Colby Mountain Recreation Project Phase 2 Trail Construction

Invitation for Bids- Bids are Due Friday, December 4th, before 5:00 PM PST

1. Notice Inviting Bids

The Butte County Resource Conservation District (BCRCD), in partnership with the United States Forest Service, is inviting bids from qualified contractors for the **Colby Mountain Recreation Project -Phase 2 Trail Construction.** The project is for the construction of approximately 16.5 miles of natural-surface, shared-use, non-motorized trail in Lassen National Forest - Almanor Ranger District near the community of Jonesville, California.

Department of Industrial Relations (DIR)

Bidding on this project requires an active DIR Registration Number and has specific license requirements. Certified payroll is required. Reports shall be uploaded to the DIR website and provided to BCRCD

Prevailing Wage

This project is funded in whole or in part by Proposition 68 and Proposition 4 state grant funds. Contractors and all subcontractors must comply with all California Labor Code requirements, including the payment of prevailing wages (Labor Code § 1771)

Licenses Requirements

Contractors bidding on this project must have an active Class A General Engineering or C-12 Earthwork and Paving California Contractor's License at the time of bid submission.

Bid Opening

The Bids will be opened and read aloud at the BCRCD office on **Friday, December 4th at 5 PM PST** at the following address:

Butte County Resource Conservation District
641 Entler Ave, Suite 47
Chico, CA 95928

Mandatory Experience Requirement

Bidders are notified that this project requires specialized expertise in sustainable trail construction on public lands. To be deemed a "responsible bidder" eligible for contract award, the Prime Contractor must demonstrate specific, verifiable experience in constructing natural-surface recreational trails under United States Forest Service (USFS) jurisdiction, contracts, or design specifications.

- **Federal Land Agency Experience**: The Contractor must document the successful completion of at least three (3) natural-surface trail construction or major reconstruction projects located on federal lands managed by the U.S. Forest Service (USFS), Bureau of Land Management (BLM), or National Park Service (NPS) within the last seven (7) years.
- **Modern Design Standard Adherence**: Submitted project references must prove the firm executed trail building following modern, sustainable trail design parameters, including USFS Trails Management Handbook (FSH 2309.18), USFS Trail Construction and Maintenance Notebook, and IMBA Mountain Bike Trail Development Guidelines.
- **Scope Severity**: At least one (1) of the submitted project references must match or exceed the geographic challenges of the current project, specifically demonstrating full-bench construction on cross-slopes exceeding 30%, mechanized trail building using specialized narrow-tread equipment (under 50 inches wide), and integrated rolling grade reversals, insloped turns, rock armoring, and features.

Mandatory Pre-Bid Meeting and Site Walk

Friday, November 6th at 10 AM PST. See details under Instructions to Bidders.

2. Instructions to Bidders

Securing Bid Documents

All bid documents and any bid addenda will be available at www.bcrcd.org under “Announcements”.

Examination of Site and Contract Documents

Each bidder is solely responsible for examining the Project site, trail alignment, topographic conditions, local climate, and all Contract Documents before submitting a bid.

- The submission of a bid shall constitute an acknowledgment that the bidder has thoroughly examined the site and is satisfied with all site conditions, access routes, NEPA requirements, and constraints.
- No allowances or contract modifications will be granted post-award due to a contractor's failure to visit the site or familiarize themselves with the conditions of the work.

Mandatory Pre-Bid Meeting and Site Walk

A mandatory pre-bid conference and site walk will be held on Friday, November 6th at 10:00 PST

- **Location:** Bidders shall assemble at the Jonesville Snowmobile Park off Humboldt Road 40.113483, -121.479042
- **Requirement**: Representatives of the Prime Contractor must attend and sign the attendance sheet. Bids submitted by contractors who failed to attend the entire mandatory site walk will be rejected as non-responsive.
- **RSVP**: Contractors planning to attend the bid walk should RSVP thad@bcrcd.org. Because of the project site's higher elevation and the potential for snow, the bid meeting could be subject to rescheduling. We will send an update to contractors who RSVP 5 days before the bid meeting, but conditions can be unpredictable.

Interpretations and Addenda

Any explanation or clarification desired by a bidder regarding the meaning or interpretation of the specifications or funding mandates must be requested in writing.

- Deadline for Questions: All questions must be submitted to thad@bcrcd no later than Monday, November 23rd at 5 PM PST
- Addenda: Any changes, clarifications, or responses will be issued in form of written Addenda and emailed/ posted to all contractors who attend the mandatory pre-bid and site walk. Bidders must formally acknowledge all Addenda on the Bid Form. Oral interpretations are not legally binding.

Regulatory and Labor Compliance Requirements

This project is a public work subject to strict California statutory and state-bond funding regulations. Bidders must satisfy the following criteria at the time of bid submission:

- **CSLB Licensing:** The bidder must possess a valid, active **Class A (General Engineering Contractor)** or **Class C-12 (Earthwork and Paving Contractor)** license issued by the California Contractors State License Board. Class B or other C licenses will not be accepted.

- **DIR Registration:** No contractor or subcontractor may be listed on a bid proposal or awarded a public works contract unless registered with the Department of Industrial Relations (DIR) pursuant to Labor Code section 1725.5.

- **State Bond Funding Mandates:** Bidders are notified that this project is funded by Proposition 68 and Proposition 4. Contractors must comply with all state audit, record retention, and public disclosure requirements, including the daily maintenance of certified payroll records under recent state fringe benefit updates.

Evaluation of Bidder Responsibility

BCRCD will evaluate the responsibility of the lowest apparent bidder based on their experience with federal land agency constraints. Bidders must prove they possess the organizational experience, key personnel, and specialized equipment necessary to execute trail construction according to USFS Standard Specifications for Construction of Trails (EM-7720-103) or localized Forest Service trail design parameters. Failure to meet the mandatory experience thresholds detailed in the *Statement of Experience* form will result in a determination that the bidder is non-responsible, and the bid will be rejected.

Mandatory Contents of Bid Submission Packet

To be deemed responsive, the bidder must submit their proposal in a sealed envelope clearly marked with the Project Title: "Colby Mountain Recreation Project- Phase 2" and the Bidder's name. Bids can also be submitted via email to thad@bcrcd.org, include the project title in the email Subject. The bid must contain the following completed and signed documents:

1. Contractor Information Form (Attachment A)
2. Bid Form/ Pricing Schedule: Fully executed with unit pricing completed for all trail building line items. (Attachment B)
3. Non-Collusion Declaration: Fully executed under penalty of perjury in accordance with California Public Contract Code section 7106. (Attachment C)
4. Mandatory Statement of Trail Building Experience: Any bidder not meeting the minimum qualifications will be deemed a non-responsive bid. (Attachment D)
5. Project work plan form with detailed breakdown (Attachment E)
6. Designation of Subcontractors Form: A complete listing of all subcontractors performing work in an amount excess of one-half of one percent (0.5%) of the prime contractor's total bid, including their CSLB number, DIR number, and specific trail work items. (Attachment F)

7. Bid Security: A certified check, cashier's check, or Bid Bond executed by an admitted surety insurer, made payable to the Butte County Resource Conservation District, in an amount equal to at least ten percent (10%) of the total bid price.

