Construction protocols to further ensure the protection of biological, cultural, hydrologic resources, and air quality, will be included based upon the environmental review process.

## TRAIL MAINTENANCE GUIDELINES

All trails in San Vicente Redwoods will require routine maintenance to ensure the trails are functioning properly and to correct problems before they become significant. The goal is to maintain the trail for safe use, correct erosional problems that may impact natural resources, and preserve trail investment. Lack of such maintenance could increase long-term upkeep costs, adversely impact the environment, and result in potential offsite impacts. Effective trail maintenance incorporates trail assessments and work plans, trail maintenance and repairs, and scheduling.





## TRAIL ASSESSMENT AND WORK PLAN

### TRAIL ASSESSMENT

The first step in trail maintenance is to inspect all trails on a routine basis to identify current conditions, erosion, and any problem areas in need of improvement. Minor problems, such as clearing dips of debris, can often be corrected during the assessment whereas sites with heavy maintenance needs may require a trail crew to undertake the improvements. It is at these larger sites where documenting the problems is most useful for scheduling and prioritizing repairs.

During the assessment, sites requiring improvements are documented on a Trail Maintenance/Repair Form. This form takes the ambiguity out of the maintenance work and provides a means to identify problem areas and convey that information to crews who will be performing the maintenance. It also provides background information that could be used in a monitoring program. This form should include the following information:

- Trail and site number
- Location / Site map
- Problem description
- Recommended repair
- Priority of repair
- Materials/staff required
- Sketch map or photo

Typical problems include infilled and nonfunctioning drainage dips, wet and muddy trail segments, failed trail segments, plugged stream crossings, downed trees, informal social trails, rutted/rilled trail segments, and areas of trail widening.

### WORK PLAN

Work plans should be prepared to plan for and schedule any needed upgrades. It may be necessary to prioritize repairs based on available funding or severity of the problem. Upgrades should be completed prior to October 15<sup>th</sup> each year.

## TRAIL MAINTENANCE AND REPAIRS

### VEGETATION MAINTENANCE AT TRAILS

- Clear brush and trees from the trail corridor to conform to Standard Details.
- All side branches extending into the trail clearing should be cut flush with the parent branch or stem, leaving no stubs.
- Small trees and shrubs within the tread should be grubbed out to prevent tripping. Holes should be filled and compacted.
- Fallen branches and trees should be removed from trail tread and placed outside the corridor.

### TREAD MAINTENANCE

- Remove outside berms and outslope tread to drain.
- Remove cutbank slough from the trail tread.
- Remove loose rocks.
- Apply rock aggregate at chronic wet/muddy segments of trail as needed.

### DRAINAGE AND STREAM CROSSING MAINTENANCE

- Clear all drainage dips of backed up debris.
- Enlarge dips that appear undersized and at risk for failure.
- Install additional drainage dips in areas where runoff is concentrated.
- Clean infilled ditches.
- Clean culverts of debris.
- Replace failing culverts.
- Inspect and repair bridges.

### SIGN MAINTENANCE

- Sign repair/replacement

### SCHEDULING

- **Routine Inspection:** Inspect all trails twice a year (spring and fall). The spring inspection is necessary to identify failed or poorly functioning drainage structures that may become less evident following summer trail use. The fall inspection is necessary to identify problems that may have arisen

following summer trail use and to make a final check of the trail prior to the winter rainy seasons.

- **Winter Inspections:** It is advisable to inspect portions of the trail network during or following major storm events. These inspections would generally focus on watercourse crossings, steep gradient trail reaches, and known problems areas.
- **Upgrades:** Prescribed trail maintenance should occur in the prior to October 15<sup>th</sup> and the winter season. Minor trail maintenance, such as clearing dips and culverts using hand crews may occur at any time, including during routine inspections. Trails should generally be maintained to conform to the standard trail specifications.

## ADDITIONAL DESIGN GUIDELINES

Specific guidelines are provided below to aid in the design and construction of other public access features, including the entrance gateway(s), security gates, parking/staging areas, picnic areas, site furnishings, and signage.

The character of San Vicente Redwoods will be defined by its natural setting and the historic and ecological features that are located on the property. For this reason, it is important that all public access components be designed and constructed to be consistent with the property's historic character and environmental setting. Where possible, access features should be constructed with natural and durable materials, such as concrete, metal, wood, or locally sourced stone. Guidelines for ensuring that the design of specific access features and elements reflect the natural beauty and unique history of the property, while allowing for flexibility and innovative design solutions, are provided below.

### ENTRANCE GATEWAY(S) AND SIGNAGE

The entrance to the staging area(s) should be a threshold/gateway that will provide a strong sense of arrival and exemplify the character of the property. The gateway should be constructed with natural materials that are appropriate for the site, such as stone, concrete, metal and/or wood. Signage at the entrance should be visible for approaching vehicles coming in both directions on Empire Grade Road, yet it should also complement the neighborhood and be

subdued. Roadside parking should be discouraged through an inviting and easy-to-access staging area, as well as clear roadside signage.

### SECURITY GATES AND FENCING

Gates and/or appropriate signage should be installed at certain roads and trails to allow for areas/trails to be closed off to the public when needed. Gates should be designed for utility and resistant to vandalism, to the extent feasible. All gates and bollards should be made of durable materials, such as metal, with a natural finish.

Fencing should be provided at entrances to the property and where necessary to restrict access. Three strand wire, split-rail fencing, or other low, rustic fencing constructed of natural materials, is preferred when the purpose is to visually communicate restrictions where security concerns exist. However, chainlink fence and guardrails should be used when necessary to protect resources and ensure safety.

### STAGING AREA(S)

Parking at the staging area(s) should be designed for efficient circulation and to maximize permeable surfaces and shade, and should be designed to meet ADA Accessibility Guidelines to the extent possible. The surface for parking areas should be unpaved with gravel or road base material. The permeable surface should maximize patches of undisturbed native soil and vegetation along the perimeter and interspersed with parking spaces to promote on-site stormwater treatment and detention, with emphasis on infiltration.

The staging area(s) should include a kiosk with informational signage, a water fountain, restrooms, benches, and receptacles for trash and recycling. Trash receptacles must be wildlife resistant, particularly for corvids and raccoons. Dog and horse courtesy stations should be included as needed.

Bicycle parking should be provided at the staging area(s), as well. Bicycle racks should be galvanized steel U-racks, looped-racks, or racks of a similar design, with a metal finish. If paint is necessary, racks should be painted with neutral tones.





## PICNIC AREAS AND GATHERING AREAS

Picnic areas should include one or two tables and be located near the staging area. Picnic areas should be easy to locate from staging areas, yet have some visual buffer for aesthetic purposes. Picnic areas should either include wildlife resistant trash receptacles or clear signage stating that trash must be packed out. See Site Furnishings below for additional guidance.

As discussed in Chapter 5, gathering spaces are informal areas that do not require tree removal and/or vegetation clearing. Gathering spaces may be developed where regular and/or on-going use is anticipated and supported by the Public Access Manager and its partners. The intent of establishing such areas is to concentrate impacts in specified areas while creating desirable places to gather in terms of meaningful views, physical comfort and unique experiences. Elements within semi-formal gathering areas should be limited to seating, preferably constructed with on-site materials such as fallen logs.

## PLANTING

All new planting at the Forest should be native, regionally appropriate, and consistent with any guidelines provided in the San Vicente Redwoods Management Plan. Any cut surfaces should be planted with native groundcovers.

## SITE FURNISHINGS

In addition to the site furnishings located at the staging area(s), rest stops with benches should be strategically located along trails to emphasize scenic views, encourage a diversity of experiences, and provide shade and other pedestrian comforts.