Submission of Bids

Bids will be opened publicly and read aloud immediately following the submission deadline at the BCRCD office, 641 Entler Ave, Suite 47, Chico CA 95928. Bidders and members of the public are invited to attend. A preliminary summary of bids will be distributed within 24 hours of the opening.

Bidders may include additional pages to describe their approach and/or their qualifications, as necessary.

Bids are required for the entirety of the work called for in the contract documents. A bid may be rejected if conditional or incomplete, or if it contains any alterations of form or other irregularities of any kind. BCRCD does not accept alternate language from a bidder. A bid with such language will be considered a counter proposal and will be rejected. BCRCD's General Terms and Conditions are not negotiable.

Bidders are cautioned not to rely on BCRCD to discover and report to the bidder all defects and errors in the submitted documents during the evaluation. Bidders should carefully proof their documents for errors and adherence to the Invitation for Bid requirements before submitting them. Additionally, the bidder should carefully examine the worksite and specifications and should investigate the worksite's conditions, character, quality of surface, subsurface materials, and obstacles to be encountered. No additions to the Agreement amount will be made because of a bidder's failure to thoroughly examine the worksite and specifications.

Any bidder is welcome to modify their bid after submitting it, by withdrawal and resubmission before the bid due date. Modification of a bid offered in any other manner, oral or written, will not be considered. A bidder may withdraw bid by submitting a written request for its withdrawal to BCRCD, signed by the bidder or an agent authorized to bind the bidding firm contractually. Electronic withdrawal (with electronic signature) is acceptable. A bidder may thereafter submit a new bid before the bid submission deadline. Bids may not be withdrawn after the bid due date. Costs for developing bids and preparation of award of the Agreement are entirely the responsibility of the bidder and shall not be chargeable to BCRCD

The BCRCD reserves the right to reject any or all bids, to waive any minor informalities or irregularities in the bids received, and to be the sole judge.

3. Work Requirements

Fire Plan

The Contractor will be required to comply with Forest Service work restrictions for Red Flag Warnings and Forest Closures. Contractors must always have fire suppression equipment at the construction operations site (near all crews and operations) during work.

Access and Haul Routes

The Contractor shall make his or her own investigation of the conditions of available public or private road to determine clearance, restrictions, and other limitation that affect transportation at the job site. Existing open road (per Forest Service definition) are available for the Contractor use. The Contractor will repair any damage to existing road caused by the Contractor.
The Contractor will take all necessary precautions so as not to unnecessarily restrict flow on roads and in parking areas or visitor use sites in the area. Roads may require high clearance 4x4 vehicles, may have obstructions, and may not be suitable for trailer traffic.

Wildlife Limited Operating Period

The project area lies within California Spotted Owl and American Goshawk habitat. If nests are identified, it would result in a Limited Operating Period (LOP) that establishes a noise buffer that would restrict construction operations. BCRCD and the Forest Service will actively survey the project area during nesting season. This may require the contractor to be flexible in construction sequencing. We will work with the contractor to develop a workflow plan, which will be provided before mobilization for the season. The noise buffer restrictions end on July 9th, but additional requirements or restrictions on tree removal may be needed if nests are in close proximity to the trail.

Site Access

The base of this project sits at 5,000’ in elevation (Home Trail) and goes up to 6,600’ in elevation (Yana Rim). The entire project site is inaccessible during the winter, and the Humboldt Road gate at the Snowmobile Park does not open before March 15th. On a high-volume snow year, access could be delayed. Once the gate is open, Humboldt Summit (Yana Rim) will still be inaccessible

until later in the Spring based on conditions. The contractor must investigate conditions and access.

Equipment

The work should primarily be done with a mini excavator and hand labor.
Butte County RCD and Forest Service must approve all equipment utilized. All equipment and tools shall be cleaned before entering the project area to prevent the spread of invasive weeds.

Staging Area

Any staging areas for on-site storage of equipment, materials, or other items needed for construction must be approved by the Forest Service before construction begins.

Camping/ Lodging

The Contractor can camp on-site based on Forest Service requirements for dispersed camping. The contractor is required to follow Leave No Trace guidelines while camping. Lodging options are available in the community of Butte Meadows, but capacity is limited.

Preservation of Vegetation

The Contractor shall exercise care to preserve the natural landscape, including trees and shrubs, and shall conduct construction to prevent any unnecessary destruction, scarring, or defacing of the natural surroundings in the vicinity of the work. Except where clearing is required for the work, all trees, native shrubbery, and vegetation shall be preserved and protected from damage by the Contractors construction operations and equipment.

All unnecessary destruction, scarring, damage, or defacing of the landscape resulting from the Contractors operations, shall be repaired, replanted. Reseeded, or otherwise corrected as directed by the Forest Service.

After completion of the work, all areas disturbed by construction that do not require landscaping or planting shall be scarified and left in a conditions that will facilitate natural vegetation and provide proper drainage and prevent erosion.

Other Requirements

Guarantee and Warranty

A 1-year guarantee and warranty will be provided by the Contractor on this project's work: Any portions needing replacement or repair within 1 year from the date of written acceptance shall be completed by the Contractor at their expense and within an agreed-upon time frame.

Insurance Requirements

- General liability insurance of at least $1 million per occurrence and $2 million general aggregate.
- Workers' compensation and employer's liability insurance of at least $500,000 per occurrence.
- Business automobile insurance of $1 million

4. Schedule

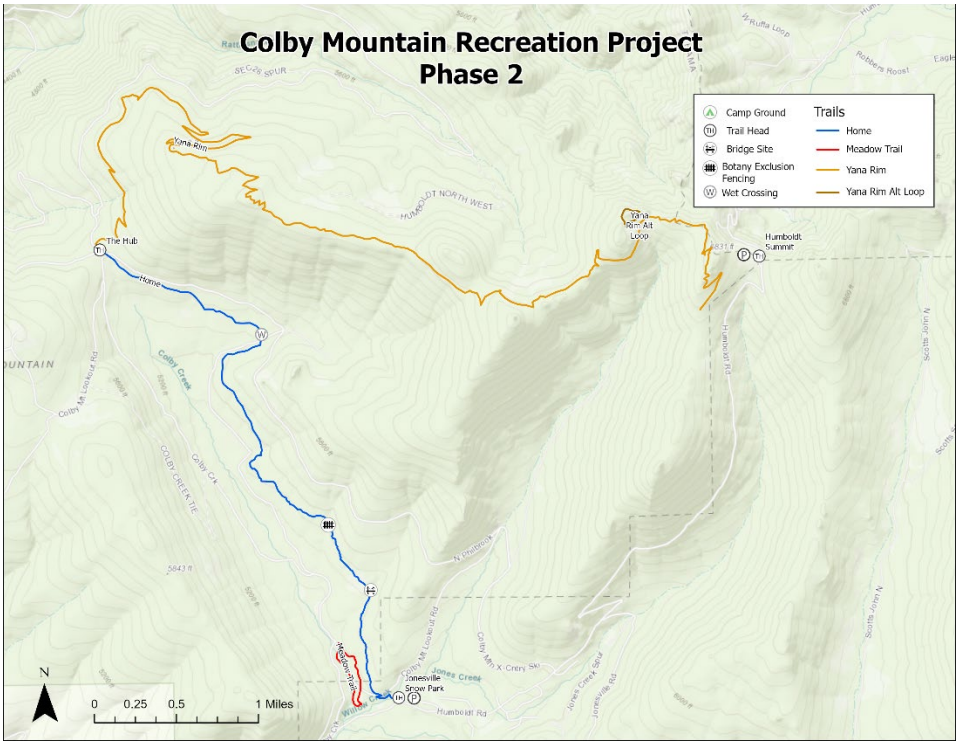
The anticipated schedule is as follows:

- Request for bids released – Monday, October 26th
- Mandatory pre-bid conference – Friday, November 6th at 10:00 PST
- Contractor Questions Cut-off (all questions will be shared with all contractors who attend the pre-bid meeting) Monday, November 23rd at 5 PM PST
- Bids Due- Friday, December 4th before 5 PM PST
- Contract considered by BCRCD BOD – Thursday, December 17th
- Trail Construction- July 2027 – November 20, 2028 (as site conditions allow) **ALL TRAILS MUST BE COMPLETED BEFORE END OF 2028**

5. Project Scope

Specifications (all trails)

This RFP is to complete phase II of the Colby Mountain Project, which includes the construction of 16.5 miles of trail (4 trail segments). There is one trail bridge and fencing on Home Trail, **which will be completed as a separate project and is not part of this bid.**

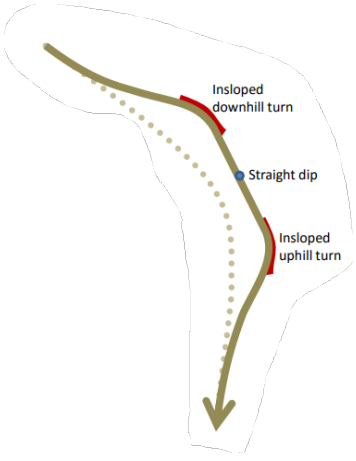


Trail corridors were roughly flagged during layout, and a GPS track is available. Flagged corridors are 200’ wide (100’ on each side of flag line. The contractor must construct the trail to a “ready to ride” condition, including post-construction compaction when adequate moisture is present. All trails should be constructed to Design Parameters based on the Forest Service Trail Class with mountain bikes as the designed use (Attachment A). Construction includes:

- Reviewing the proposed alignments
- Fine flagging the alignment
- Clearing brush and vegetation per clearing requirements
    - Sugar, Western White, Jeffery, and Ponderosa Pines should be retained when possible.
    - Per Forest Service requirements, all Sugar Pine identified as rust-resistant or previously identified as a candidate for rust resistance would be protected. A $20,000 fine would be imposed for each rust-resistant or previous candidate tree damaged during operations. (GIS shapefile/ Map will be provided will be provided)
    - Brush, trees, and stumps should be dispersed away from trail tread and not easily visible from trail

- Trail corridors must maintain good sight lines to accommodate non-motorized mixed use. If sightlines cannot be achieved, use a wider trail/corridor at these locations that allows pullouts for passing.
- No mastication is permitted
- Remove select hazard trees that are in the trail corridor to reduce maintenance needs and increase user safety.
- All trailside trees and brush that are not removed should be properly pruned (no stubs)

- Constructing trail
  - All organics must be removed from trail prism before tread is constructed; no organics should be mixed into bench. Use mineral soil only for trail tread surfaces.
  - Trail should be "full bench" construction where possible. Exceptions for rocky outcroppings and where side-slope grade is not adequate for full bench. Trail surface should be in sloped and rely on frequent grade reversals and outsloped drainage
  - Drainage features (grade reversals) should be installed at frequent intervals, pronounced, and appropriately outsloped at the drain.
  - Pitting (borrow pits) should be utilized (where feasible) to increase tread and feature durability. All pits must be fully filled after use (adequate clay material is typically available 2-3' in depth). If deviation pitting is needed, it must be explained and approved by BCRCD.
  - Insloped turns shall be utilized; all insloped turns must have an interior flat apron to accommodate equestrian and foot traffic.
  - Drains shall not be installed at the turn apex (move low points away from apex)



  - Manage trail grade to minimize breaking bumps and surface flow impacts

- Tread finish work should be completed by hand; rocks and roots over 2” in diameter shall be removed from tread and backslope. Finish tread material should be even (no holes or divots within tread surface). Deviations for rock removal requirements can be made for segments that are on bedrock or have large amounts of loose rock.
- Outboard (side cast) spoils shall be raked even with no spoils piled against trees. Cut surface roots should be cast away from the surface of outboard spoils.
- Finished trails shall be mechanically compacted (plate compactor) when adequate moisture is present; adequate moisture for compaction will not be present during summer months.
- Avoid cambered surfaces that extend the duration of the tread width (all trails, except meadow classroom, are shared use.
- Avoid creating pinch points less than 40” - to accommodate equestrian use and adaptive bikes. This includes trees, boulders, or other natural features within the trail corridor.
- Use natural barriers (when available) to prevent trail use by wider OHVs, quads, and side-by-sides. Limit barriers so as not to restrict aMTB access on Home Trail
- Manage user speeds through design - slow trail users down prior to road crossings and intersections or where sight lines are limited. Be sure that equestrian users and adaptive bikes can still use/navigate the trail with ease if rocks or tighter turns are added to slow trail users.

- Rock Armoring (Home Trail, Yana Rim and Yana Rim Alternate)
  - Should be at least 40” wide to accommodate adaptive a-MTB (Home Trail)
  - Avoid large gaps between rocks that run parallel to the direction of travel. Gaps between rocks should be filled with smaller rock or crushed rock to prevent movement of larger rock. Use smaller "pinning" rocks or wedge-shaped stones along the leading and trailing edges to lock the primary rocks in place and prevent shifting
  - Use as large as possible flat-faced rocks
  - Ends of rock armoring should gradually taper into the ground (at least 6”) to prevent step-ups and mechanical erosion of trail at ends
  - Rock crossing on Home Trail should allow equine access to water
- Compliance with all FS Integrated Design Features (IDFs) in signed NEPA decision.