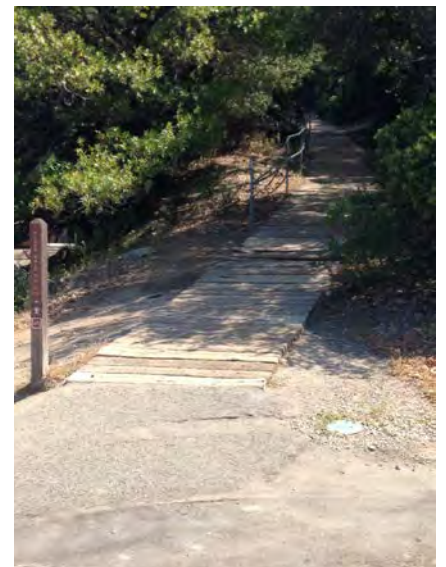
As true for all park features, site furnishings should be made of durable materials, such as concrete, metal, wood, or locally sourced stone, and should have natural or neutral colored finishes. For example, cut log stools for gathering areas.

## SIGNAGE

Clear signage should be installed and maintained at the staging area(s), at property boundaries, and on all trails that includes allowable uses and proper trail etiquette. Trailhead signage for should include length, surface type, typical and minimum trail width, and typical and minimum running and cross slopes.

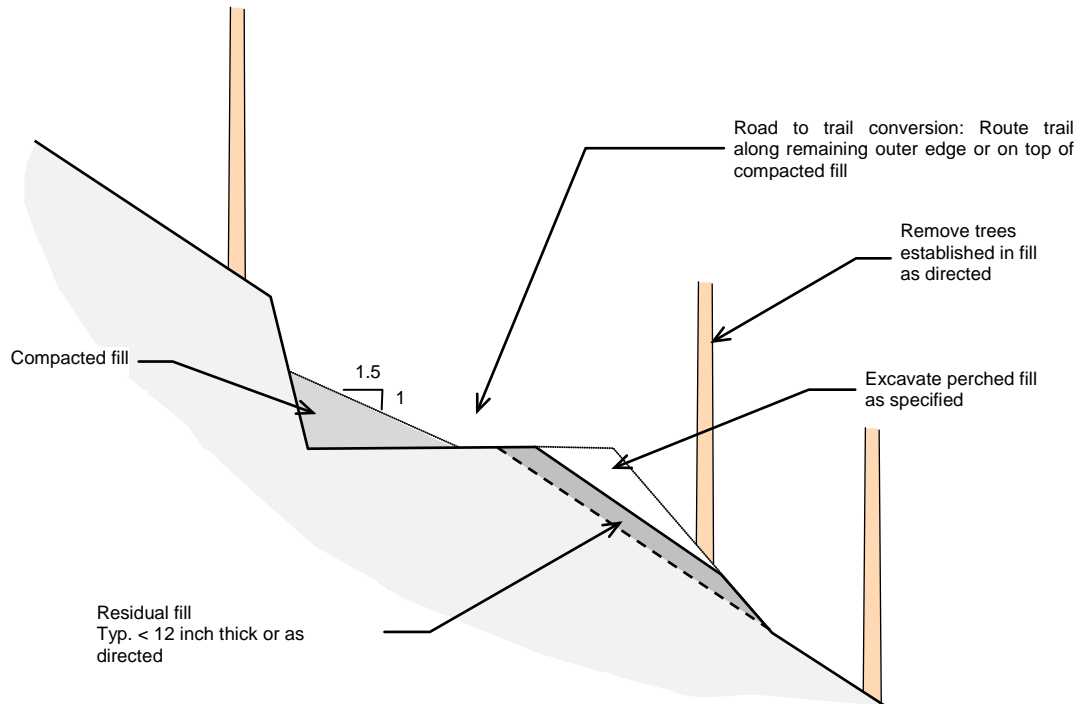
Trail closures must also be identified through clear on-site signage and gates, if warranted.

Signage should be durable and framing/support structures should be made of natural materials, where possible.



1

## ROAD TO TRAIL CONVERSION NTS



### NOTES

- Remove trees established in roadway and in fill as directed.
  - Trees greater than 6 inch diameter shall be marked by land manager prior to removal.
- Excavate perched fill as specified and directed.
  - Limits of fill removal to be identified in the field by project geologist or designee.
- Spoils shall be compacted along inboard edge of road.
  - Spoils shall not be placed in any areas where seasonal bank seeps or wet areas are present.
  - Areas to receive fill shall be cleared of vegetation.
  - Spoils shall be placed in thin lifts (not to exceed 8 inches in maximum thickness) and compacted (minimum 85 percent relative compaction). Compacting may employ track walking with a dozer, bucket of the excavator, roller or hand tamper. Spoils may need to be moisture conditioned to achieve a suitable level of compaction.
  - Spoils shall be placed a maximum of 5 feet deep with an embankment face inclined no steeper than 1.5:1 (65%) unless otherwise directed or specified.
  - Project geotechnical consultant or designee shall approve all spoil sites prior to fill placement.
- Specifications are intended only as guidelines; modifications may be made in the field by project geotechnical consultant or designee.



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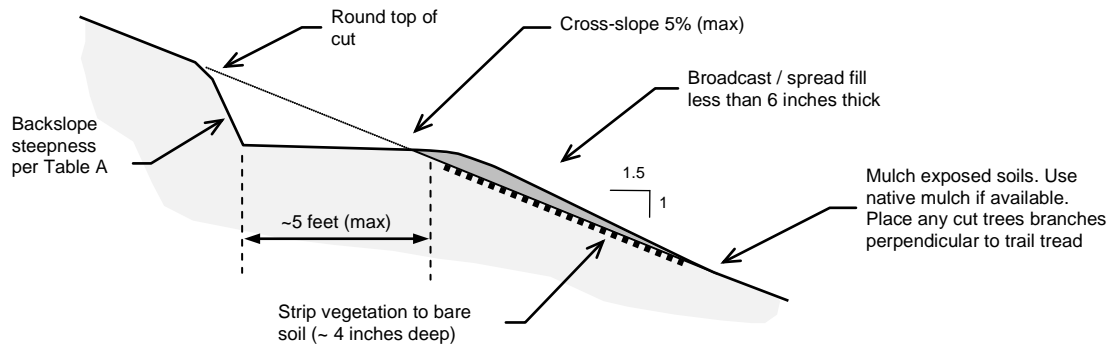
ROAD TO TRAIL CONVERSION

Standard Detail1

Date: July 28, 2014



**CUT BENCH TRAIL**  
NTS



**NOTES**

- Unless otherwise specified on plans or directed in field, the following shall apply.
- Trail shall be constructed at 5 foot maximum width.
- Trail shall be constructed on full bench with fill broadcasted below the trail to a depth less than 6 inches.
- Areas to receive broadcast fill shall be stripped of vegetation and highly organic soil (~ 4" depth).
- Fill shall be inclined no steeper than 1.5:1 (unless otherwise specified) and compacted to 85% relative compaction.
- Cutbank backslope shall be inclined at similar steepness to adjacent unfailed cuts in similar soils and height. Refer to Table A for general guidelines. Where cuts are steeper than 6 feet or where seepage of water or unsuitable earth materials are encountered, the backslope shall be selected by the project geotechnical consultant.
- Disturbed areas outside trail tread shall be treated to control erosion per general specifications. Use native slash where available. Place logs and branches perpendicular to trail.
- Specifications are indented only as guideline, modifications may be made in the field by geotechnical consultant or designer

**TABLE A**

Material	ASTM Classification	Back slope (H:V)
Competent Rock	--	½ : 1
Dense soil – weathered bedrock (sand/gravel with fines)	SM, SC, GM, GC	¾ -1 to 1:1
Soft soil (sandy clay and cohesionless sands)	CL, ML, SW, SP, GW, SP	1-1½ to 1



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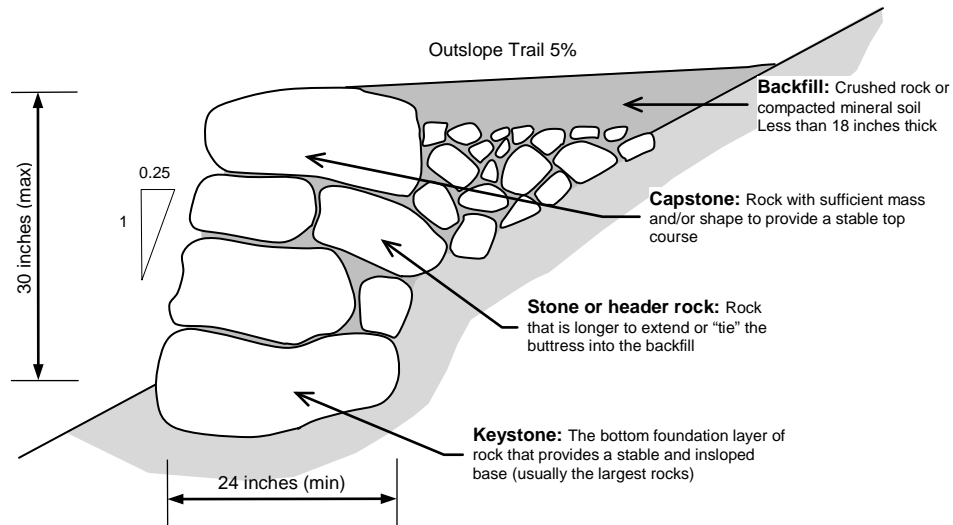
**CUT BENCH TRAIL**  
**TYPICAL SPECIFICATIONS**

**Standard Detail 2**

Date: July 28, 2014



**ROCK RETAINING WALL - TRAIL (Typical)**  
**STANDARD SPECIFICATIONS (NTS)**



**NOTES**

- Excavate a keyway footing to firm, stable dirt or to solid rock. Slope the footing slightly into the hillside (**batter**) so the rock buttress will lean into the hill and dig footing deep enough to support the foundation tier of rocks (these are usually the largest rocks in the buttress). The footing is dug so that the foundation tier is embedded for the full thickness of the first layer of rocks.
- Construct buttress using sound durable rock. A minimum of 50% of the rock shall be larger than 18 inches (130 lb min). Ideally, the bigger the rock, the better, since big rocks are less likely to shift or become dislodged. The best rock is rectangular with flat surfaces on all sides. Round river rock is the worst.
- The **keystone** is laid into the footing and successive tiers are laid. For each tier, overlap the gaps between rocks in the next lower tier, called breaking the joints. Each tier should be staggered slightly into the hill to create the desired amount of batter. **Header rocks** are long rocks turned and placed so that they extend deep into the hillside. Using header rocks is particularly important if the buttress's cross section widens as the buttress gets higher. The **capstone** is the top rock layer with sufficient mass to provide a stable trail tread.
- Rocks in each successive tier should be set so they have at least three points of good contact with the rocks below. Good contact is defined as no wobble or shifting under a load, without relying on shims (or chinking) to eliminate movement. Shims are prone to shifting and should not be used to establish contact, especially on the face of the buttress, where they can fall out. Add backfill and tamp crushed rocks into the cracks as you build.
- Project geotechnical consultant or District designee shall flag the location of the rock buttress prior to construction
- Specifications modified from U.S. Forest Service Trail Construction and Maintenance Notebook, 2007 Edition (Hesselbarth et al., 2007).



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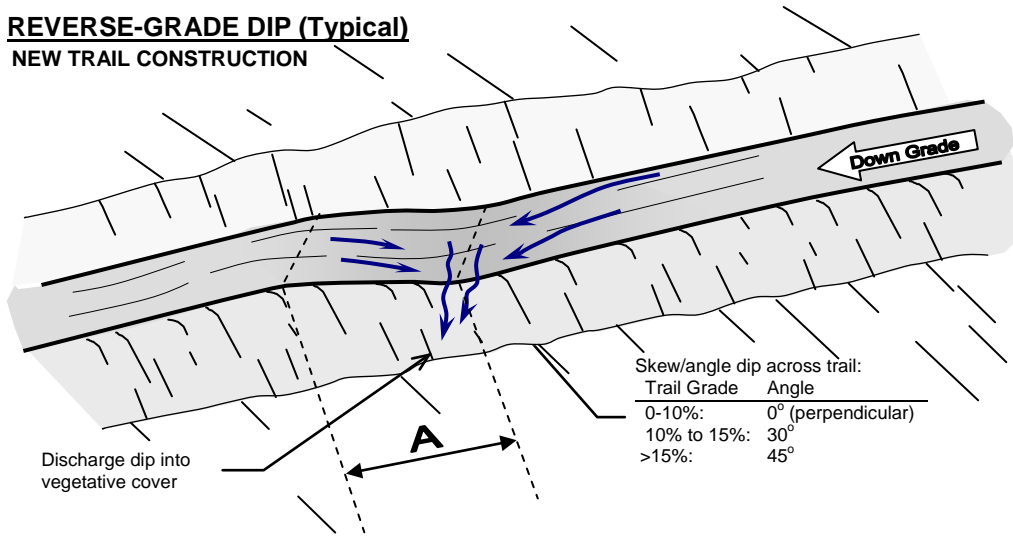
**ROCK RETAINING WALL**  
**TYPICAL SPECIFICATIONS**

**Standard Detail 3**

Date: July 28, 2014

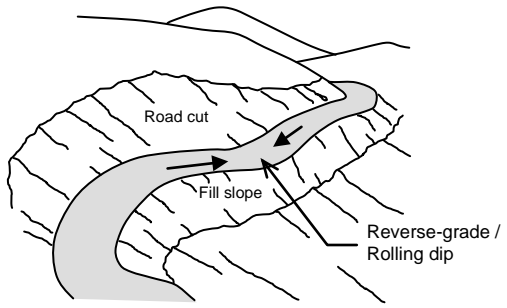
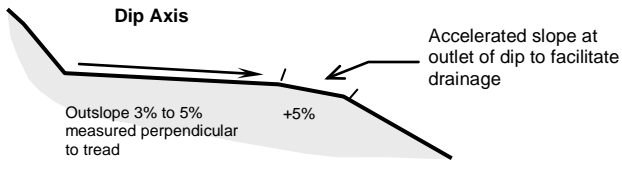
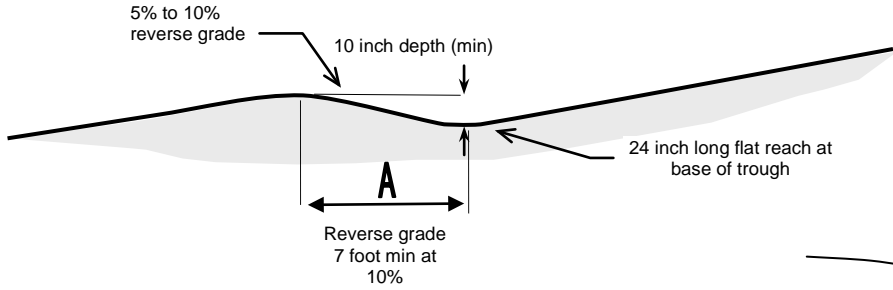
4

**REVERSE-GRADE DIP (Typical)**  
**NEW TRAIL CONSTRUCTION**



Skew/angle dip across trail:

Trail Grade	Angle
0-10%:	0° (perpendicular)
10% to 15%:	30°
>15%:	45°



TRAIL GRADE (%)	TROUGH	A: REVERSE GRADE	
	Minimum depth below downslope crest	Minimum distance from trough axis to down trail crest (ft)	Grade (%)
0-5%	10 inches	17	-5%
0-15%	10 inches	8	-10%
>15%		As directed	

**NOTES**

- A reverse-grade dip (or rolling dip) is a broad, long, permanent dip constructed into native soils. The dip is long to prevent breaking down over time. On new trails the dip is incorporated into the trail at the time of construction.
- The dip shall be a minimum of 10 inches deep and incorporate a 2 foot long flat reach at the base of the trough (unless otherwise directed).
- The reverse grade shall be sloped 5% for a minimum of 17 feet, to 10% for a minimum of 8 feet, to form the minimum 10 inch deep dip.
- The dip axis should be outsloped (measured perpendicular to trail) 3% to 5% unless otherwise specified or directed.
- Dip should be skewed (angled) across the trail depending on trail grade (see callout note)
- Dip outlets should be located to drain into areas with adequate sediment filter quality and non-erodible material such as rock, slash, brush, etc. Where specified, the bottom of the outfall of the dip will be surface-rocked.
- Where natural slopes exceed 50%, fill shall not be pushed over the dip outlet.
- Dips shall be placed as directed or specified in the plans. If not specified, then dips shall be placed at maximum 50 foot spacings.