Trail Specific Specifications

Trail Name	Home Trail	Yana Rim Trail	Yana Rim Alternate	Meadow Classroom
Approx. Length	25,265’ (4.8 mi)	53,085’ (10.05 mi)	2,583’ (0.49 mi)	6,157’ (1.17 mi)
Trail Class	Class 3	Class 3/2	Class 2	Class 4
Designed Use	Bicycle	Bicycle	Bicycle	Hike
Use	Hike, Equestrian, Bike, aMTB Black	Hike, Equestrian, Bike	Hike, Equestrian, Bike	Hike Only
Tread Width	48”	36”-48”	36”	60”
Clearing Dimensions (Height/ Width)	9’/ 72”	9’/ 72”	9’/ 48”	8’/ 84”
Features	Rock Armor Crossings	Alternate-line ride features, 2 per mile.		
Other	aMTB Black accessible per Kootenay Adaptive Sports Association (KASA), bridge and fencing not included in bid	Hand building may be proposed west of the future Humboldt Trail intersection 40.15563, -121.44983	Hand building may be proposed for this trail. The corridor has a high density of rock.	

6. Payment

Payment will be made based on prorated acceptance of work by the BCRCD for finished trail per linear foot. Contractor shall submit, no more frequently than bi-weekly, invoices outlining the work completed and also track cumulative work and payments to date. Invoices shall be submitted based on requirements in General Conditions. A Retention of five percent (5%) of the total cost of each trail segment will be held back and paid upon completion of construction of each segment and acceptance by BCRCD.

7. Bidding/ Contract Forms and Attachments

- **Attachment A – Contractor Information Form (Must be included in the bid)**
- **Attachment B- Bid Form (Must be included in bid)**
- **Attachment C- Non-Collusion Affidavit (Must be included in the bid)**
- **Attachment D- Experience Requirement Form (Must be included in the bid)**
- **Attachment E- Workplan (Must be included in bid)**
- **Attachment F- Proposed Subcontractors (Must be included in bid)**
- Attachment G- Sample Contract and General Conditions
- Attachment H- NEPA Decision Memo
- Attachment I- Project Map
- Attachment J- Colby Mountain Trail Plan
- Attachment K- KASA Adaptive Standards for aMTB
- Attachment L- FS Trail Matrix and Specifications

Attachment A: Colby Mountain Recreation Project Phase 2- Contractor Information
Must be included in bid.

Company Name: _____

Company
Address:_____

Contact
Name:_____

Phone: _____ Email: _____

Federal ID or SSN#: _____ Years in Business: _____

CA Contractor Licenses Number: _____

RESOURCE CONSERVATION DISTRICT BUTTE COUNTY

Colby Mountain Recreation Project Phase 2 Trail Construction
Attachment B: Bid Form

Task No.	Description	Qty	Unit	Unit Price	Total
Bid Item 1:	Construction of Home Trail	25,265	Feet		
Bid Item 2:	Construction of Yana Rim Trail	53,085	Feet		
Bid Item 3:	Construction of Yana Rim Alternate	2,583	Feet		
Bid Item 4:	Construction of Meadow Classroom	6,157	Feet		
Bid Item 5:	Mobilization (contractor will only be paid for mobilizations that are utilized)		each		
				Total Bid Cost:	

_____ dollars (in words)

Bid items include all labor, equipment, taxes, bonds, profit, and supplies necessary to complete each item. In the event of a discrepancy, the amount in words shall prevail.

Contractor Name: _____

Contractor Signature: _____

END OF FORM

Attachment C: Colby Mountain Recreation Project Phase 2 -Non-Collusion Affidavit

Must be included in bid

To: Butte County Resource Conservation District

_____deposes and says that they are

_____ (title) of _____, the party making the foregoing bid, that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; the bidder is not directly or indirectly induced or solicited with any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or arranged with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price, or of that of any bidder, or to secure an advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true and further, that the bidder has not directly or indirectly submitted their bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay any fee to any corporation, partnership, company association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

The above certificate must be signed and filed with the BCRCD along with the bid

Signed_____ Date_____

END OF SECTION

RESOURCE CONSERVATION DISTRICT BUTTE COUNTY

Attachment D: Colby Mountain Recreation Project -Phase 2 Experience Requirement Form (Complete 3 Total)

Instructions to Bidder: Complete one sheet for each of the three (3) required federal land natural surface trail projects completed within the last seven (7) years.

Project Name: _____

Federal Land Unit / Forest Name: _____

Managing Federal Agency: ☐U.S. Forest Service (USFS) | ☐ BLM | ☐National Park Service (NPS)

Agency Contact Person (COR /Trail Lead): _____

Contact Phone Number: _____ **Contact Email:** _____

Total Value of Trail Contract: $_____**Completion Date:** _____

Linear Feet / Mileage of Trail Built: _____

Target USFS Trail Class (Check One): ☐ Class 1 | ☐ Class 2 | ☐ Class 3 | ☐Class 4

Designed Use for Trail: _____

Mechanized Equipment Utilized (Make/Model: _____

Brief Description of Project: _____

_____

_____

Colby Mountain Recreation Project- Phase 2
Attachment E: Work Plan

Please use the following space to describe in sufficient detail the work plan or methods you will employ to gain site access and accomplish the project according to specifications. This will include a full description of how the project will meet the site requirements and prevent damage to infrastructure. You may attach a written response to this packet if needed.

Colby Mountain Recreation Project Phase 2
Attachment F: Proposed Subcontractors

The BIDDER should submit with the Bid Form a listing of names and business addresses of subcontracting firms or businesses that will be awarded as subcontractors for portions of Work as described in the Scope of Work.

The Subcontractor list shall be completed and should include the following information:

1. Subcontractors, listing each subcontractor whose subcontract amount is more than 0.5% of the Contract price with whom the bidder, if awarded the Contract, will subcontract for performance.
2. The categories of work those subcontractors will perform on the Contract.

List of Subcontractors to be used.

Subcontractor	**Work**	**Dollar Amount**	**$ of Total**
1.			
2.			
3.			

ATTACHMENT G

Colby Mountain Recreation Project Phase 2
Butte County, California
Contract Agreement

The parties to this agreement are **NAME OF CONTRACTOR** hereinafter called "CONTRACTOR", the **Butte County Resource Conservation District** (hereinafter "BCRCD") for completion of a vegetation treatment project.

RECITALS

WHEREAS, District wishes to obtain specialized services, as authorized by Division 9 of the California Public Resources Code, in order to complete the following project in Butte County: Colby Mountain Recreation Project Phase 2.

WHEREAS, Contractor is willing to provide such specialized services and will furnish all the materials, supplies, tools, equipment, labor and other services necessary for the completion of the Project to RCD under the terms and conditions set forth herein;

WHEREAS, Contractor will commence the work required by the Contract within the time specified in Notice to Proceed document.

WHEREAS, Contractor agrees to perform all of the work described in the contract specific task orders and comply with the terms therein at the unit rates shown on the proposal schedule.

SECTION 1 – TERM

1.1 - This contract shall be effective upon execution by all parties, and shall continue through **XXX** or until work is complete, whichever comes first.

SECTION 2 – SERVICES

2.1 - Contractor shall provide the services described in Attachment A, and shall also comply with general program guidelines/specifications as set forth in other Attachments hereto.

2.2 - Timeliness. CONTRACTOR shall provide services in a timely manner. Time is of the essence of this Agreement. CONTRACTOR shall commence work hereunder as promptly as practicable after BCRCD gives CONTRACTOR notice to do so, and shall diligently prosecute such work to final completion.

2.3 - Independent Contractor. CONTRACTOR shall be an independent contractor and shall not be an employee of BCRCD. As an independent contractor, CONTRACTOR shall be responsible for providing services and fulfilling his/her obligations under this agreement in a professional manner. BCRCD shall have the right to control CONTRACTOR only insofar as the results of CONTRACTOR's services are rendered. At all times during the term of this Agreement, CONTRACTOR shall be responsible for his/her own operating costs and expenses, property and income taxes, workers' compensation insurance and any other costs and expenses.

2.4 - Qualifications, Licenses, Permits, Etc. CONTRACTOR represents and warrants to BCRCD that he/she has, and will keep in effect or obtain as required, all licenses, permits, and qualifications, of whatsoever nature that are legally required for CONTRACTOR to practice his/her profession. Failure of the CONTRACTOR to comply with this provision shall authorize BCRCD to immediately terminate this agreement notwithstanding Sections 1 and 14.

SAMPLE

2.5 - No Unauthorized Work. CONTRACTOR shall not perform any work outside the scope of this agreement for any landowner involved with this project, without BCRCD's express prior written permission.

SECTION 3 – PAYMENT

3.1 - Payment. BCRCD shall pay CONTRACTOR for services rendered pursuant to this Agreement. The payments specified in this section shall be the only payment made to CONTRACTOR for services rendered pursuant to this Agreement.

3.2 – **Not to Exceed**. BCRCD shall pay CONTRACTOR for each Project Item completed up to **$XXXX,** for services rendered according to the project costs agreed to within each Project Item. No payment will be made for work that does not have a Project Item tied to this contract.

CONTRACTOR may invoice for each completed Project Item independently, according to the costs in the Unit Table for the project. Payment will be made upon site evaluation by the Project Manager.

Invoices shall be submitted to:
BCRCD

This contract is funded with state funds through the Butte County Resource Conservation District. These funds are administered through a contract with State of California. Invoices will be submitted to Grantor as soon as received by Butte County Resource Conservation District. **CONTRACTOR must be prepared to carry expenses through the time required for reimbursement to Butte County Resource Conservation District, including all applicable interest charges.** Payment to the Contractor shall be paid within thirty (30) days from receipt of the funds by the BCRCD from the funding agency, which itself takes 0-30 days. All efforts will be made by Butte County Resource Conservation District to expedite payment; however, no interest will be paid on overdue payments.

3.3- Authorization Required. Services performed by CONTRACTOR and not authorized by this Agreement, as presently written or as may be amended in writing by the parties, shall not be paid for by **BCRCD.**

SECTION 4 – INSURANCE

4.1 - Insurance. Prior to rendering services, CONTRACTOR and his/her subcontractors shall acquire, and maintain during the term of this Agreement, at Contractor's sole expense: (l) Workers' Compensation Insurance conforming to the statutory requirements of the state in which operations under this agreement are performed; (2) comprehensive general and automobile bodily injury liability insurance written on an "occurrence" basis subject to minimum limits of $l,000,000.00 each person and $2,000,000.00 General Aggregate; and (3) general property damage insurance subject to a minimum of $l,000,000.00 with not more than a $10,000.00 deductible each loss. All liability insurance coverage shall provide that subcontractors working for CONTRACTOR are covered under the terms of CONTRACTOR's policies. All insurance shall meet the approval of BCRCD and all policies evidencing said insurance shall provide for thirty days' prior written notice to BCRCD before cancellation or material change in the policy. A certificate of Insurance showing evidence of insurance coverage as specified herein shall be furnished to BCRCD prior to commencement of CONTRACTOR's operations.

SECTION 5 – TRESPASS

SAMPLE

5.1 - CONTRACTOR shall be responsible for conducting its operations within the boundaries of the tracts designated by the Project Manager or the Butte County Resource Conservation District. In case of any damages by CONTRACTOR resulting from trespass, CONTRACTOR shall be solely responsible for repair and/or remuneration.

SECTION 6 – INDEMNITY

6.1 - Indemnification. CONTRACTOR shall defend, indemnify, and hold harmless BCRCD, their elected and appointed councils, boards, commissions, officers, agents, and/or employees from any liability for damage or claims for damage for trespass, nuisance, failure to abide by any law or regulation, personal injury, including death, as well as for property damage, including that caused by fire, which may arise from the intentional or negligent acts or omissions of CONTRACTOR in the performance of services rendered under this Agreement by CONTRACTOR, or any of CONTRACTOR' officers, agents, subcontractors, or employees, provided that this indemnification shall not apply to any damage or injury which is solely caused by the intentional or negligent acts of BCRCD, their elected and appointed councils, boards, commissions, officers, agents, and/or employees. This indemnification shall specifically survive the termination or expiration of this Agreement.

6.2 - BCRCD shall defend, indemnify, and hold harmless CONTRACTOR, its officers, agents, and employees from any liability for damage or claims for damage for personal injury, including death, as well as for property damage, which may arise from the intentional or negligent acts or omissions of BCRCD in the performance of its duties under this Agreement by or any of BCRCD's elected and appointed councils, boards, commissions, officers, agents, or employees; provided that this indemnification shall not apply to any damage or injury which is caused by the intentional or negligent acts of CONTRACTOR, its officers, subcontractors, agents, or employees. This indemnification shall specifically survive the termination or expiration of this Agreement.

SECTION 7 – CONTRACTOR IS NOT AN AGENT OF BCRCD

7.1 - Except as BCRCD may specify in writing, CONTRACTOR shall have no authority, express or implied, to act on behalf of BCRCD in any capacity whatsoever as an agent, nor any authority, pursuant to this Agreement to bind BCRCD to any obligation whatsoever.

SECTION 8 – ASSIGNMENT PROHIBITED

8.1 - CONTRACTOR has the right to subcontract the work herein to subcontractors stated in Bid Proposal. Copies of subcontractor agreements will be furnished to BCRCD upon request. However, CONTRACTOR may not assign any right or obligation pursuant to this Agreement. Any attempted or purported assignment of any right or obligation pursuant to this Agreement shall be void and of no legal effect.

SECTION 9 – NON-DISCRIMINATION

9.1 - In the performance of his/her obligations pursuant to this contract, CONTRACTOR shall not unlawfully discriminate against any individual because of race, religion, color, national origin, ancestry, physical handicap, medical condition, marital status, age, sex, disability, or any other reason prohibited by state, federal or local law.