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**REVERSE-GRADE DIP:**  
**NEW TRAIL CONSTRUCTION**

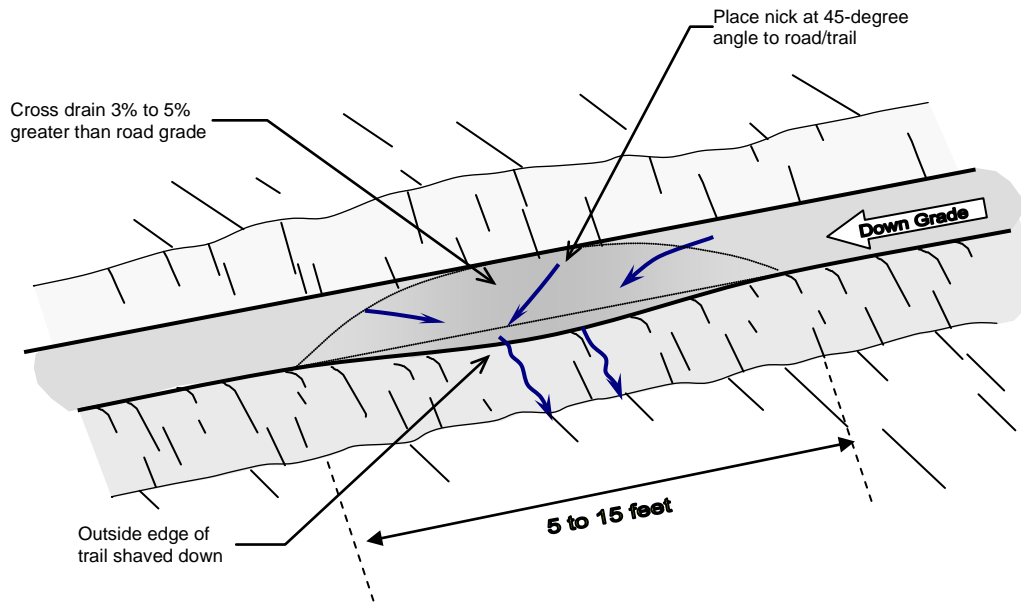
**Standard Detail 4**

Date: July 28, 2014

5

**KNICK (Typical)**

NTS



**NOTES**

- A knick is a semi-circular, shaved-down section of the outside edge of the road/trail.
- Knick is installed at a 45-degree angle to road/trail.
- The center of the nick is outsloped 3 to 5% greater than road grade.
- Dip outlets should be located to drain into areas with adequate sediment filter quality and non-erodible material such as rock, slash, brush, etc.



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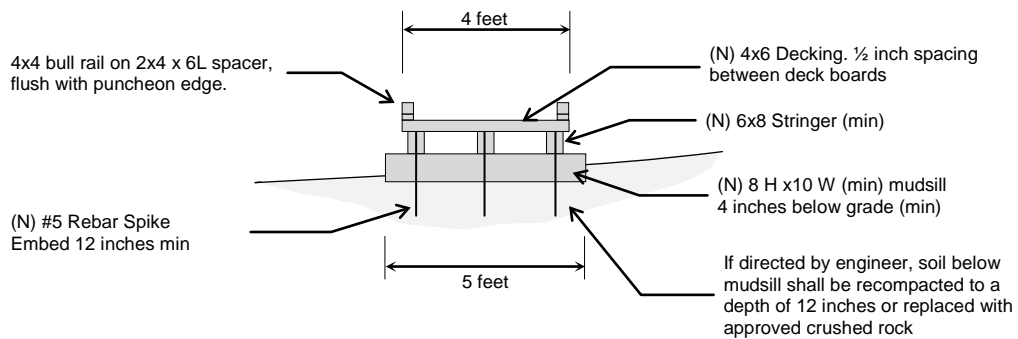
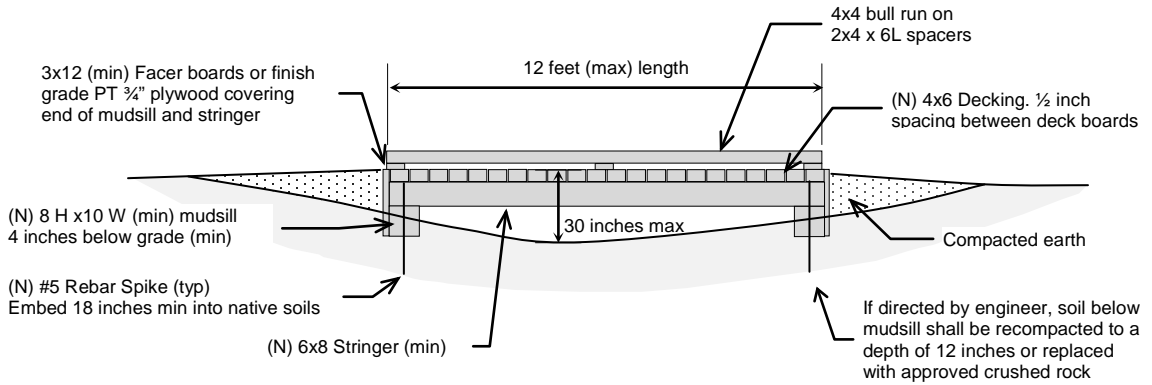
**KNICK**  
**TYPICAL SPECIFICATIONS**

**Standard Detail 5**

Date: July 28, 2014

6

**LOW PUNCHEON (BOARDWALK)**  
PRELIMINARY SPECIFICATIONS (NTS)



**NOTES**

- Details are typical and intended for use as a guideline. Adjustments may be required to local site conditions. Structure may require plans stamped by licensed civil engineer. It is the responsibility of the design professional to ensure the applicability of these specifications at any given site.
- Standard puncheon width shall be 4 feet; refer to site plan if narrower puncheon is proposed
- All decking, beams, mudsills and wood in contact with earth or within 1 foot of earth shall be Con Heart redwood or approved plastic
- If directed by engineer, soil below mudsill shall be recompact to a depth of 12 inches or replaced with approved crushed rock
- All hardware shall be galvanized
- Anchor decking with (2) 3/8 inch x 8 inch galvanized wire spikes (typ); predrill holes for spikes
- Anchor bull rail with (2) 3/8 inch x 10 inch galvanized wire spikes (typ); predrill holes for spikes
- Maintain 2% maximum slope on puncheon