SECTION 10 – CONFLICT OF INTEREST

10.1- CONTRACTOR shall exercise reasonable care and diligence to prevent any actions or conditions which could result in a conflict with BCRCD's interest. During the term of this Contract, Contractor will not accept any employment or engage in any work, which creates a conflict of interest with Butte County Resource Conservation District or in any way compromises the Work to be performed under this Contract. Contractor or its employees shall not offer substantial gifts, entertainment, payments, loans or other consideration to Butte

SAMPLE

County Resource Conservation District's employees, their families, vendors, subcontractors and other third parties for the purpose of influencing such persons to act contrary to Butte County Resource Conservation District's interest. All financial statements, reports, billings, and other documents rendered shall properly reflect the facts about all activities and transactions handled for the account of Butte County Resource Conservation District. Contractor shall immediately notify Butte County Resource Conservation District of any and all violations of this clause upon becoming aware of such violation. The Contractor and any subcontractors shall comply with all applicable State laws and rules pertaining to conflicts of interest, including but not limited to, Government Code Section 1090 and Public Contract Code 10410 and 10411.

SECTION 11 – WAIVER

11.1 - A waiver by any party of any breach of any term, covenant or condition herein contained or a waiver of any right or remedy of such party available hereunder at law or in equity shall not be deemed to be a waiver of any subsequent breach of the same or any other term, covenant or condition herein contained or of any continued or subsequent right to the same right or remedy. No party shall be deemed to have made any such waiver unless it is in writing and signed by the party so waiving.

SECTION 12 – ATTORNEY'S FEES, VENUE & CONTROLLING LAW

12.1 - If any action at law or in equity, including an action for declaratory relief, is brought to enforce or interpret provisions of this Agreement, the prevailing party shall be entitled to reasonable attorneys' fees. Jurisdiction and venue of any proceeding brought to enforce any provision of this agreement shall be in the County of Butte. This Agreement shall be controlled by and construed under the laws of the State of California.

SECTION 13 – MODIFICATION

13.1 - No modification of any provision of this Agreement or its attachments shall be effective unless such modification shall be in writing, signed by all parties.

SECTION 14 – TERMINATION

14.1 - In the event CONTRACTOR shall fail to comply with each and every term and condition of this agreement, then BCRCD shall have the right to terminate this agreement effective immediately. The remedy provided by this section shall be in addition to any and all other remedies provided by law or this agreement. CONTRACTOR shall immediately cease rendering service upon the termination date.

SECTION 15 – MISCELLANEOUS

15.1 - Entire Agreement. This Agreement, together with its specific references and attachments, constitutes all of the agreements, understandings, representations, conditions, warranties and covenants made by and between the parties hereto. Unless set forth herein, neither party shall be liable for any representations made express or implied. This Agreement supersedes any prior agreements, discussions, commitments, representations, or agreements, written or oral, between the parties hereto.

15.2 - Partial Invalidity. If any term, covenant, condition or provision of this Agreement is held by a Court of competent jurisdiction to be invalid, void or unenforceable, the remainder of the provision and/or provisions shall remain in full force and effect and shall in no way be affected, impaired or invalidated.

15.3 - This agreement shall be binding upon the heirs and successors of the parties hereto.

SAMPLE

15.4 - In any future legal proceeding, both parties agree that this agreement shall be construed or interpreted as if both parties equally participated in its drafting and formation.

SECTION 16 – DESIGNATED REPRESENTATIVES AND NOTICE PROVISIONS

16.1 - Below are listed the designated representatives and addresses of the parties. Changes in designated representatives, or the addresses at which notice shall be provided, shall occur only by advance written notice to the other party. All notices and demands of any kind which either party may require or desire to serve on the other in connection with this Agreement must be served in writing either by personal service or by registered or certified mail, return receipt requested, and shall be deposited in the United States Mail, with postage thereon fully prepaid, and addressed to the party so to be served as follows:

If to BCRCD

If to CONTRACTOR

SECTION 17 - RECITALS AND ACKNOWLEDGEMENTS BY CONTRACTOR

17.1 - CONTRACTOR is the owner and in control of the necessary tools, implements, appliances, equipment, and personnel for trail construction and other related activities necessary to comply with the terms of this agreement.

17.2 - CONTRACTOR will furnish at its sole expense all necessary equipment, transportation, materials, supervision, and labor which may be required, or used for carrying out this agreement, except as expressly agreed to in writing by the parties.

17.3 - CONTRACTOR is acquainted with the real property upon which services are to be performed.

17.4 - CONTRACTOR is aware of the means of access to said property for the purpose of performing services.

SAMPLE

SECTION 18 – AUTHORITY & EXECUTION

18.1 - All parties to this Agreement warrant and represent that they have the power and authority to enter into this Agreement in the names, titles and capacities herein stated and on behalf of any entities, persons, estates or firms represented or purported to be represented by such entity(s), person(s), estate(s) or firm(s) and that all formal requirements necessary or required by any state and/or federal law in order to enter into this Agreement have been fully complied with.

Butte County Resource Conservation District	Contractor
_____	_____
Date: _____	Date: _____

Attachments:
Attachment A: Scope of Work
Attachment B: Project Maps

SAMPLE

SECTION – GENERAL CONDITIONS

ARTICLE 1 - DEFINITIONS

Whenever used in these General Conditions or in the other Contract Documents, the following terms have the meanings indicated which are applicable to both the singular and plural thereof:

1.1 Agreement - The written and signed contract between the BCRCD and the General Contractor that is entitled "Agreement."

1.2 Application for Payment - The form furnished by the BCRCD to be used by the Contractor in requesting progress payment. This includes the schedule of values and an affidavit of Contractor that progress payments received on account of the work have been applied by Contractor to discharge in full all of the Contractor's obligations as reflected in prior Applications for Payment and otherwise.

1.3 Bid - The offer or proposal of the bidder submitted on the prescribed form setting forth the prices for the work to be performed.

1.4 Bidder - Any person, firm or corporation, licensed in the State of California, submitting a bid for the work.

1.5 Bonds - Bid, performance, and labor and material payment bonds and other instruments of security, including lien and stop-notice bonds, furnished by the Contractor and their Surety in accordance with the Contract Documents.

1.6 Butte County Resource Conservation District (BCRCD) – a non-regulatory public agency (special district) organized and existing pursuant to the laws of the State of California whose mission is “to protect, enhance, and support Butte County natural resources and agriculture by working with willing land owners and citizens through education, land management, and on-the-ground projects.”

1.7 Calendar Day (or "Day") - A day of twenty-four hours measured from one midnight to the next midnight, Pacific Time. Unless otherwise indicated, a "day" shall mean a calendar day.

1.8 Change Order - A written order, issued by the BCRCD to Contractor, signed by the BCRCD and Contractor authorizing an addition, deletion or revision in the work, or an adjustment in the contract price or the contract time.

1.9 Contract Completion Date - The date established in the Contract Documents for the completion of the construction phase of the project, namely, the Estimated Completion Date and Fixed Completion Date.