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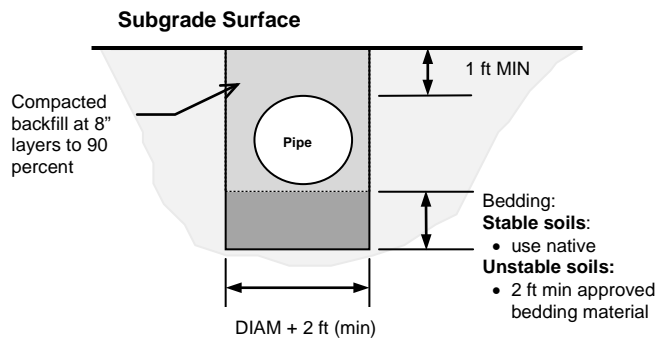
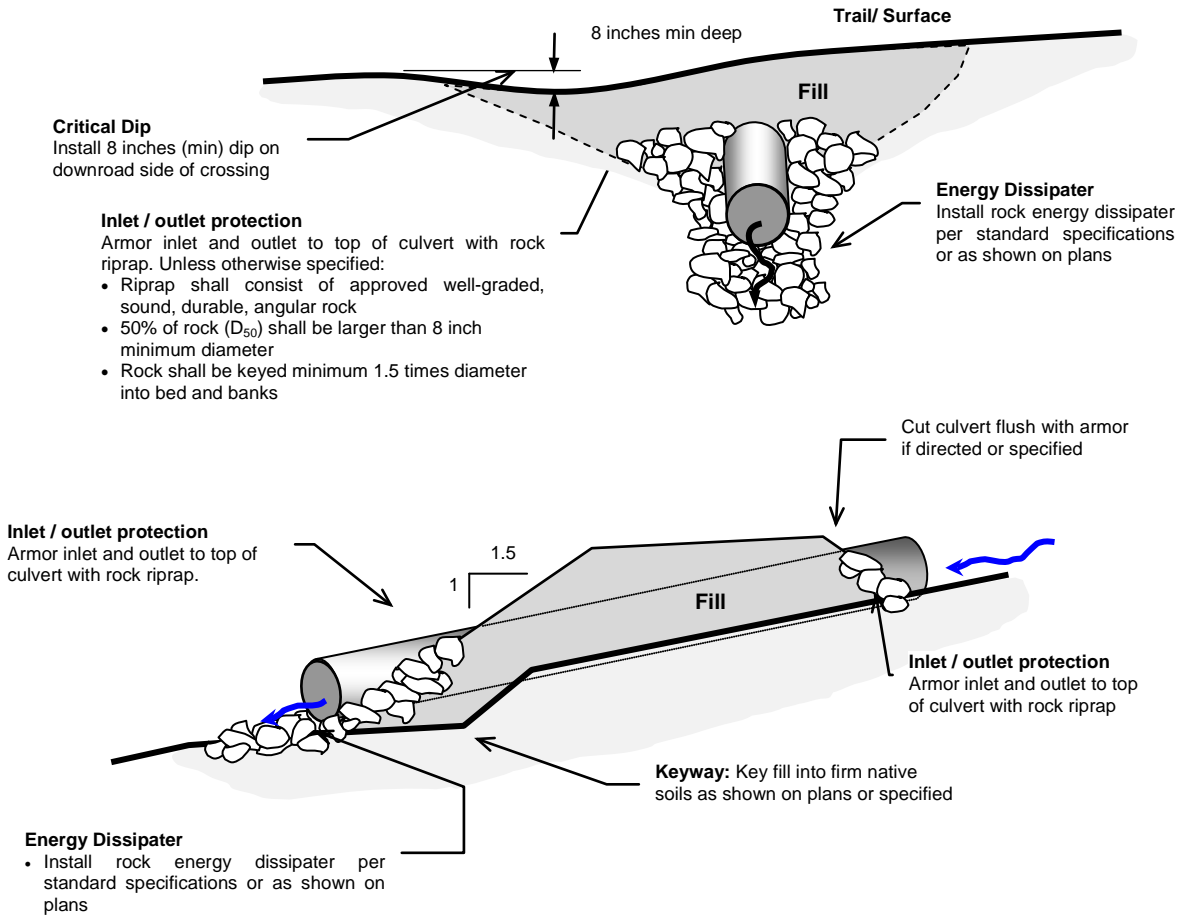
TRAIL PUNCHEON  
TYPICAL SPECIFICATIONS

Standard Detail 6

Date: July 28, 2014

7

**PERMANENT CULVERT-NTS**



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**PERMANENT CULVERT  
TYPICAL SPECIFICATIONS**

**Standard Detail 7**

Date: July 28, 2014

## **NOTES**

### **• Culvert Orientation**

- Culvert should be installed at the natural stream level, grade and orientation.

### **• Culvert bed**

- The width of trenches shall permit satisfactory joining and thorough tamping of the backfill material.
- The culvert bed shall be clean and free of large woody debris and large rocks. Unsuitable material shall be replaced with selected granular foundation material and compacted to obtain uniform bed.
- Where rock, hardpan, or other unyielding material is encountered, it shall be removed below the foundation grade for a depth of at least 1 foot and a width of at least 2 feet plus the culvert diameter. This material shall be replaced with selected engineered fill.
- The inlet to the culvert should be countersunk 10% of the pipe diameter below stream grade so that the water falls into the culvert inlet.

### **• Laying Pipe**

- Culvert shall be laid in center of trench on uniform grade line to conform to the flow line of the stream. The entire length of pipe shall be in contact with the culvert bedding.
- Unless otherwise specified, the culvert shall have a minimum grade of 2%.
- Culvert shall be joined and anchored per manufacturer's guidelines.

### **• Backfill**

- Fill shall be keyed and benched into firm native soils. Areas to receive fill shall be stripped to remove vegetation, near-surface roots, brush, highly organic soils, and other unsuitable fill material.
- Select mineral soil shall be used for culvert backfill. The backfill shall have no rocks greater than 3 inches in any dimensions placed closer than 1 foot to the culvert.
- Backfill shall be adequately compacted throughout the entire process to a degree greater than the surrounding materials (approximately 85 percent relative compaction). During placement and compaction of fill, the moisture content of the materials being placed shall be maintained.
- Fill shall be brought up to grade at a 1.5:1 slope unless otherwise specified.

### **• Culverts**

- Culverts shall be smooth bore, double wall (ASTM D3350 and AASHTO M294, Type S).
- Culverts distorted more than 10% of normal dimension, ruptured, or broken shall be replaced.
- Culverts shall be cut flush with armored embankment/headwall if directed or specified.

### **• Inlet/outlet protection**

- Armor inlet and outlet to top of culvert with rock riprap.
- Riprap shall consist of approved well-graded, sound, durable, angular rock unless otherwise specified.
- 50% of rock ( $D_{50}$ ) shall be larger than 8 inch minimum diameter unless otherwise specified.
- Rock shall be keyed minimum 1.5 times diameter into bed and banks unless otherwise specified.

### **• Energy dissipater**

- Culvert shall discharge onto rock apron per general specifications.

### **• Erosion Control**

- On running streams, water will be pumped or diverted past the crossing and into the downstream channel during the construction process.
- Critical dip (8 inch min) shall be installed on the downroad side of crossing.
- Exposed soils shall be mulched per standard specification. Install coir roll at base of exposed soils

### **• California Department of Fish and Wildlife Agreement**

- Conform to CDFW Fish and Wildlife Code 1600 where applicable.



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## PERMANENT CULVERT NOTES

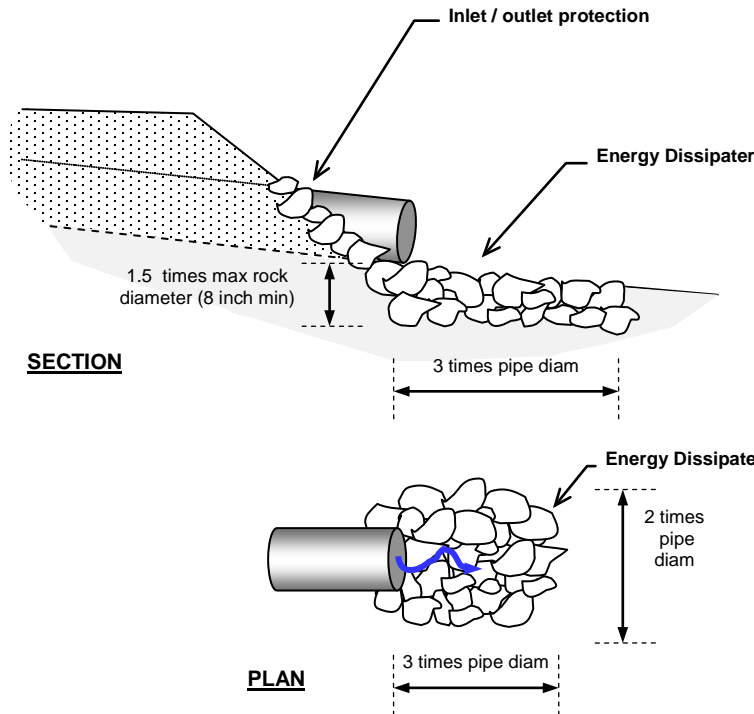
**Standard Detail 7**

Date: July 28, 2014

8

**ENERGY DISSIPATER (Typical)**

NTS



**NOTES**

**Inlet/outlet protection**

- o Armor inlet and outlet to top of culvert with rock riprap
- o Riprap shall consist of approved well-graded, sound, durable, angular rock unless otherwise specified
- o 50% of rock (D<sub>50</sub>) shall be larger than 8 inches minimum diameter unless otherwise specified
- o Rock shall be keyed minimum 1.5 times diameter into bed and banks unless otherwise specified

**Energy dissipater**

- o Culvert shall discharge onto rock energy dissipater / apron aligned with native channel as shown on plans or as directed
- o Unless otherwise specified in plans or directed by geotechnical consultant, armor shall consist of approved sound, durable, angular rock adequately sized for design flow; preliminary rock size is specified in Table C
- o Rock apron shall extend a minimum of 3 times pipe diameter downstream of outlet and be a minimum of 2 times pipe diameter wide; apron may taper downstream on steeper gradient channels
- o Rock shall be embedded into channel a minimum of 1.5 times maximum rock diameter; subexcavate channel bed and banks in areas to receive rock
- o Rock shall be placed to form a uniform grade at the pipe outlet in a manner to prevent flow from eroding around the edge of the apron
- o Separate rock from native soils with approved geotextile fabric if specified on plans or directed
- o Compact loose soils adjacent to rock riprap

**TABLE C**

Pipe Diameter	D <sub>50</sub> Rock Size (50% of rock larger than specified)	
	Diameter	Weight
< 18"	8"	Light
24"	12"	¼ — ½ T
36"	24"	½ — 1 T
48"	36"	1 T+



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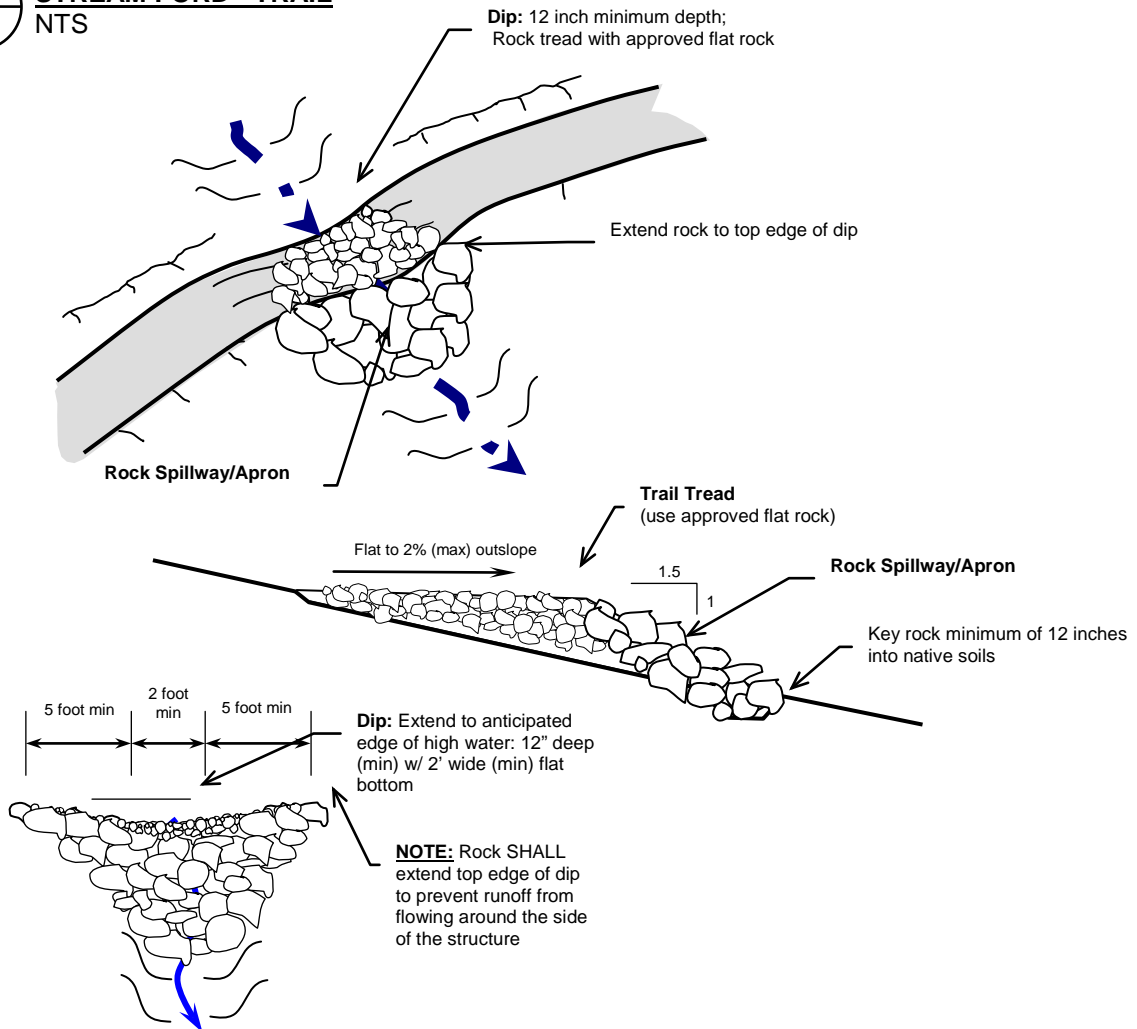
**ENERGY DISSIPATER  
 TYPICAL SPECIFICATIONS**

**Standard Detail 8**

Date: July 28, 2014

9

**STREAM FORD - TRAIL**  
NTS



**NOTES**

- Details are typical and intended for use as a guideline. Adjustments may be required to local site conditions. It is the responsibility of the design professional to ensure the applicability of these specifications at any given site.
- Specifications apply to low to moderate gradient watercourses where the outfall of the ford is inclined no steeper than 2H:1V (50%) and where the maximum discharge is less than 10 cfs.
- Construct trail to dip through watercourse
  - Dip to extend to anticipated edge of high water
  - Minimum 12 inches deep and 4 feet wide unless otherwise specified or directed
  - Establish well-defined spillway at dip outlet
- Armor outside trail edge with rock to form apron in the spillway
  - Rock shall consist of approved sound, durable, angular rock
  - 50% (D<sub>50</sub>) of rock shall be greater than 12 inches minimum diameter (*unless otherwise specified*)
  - Rock should generally be well-graded (incorporating mix of sizes)
  - Voids shall be filled with smaller rock to prevent piping around the larger rock
  - Larger rock to be placed at base of apron
  - Extend rock to top edge of dip or above anticipated edge of high water to prevent high flows from eroding around the edge of the rock; place rock to form a well-defined spillway
  - Rock to be placed no steeper than 1.5:1
- Armor trail tread with rock
  - Use 6 inch or larger diameter sound durable rock (*unless otherwise specified*); place flat to create even trail tread
  - Backfill with compacted soil or baserock for smooth tread surface
- Conform to CDFW Fish and Wildlife Code 1600 where applicable.