1.10 Contractor - The person, firm or corporation with whom BCRCD has executed the Agreement and who is fully responsible for the performance of the work.

1.11 Contract Documents - The Agreement, Addenda, Contractor's Bid, the Bonds, and Notice of Award, these General Conditions, Supplementary Conditions, Specifications, Plans, Drawings and Modifications. The Contract Documents form the Contract for Construction. This Contract represents the entire and integrated agreement between the parties and supersedes all prior negotiations, representations, or agreements, either written or oral. The Contract may be modified or amended only by a Change Order or Field Order as defined in these General Conditions.

1.12 Field Order - A written order issued by the Project Manager which clarifies or interprets the Contract Documents, for example in cases where field conditions are discovered to be different than expected in a way that prevents the Contract Documents to be implemented to the letter.

1.13 Furnish - To “supply and deliver to the Project site, ready for unloading, unpacking, assembly, installation, and similar operations.”

1.14 General Conditions - That part of the Contract Documents which sets forth many of the rights, responsibilities and relationships of the parties involved or of the contract.

1.15 General Requirements - The General Requirements are contained in Construction Specifications of the “Colby Mountain Recreation project -Phase 2” in these Contract Documents. The General Requirements are the administrative functions which the Contractor is bound to perform by the Contract.

1.16 Inspector - An authorized representative of the BCRCD or USFS who is assigned to make a detailed inspection of any or all portions of the work or materials thereof.

1.17 Install - Describes operations at project site including the actual “unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.”

1.18 Instructions to Bidders - That part of the Bidding Requirements which contain the format of the bid, and the availability of the Contract Documents.

1.19 Notice of Award - The written notification to the Contractor from the BCRCD of BCRCD’s intent to execute the Contract.

1.20 Notice to Bidders - A notice contained in the Bidding Requirements informing prospective bidders of the opportunity to submit bids on a project and setting forth the procedures for doing so.

1.21 Notice to Proceed - The written notice given by the BCRCD to Contractor fixing the date on which Contractor shall start to perform their obligation under the Contract Documents.

1.22 O.P.C.I. – “Owner” (in this case, BCRCD) purchased/Contractor receives, stores, and installs.

1.23 Per - In accordance with or in compliance with.

1.24 Progress Payment - Payment for work completed by measuring the work in place and applying the percentage complete of the measured amount to a previously agreed unit cost to determine the total payment.

1.25 Project - The entire work to be performed as provided in the Contract Documents. .

1.26 Project Manager - The BCRCD, or authorized representative of the BCRCD.

1.27 Project Work Schedule - A diagram showing proposed times of starting and completing various elements of the work.

1.28 Property Owner - The work to be done is entirely on Lassen National Forest land (entity with final right of construction quality approval) used throughout these contract documents.

1.29 Proposal – The Bid.

1.30 Provide - “To furnish and install, complete and ready for the intended use.”

1.31 Punch List - A list, made near the completion of work, indicating items to be furnished or work to be performed by the Contractor or Subcontractor in order to complete the work as specified in the Contract Documents.

1.32 Schedule of Values - A statement furnished by the Contractor to the Project Manager reflecting the portions of the contract sum allotted for the various parts of the work.

1.33 Specifications - The portion of the Contract Documents consisting of written technical descriptions of materials, equipment, construction systems, standards and workmanship as applied to the work.

1.34 Subcontractor - An individual, firm or corporation having a direct contract with the Contractor, or with any other subcontractor, for the performance of a part of the work.

1.35 Substantial Completion, Date of - The date as certified by the BCRCD in a Notice of Completion pursuant to paragraph 14.9 of these General Conditions.

1.36 Work - The completed construction in the manner required by the Contract Documents. This includes without limitation all labor, services, and supervision necessary or appropriate to produce such construction, all materials, supplies and equipment incorporated or to be incorporated in such construction, and all obligations, duties and responsibilities with respect to such construction set forth in the Contract Documents.

1.37 Working Day - Any day not a legal holiday, Saturday or Sunday

ARTICLE 2 - PRELIMINARY MATTERS

2.1 Execution of Agreement:

2.1.1 The Agreement and such other Contract Documents as designated by the BCRCD, shall be executed and delivered by the Contractor to the BCRCD within ten (10) days of the Notice of Award. BCRCD will execute and deliver one counterpart to Contractor within five (5) days of receipt of the executed Agreement from Contractor.

2.3 Copies of Documents:

2.3.1 BCRCD shall furnish to Contractor 2 copies of the Contract Documents for the execution of the work. Additional copies will be furnished at cost of reproduction upon request.

2.4 Contractor's Pre-Start Representations:

2.4.1 Contractor represents that they have familiarized themself with, and assumes full responsibility for having familiarized themself with, the nature and extent of the Contract Documents, work, locality and with all local conditions including federal, state and local laws, ordinances, rules and regulations that may in any manner affect performance of the work, and represents that they have correlated their study and observations with the requirements of the Contract Documents.

2.4.2 Contractor also represents that they have familiarized themself with all surveys and investigation reports of surface and latent physical conditions and that they have correlated the results of all such data with the requirements of the Contract Documents.

2.5 Commencement of Time; Starting the Project:

2.5.1 The contract time will commence on the date fixed by the Notice to Proceed. The Contractor shall start to perform the work under the Contract Documents on or before the date assigned in the Notice to Proceed.

2.6 Before Starting Construction:

2.6.1 The Contractor shall carefully study and compare the Contract Documents; check and verify pertinent figures shown thereon; and verify all applicable field measurements prior to undertaking each part of the work. They shall at once report in writing to the Project Manager any conflict, error or discrepancy which they may discover. Contractor shall be responsible for exercising reasonable care and skill in reviewing the Contract Documents to determine whether there is any conflict, error or discrepancy therein, and shall be responsible for notifying the Project Manager. No claim for additional compensation shall be made by the Contractor for extra work created by Contract Document conflicts, errors or discrepancies which a reasonable Contractor would have discovered prior to commencing work.

2.6.2 The Contractor shall furnish the BCRCD all certificates of insurance required by the Contract Documents after the "Notice of Conditional Award" and prior to the "Notice to

Proceed," in types and amounts set forth in Article 5.

ARTICLE 3 - CORRELATION, INTERPRETATION, AND INTENT OF CONTRACT DOCUMENTS

3.1 It is the intent of the Contract Documents to describe a complete project to be constructed. As stated in paragraph 1.12, the Contract Documents comprise the entire contract between BCRCD and Contractor. They may be altered only by a change order or field order, as defined in these Conditions.