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**ROCK FORD - TRAIL**  
**TYPICAL SPECIFICATIONS**

**Standard Detail 9**

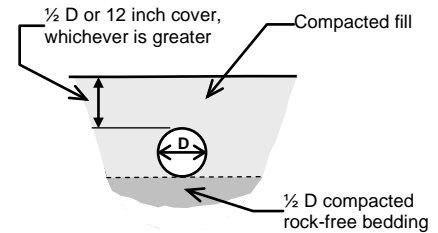
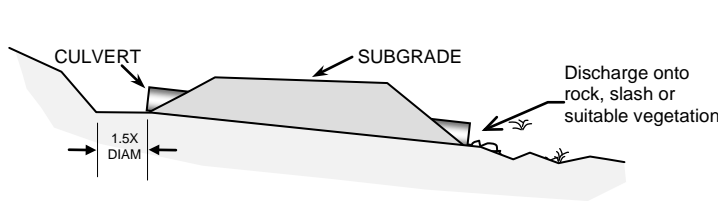
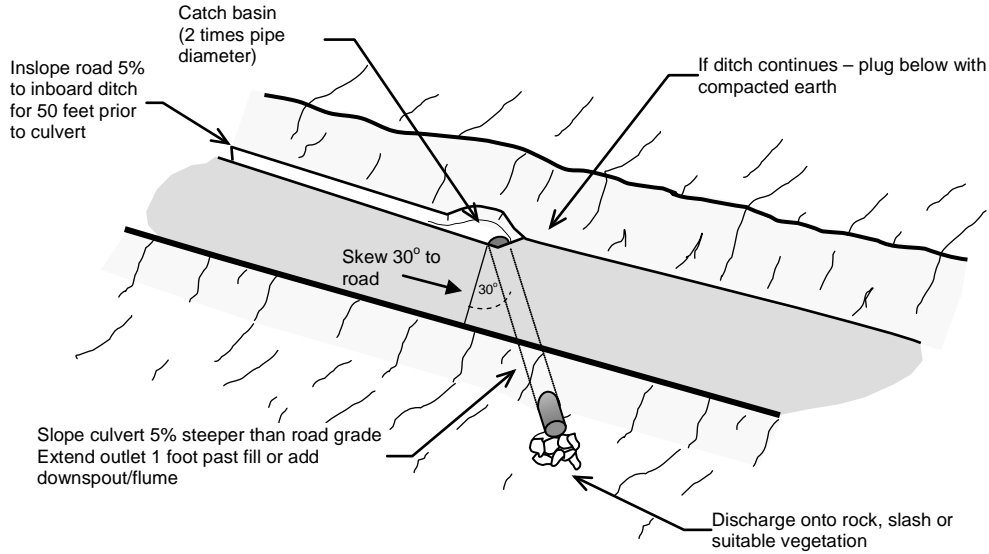
Date: July 28, 2014



10

**DITCH RELIEF CULVERT (Typical)**

NTS



**NOTES**

- Ditch relief culverts shall be installed at flagged locations or as identified on plans. The maximum spacing of culverts shall be 75 feet unless otherwise specified or directed.
- Culverts shall be 12 inch diameter smooth bore, double wall HDPE (ASTM D3350 and AASHTO M294, Type S) unless otherwise specified.
- The culverts shall be placed at a 30 degree skew angle down grade (where allowable) with a gradient 5% steeper than that of the road. Culverts should extend a minimum of 1 foot beyond base of road fill.
- Where necessary, outlet ditch shall be constructed at a steeper gradient than the culvert, at least one pipe diameter in width, and with bank tapered back to a 1:1 slope.
- The culvert bed shall be 1/2 diameter of the culvert and be clean and free of large woody debris and large rocks. Trench shall be adequate width to facilitate compaction.
- Select approved mineral soil shall be used for culvert backfill. The backfill shall have no rocks greater than 3 inches in any dimension placed closer than 1 foot to the culvert. Backfill shall be adequately compacted throughout the entire process to 95 percent ASTM 1557 unless otherwise specified. During placement and compaction of fill, the moisture content of the materials being placed shall be maintained.
- Compacted fill coverage shall be minimum 1/2 pipe diameter or 12 inches, whichever is greater.
- Rock, slash or suitable vegetation should be used at discharge point as directed or specified.
- A ditch block shall be placed immediately downslope of the culvert intake to prevent ditch flow from bypassing the pipe inlet.
- Specifications are intended only as guidelines; modifications may be made in the field by geotechnical consultant or designee.



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**DITCH RELIEF CULVERT  
 TYPICAL SPECIFICATIONS**

**Standard Detail 10**

Date: July 28, 2014

A P P E N D I X 1

O U T R E A C H





# San Vicente Redwoods Public Access Plan

## Opportunities and Constraints

### Expressed by Interview and Questionnaire Participants

Bryan Largay and Jessica Missaghian

Land Trust of Santa Cruz County

July 24, 2014

#### ***Purpose***

This document summarizes the opportunities and constraints related to public access of the San Vicente Redwoods property as expressed by community members through questionnaires and interviews.

#### ***Overview of Opportunities for Participation by the Community***

The Land Trust and our conservation partners, the Peninsula Open Space Trust, Sempervirens Fund and Save the Redwoods League, are developing the San Vicente Redwoods Public Access Plan over the next year. We invite community participation throughout the planning process.

#### **Phase 1. Questionnaire and Interviews**

During this phase anyone interested in the plan may complete a questionnaire. We will also interview certain affected parties, such as owners of adjacent lands, emergency services, and others. Two small group meetings will be held, one for education and research interests, and one for representatives of recreational user groups. During this period various technical assessments will also be conducted.

Questionnaires are available online at [www.LandTrustSantaCruz.org](http://www.LandTrustSantaCruz.org). Paper versions are available on request from the Land Trust of Santa Cruz County, Attn. San Vicente Access, 617 Water Street, Santa Cruz CA 95060. Questionnaires will be accepted until April 30.

#### **Phase 2. Opportunities and constraints summary**

The findings from Phase 1 will be combined into a summary of the opportunities and constraints on the property. These will be presented in map format at a Community

Meeting in early spring. Public input will be welcome at that meeting and during the following month.

### **Phase 3. Draft plan**

Public input will be combined with feasibility analysis to develop a draft plan. This will be presented at a Community Meeting planned for September 10, 2014. Public input will be welcome at that meeting and for a few weeks afterwards.

### **Phase 4. Final plan and implementation**

Input from the public, follow-up analysis and decision making by partners will lead to the Final Plan. Components to be implemented will be submitted to Santa Cruz County for regulatory compliance, which is anticipated to take about a year.

## ***Interview and Questionnaire Approach***

This document provides a summary of the results of preliminary public and stakeholder engagement conducted in the process of planning for public access on the San Vicente Redwoods property.

In order to understand how people could be affected by the project, the Land Trust of Santa Cruz County conducted a series of interviews and hosted an online questionnaire to provide an opportunity for neighbors, residents, agency staff and others to express their hopes and concerns.

Between October 2013 and June 2014 we interviewed and held small group meetings with 115 people. The online questionnaire was launched in mid-November, and on June 24, 2014, we downloaded the data summarized here. The questionnaire was closed May 1, 2014, but was reopened on request for individuals who were unable to participate previously. We organized feedback into concerns and opportunities, and summarize those here.

The future work of developing the management plan will include addressing concerns expressed and making the most of those opportunities identified by the community.

## ***Results***

Overall, the community expressed strong support for access. Of the 2326 valid questionnaires, 97% supported some form of public access, while only 20 respondents (1%) indicated that they did not want to see any recreational access to the property. (The difference consisted of people who either did not respond to the question or who responded 'maybe' to the question).

<i>Affiliations of questionnaire respondents (percent of respondents who indicated each affiliation)</i>	
Resident of Adjacent Property	5%
Resident of Bonny Doon or Davenport	12%
Resident of Santa Cruz County	41%
Hiker	46%
Mountain Biker	33%
Equestrian	41%
Agency Staff	1%
Educator/Researcher	5%
Business Representative	2%
Other Interested Party (please specify)	10%

Common responses to ‘Other Interested Party’ can be grouped into these categories: dog owner, disc golfer, birder, trail runner, off-road vehicle rider, mushroom gatherer and ‘nature lover’ or similar.

**Concerns**

A variety of interviewees and respondents expressed concerns.

<i>Concerns expressed by questionnaire respondents (percent of respondents who expressed each concern)</i>	
Illegal Uses	48%
Trail Conflicts (horses, bikers, hikers, dogs, etc.)	48%
Fire Risks (i.e. campfires)	43%
Wildlife Impacts	35%
Parking	26%
Impacts to Water Quality and/or Supply	21%
Invasive Species	20%
Too Many Users	19%
Private Land Trespassing	14%
Roadway Congestion	14%
Other (please specify)	15%
Cost of Management	12%
Quarry Hazards	8%
Loss of Productive Timberland	7%

Most responses to ‘Other’ consisted of additional detail on one of the other topics, expressed concerns about the planning process, particularly that one group of users would be unfairly advantaged at the expense of others.

**Management Responsibility and Approach**

Overarching all other concerns were questions about responsibility for management, including provision of public safety services. Interview participants almost always had numerous questions about how management would be provided, including consideration of costs. Only one in eight questionnaire respondents expressed concern related to the cost of management.

Many process participants expressed the opinion that adverse impacts would occur unless a robust approach was adopted for the implementation phase. Many expressed interest in who was going to be in charge of daily operations and what level of resources would be allocated to managing the property. Many expressed that additional resources would be required for people to use the property safely and for neighbors to not be adversely impacted.

Many residents of Davenport and Bonny Doon we talked to expressed the opinion that local emergency services are under strain. They said that there are relatively few Sheriffs Deputies on patrol, relatively few volunteers available for fire protection, and long response times in emergencies. We heard that private landowners in the area were under pressure from trespass and illegal activities.

Many residents wanted to know how the approach to management of public access would prevent illegal activities from occurring.

Many interviewees provided suggestions to address these management challenges included:

- high investment (dollars, skills and hours)
- on-site presence
- frequent patrols
- modest infrastructure and extent of trail network
- gradual roll-out of facilities
- investment in relationships with both users and neighbors
- monitoring technology.

### **Health and safety of users and nearby residents**

Health and safety of neighbors was far and away the most consistent concern expressed during interviews. Embedded within this concern were several interrelated themes.

#### **Illegal Activities**

Illegal activities that were identified as concerns included a variety of criminal and trespass related activities such as:

- trespass
- vandalism
- theft and storage of stolen goods
- marijuana cultivation
- camping
- dumping
- off-road vehicle operation
- mountain bike trail construction
- commercial mushroom harvesting
- commercial firewood harvesting
- commercial landscape materials collection

Nearby residents expressed concern that illegal activities could spread to their property. Business property owners in the area described typically spending thousands to tens of thousands of dollars annually preventing such unauthorized activities. We heard from a variety of people who thought that existing public lands in the area were inadequately

managed with regard to these issues. They provided examples that such lands have been the origin of wildfires, location of extensive unauthorized encampments, and the sites of illegal drug production and consumption.

Many concerned individuals wanted to know the approach to manage these potential impacts.

### **Fire**

Fire was the single greatest and most consistent concern. Two large scale wildfires – and dozens of smaller ones – have burned in the vicinity of the property in the past six years. Arson and carelessness are the primary causes. Numerous people expressed concern that providing access would result in a much greater likelihood of fire. Recreational user activities they identified as related to wildfires included:

- unauthorized camping and cooking,
- camp fires,
- tobacco and marijuana smoking,
- improper use of cook stoves,
- vehicle use in parking lots, and
- arson

While Cal Fire maintains a strong presence in the area, a blaze can cover hundreds of acres very quickly. The communities of Bonny Doon and Davenport have active community-agency partnerships to reduce fire risk and provide, but these are often strained in terms of financing and volunteer hours.

### **Parking and Roadway Congestion**

Parking was of great concern to neighbors. Some neighbors indicated that the provision of a parking lot close to their homes would bring noise, trash and undesirable people who might commit crimes. They also said that the increase in activity would change the character of their neighborhoods. Some recreational users also expressed concern about parking, indicating that many recreational areas in Santa Cruz have road shoulder parking which is unsafe. Many participants indicated that Empire Grade is unsafe for road shoulder parking. Many participants indicated that the residential streets in Davenport and Bonny Doon Road would be inappropriate for road shoulder parking.

A few participants expressed the expectation that traffic associated with opening the property to public access would substantially change the noise levels and safety of roads in the vicinity, including Highway 1, Empire Grade and Bonny Doon Road.

### **Quarry Hazards**

Participants familiar with the quarry expressed considerable concern about the safety hazards posed by quarry and related infrastructure and earthworks. Sinkholes, cliffs, tunnels, aging infrastructure and other features were identified as areas of concern.



## **User Experience**

### **Trail Conflicts**

Numerous participants expressed concern that hikers, bikers, equestrians and dog walkers could not share the same trails without diminishment of the enjoyment. Contributing factors included:

- differences in the speed of the biker and hikers,
- rude behavior by cyclists
- rude behavior by hikers
- the potential for bikes to startle horses
- people not cleaning up after their dogs
- flies and odors associated with horses
- hikers feeling unsafe without their dogs
- dogs behaving aggressively towards other users and wildlife

Numerous suggestions were made to mitigate these impacts, including:

- separate trails for different user groups
- alternating days of use for different user groups
- uni-directional trails for biking, with the uphill direction aligned with
- requirements for leashes on dogs
- trail stewards to educate users and mediate conflict

## **Natural Resources**

### **Wildlife, Water and Water Quality, and Too Many Users**

Many participants expressed concerns related to natural resources and the impact of too many users on those resources. Comments along these lines expressed the importance of leaving parts of the property in a wild state for the benefit of wildlife and preservation of ecologic integrity. A number of Davenport residents expressed concern about the impact of access on the quality of drinking water, which is sourced on the property. Water resource agency staff expressed concerns related potential impacts to the City of Santa Cruz water supply, which is located downstream from the Laguna Parcel.

Participants recommended strategies to reduce impacts to salmonids (manage erosion), mountain lions (avoid denning and migration corridors), and peregrine falcons (manage access to the quarry using fencing).

## **Access Points**

### **Trailheads and Parking Lots**

Many participants expressed concern about how the public would access the property: where they would park and where the trailheads would be located. Most of the concern centered around parking lots, as described above. Participants generally did not want parking lots to be

located in their neighborhoods. Many participants were also concerned about trailheads, again preferring for them to be located in neighborhoods other than theirs. The least favored site for either trailheads or parking was in Bonny Doon. Parking and trailheads at the Coast Dairies property in Davenport were generally preferred, except for by the residents of Davenport. Parking and trailheads at Empire Grade received the broadest – but not strongest – support.

<i>Support for trailheads and parking lots from different areas (percent of respondents who expressed support for the activity in the specified area)</i>		
Area A (Empire Grade) Parking	Bonny Doon	53%
	Davenport	59%
	Santa Cruz	68%
Area A (Empire Grade) Trailhead	Bonny Doon	72%
	Davenport	65%
	Santa Cruz	81%
Area B (Bonny Doon Road) Parking	Bonny Doon	26%
	Davenport	34%
	Santa Cruz	43%
Area B (Bonny Doon Road) Trailhead	Bonny Doon	51%
	Davenport	48%
	Santa Cruz	67%
Area C (Coast Dairies) Parking	Bonny Doon	76%
	Davenport	27%
	Santa Cruz	72%
Area C (Coast Dairies) Trailhead	Bonny Doon	76%
	Davenport	42%
	Santa Cruz	82%

### **Opportunities**

Numerous participants described various opportunities for the property. Participants described preferences for various recreational uses of the property.

<i>Opportunities expressed by questionnaire respondents (percent of respondents who answered 'Yes' to the question of whether the activity should be provided)</i>	
Hiking	85%
Loop Trail	84%
Ridgeline to Ocean Trail	85%
Biking	46%
Horseback Riding	58%
Hike-In Camping	43%
On-Leash Dogs	57%
Off-Leash Dogs	27%

In addition to options offered by the questionnaire, various participants identified:

- a disc golf course
- collecting mushrooms and edible plants
- hosting gatherings and events

- providing a place of quiet nature reflection
- providing a place for building communities in concert with nature

### Summary

The interviews and questionnaire provided an invaluable window into the hopes and concerns of the community.

Below is a word cloud consisting of the 50 most common words expressed in responses to an open ended question in the questionnaire. The size of each word is proportionate to its frequency in the responses.







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