3.2 The Contract Documents are complementary, and what is required by any one shall be as binding as if required by all. Work not specifically covered in the Contract Documents shall nonetheless be required if it is consistent therewith and is reasonably inferable therefrom as being necessary or appropriate to produce the intended results. Should the Contractor discover a conflict, error, or discrepancy in the Contract Documents, they shall immediately call it to the attention of the BCRCD in writing before proceeding with the work affected. Contractor agrees that proceeding with work without first giving such notice shall constitute a waiver by Contractor of any claim for additional time or money. Where there is a conflict, the Contract Documents and Specifications shall govern

ARTICLE 4 - AVAILABILITY OF LANDS, PHYSICAL CONDITIONS, AND REFERENCE POINTS

Availability of Lands:

4.1.1 BCRCD shall furnish the lands upon which the work is to be done, right-of-way for access thereto, and other such lands which are designated in the Contract Documents for the use of the Contractor. Contractor shall provide all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.2 Physical Conditions:

4.2.1 The Contractor shall immediately, and before any such conditions are disturbed, notify the Project Manager in writing of subsurface or latent physical conditions at the site differing materially from those indicated in the Contract Documents; or unknown and unforeseen physical conditions at the site, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents. The Project Manager shall promptly investigate the conditions, and if they find that such conditions do materially so differ to cause an increase or decrease in the time required for performance of the work, an appropriate adjustment in Contract Time may be made in accordance with Article 12 of these General Conditions. The Contract Documents may be modified by Change Order accordingly. In no event shall Contractor be entitled to increased compensation for such differing conditions, unless provided for in such Change Order.

4.2.2 No increase of time under paragraph 4.2.1 shall be allowed unless the Contractor shall have given the written notice described in paragraph 4.2.1 not later than 24 hours after such conditions are discovered, and before such conditions are disturbed. Contractor shall not proceed with the work affected by such conditions until directed in writing by Project Manager. Furthermore, no increase shall be given unless it is shown that

Contractor's own investigation was done competently and did not disclose the error or condition. Failure of Contractor to give written notice and providing an opportunity for the Project Manager to investigate shall constitute a waiver by Contractor of any claim for additional time or money.

ARTICLE 5 - BONDS AND INSURANCE

5.1.1 Contractor shall obtain and maintain continuously comprehensive general liability insurance and/or other insurance necessary to protect the public with limits of liability of not less than $1,000,000 combined single limit bodily injury and property damage per occurrence with a $1,000,000 combined single limit annual aggregate with appropriate coverage endorsements to include broad-form contractual, broad form property damage, contractor's protective, product/completed operations, auto and non-owned auto, personal injury, and fire-legal liability where applicable. The general aggregate limit shall apply separately to this project, or Contractor shall provide insurance with a general aggregate limit of $2,000,000. Such insurance shall include "BCRCD, its elected officials, officers, and employees as an additional insured", and shall not be reduced or canceled without 30 days written prior-notice certain to the BCRCD. Contractor shall provide the BCRCD a certificate of insurance and an additional insured endorsement as evidence of insurance protection provided which lists "Butte County Resource Conservation District" as the certificate holder. Insurance certificates provided by any insurance company or underwriter shall not contain the language "endeavor to" and "but failure to mail such notice shall impose no obligation or liability of any kind upon the company", or similar language. If Contractor has employees, they shall obtain and maintain continuously workers' compensation insurance to cover Contractor and Contractor's employees and partners.

5.1.2 The Contractor, upon notification of receipt by the BCRCD of any cancellation notice shall file with the BCRCD a replacement certificate with another insurance company meeting the financial requirements of the BCRCD and the coverage requirements. Failure to maintain any of the above required insurance shall require the immediate discontinuation of work until replacement insurance is furnished to the BCRCD. All payments due or that become due will be withheld until notice of replacement is received. Any failure to maintain insurance will be
sufficient cause for termination of the contract.

5.1.3 Automobile Liability Insurance: Contractor shall carry Bodily injury and Property Damage liability including coverage for owned, hired and non-owned automobiles. The limits of liability shall be not less than $1,000,000 Bodily Injury, $300,000 Property Damage or $1,000,000 Combined Single Limit Bodily Injury and Property Damage.

5.1.4 As evidence of the insurance required by this agreement, certificates of workers compensation, general liability and automobile liability shall be furnished to the BCRCD before any work is commenced by the Contractor.

5.2 Builders Risk Insurance: The Contractor will not be required to obtain Builder's Risk Insurance. The Contractor will be responsible for building materials not installed and for the Contractor's tools, other equipment or supplies. The Contractor shall also be required to protect the construction project as stipulated elsewhere in this contract.

5.4 Responsibility for Damage:

5.4.1 Approval of the Contractor's insurance by the BCRCD shall not decrease the extent to which the Contractor or any subcontractor may be held responsible for payment of any and all damages resulting from Contractor's operations.

5.4.2 The Contractor shall assume the defense of and indemnity and save harmless the BCRCD, its elected officials, officers and employees, agents and employees of each of them, from any and all loss, liability or damage including attorney's fees and from all suits, actions, damages or claims of every nature and description to which they may be subjected or put by reasons of injury to persons or property arising out of, in connection with, or incident to the execution of the work or resulting from the active or passive negligence or carelessness on the part of the Contractor, Contractor's employees or agents in the delivery of materials and supplies by its employees or agents, including any failure to fulfill the terms of all laws and regulations which apply to this Contract together with any infringement or alleged infringement of the patent rights of any person or persons, firm or corporation in consequence of the use in or about the said work of any article or materials; and the BCRCD shall have the right to estimate the amount of such damage and to cause the Contractor to pay same, and the amount to be paid for such damage shall be deducted from the money due to the Contractor under this Contract; or the whole or so much of the money due or to become due to the Contractor under this Contract, as may be considered necessary by the BCRCD, shall be retained by the BCRCD until such suits or claims for damages shall have been settled or otherwise disposed of and satisfactory evidence to that effect furnished to the BCRCD. Contractor shall assume the defense of and indemnify and save harmless BCRCD, its elected officials, officers and employees, Project Manager and the officers, agents and employees of each of them in respect to any mechanics lien, foreclosure actions filed by any subcontractor or material person relative to the construction.

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

6.1 Supervision and Superintendent:

6.1.1 Contractor shall supervise and direct the work effectively, efficiently and with their best skill and attention. They shall have sole responsibility for the means, methods, techniques, sequences, procedures of construction, and for coordinating all portions of their work under the Contract Documents. Contractor shall be responsible for the finished work complying accurately with the Contract Documents.

6.1.2 The Contractor shall designate in writing, before starting work, the name, qualifications and experience of their proposed representative who must be approved by the Project Manager. Said representative shall have authority to represent and to act for the Contractor. Said authorized representative shall be present at the site of work at all times while work is in progress. Arrangements for responsible supervision, acceptable to Project Manager, shall be made for emergency work required during periods when work is suspended.

6.1.3 The Contractor shall notify the Project Manager, in writing (email is acceptable), when they desire to change their representative. They shall provide all necessary information regarding their new representative when submitting request for approval. Any substitute representative shall require the approval of the Project Manager, which may not be unreasonably withheld.

6.1.4 In emergencies when the Contractor or their authorized representative is not present on any particular part of the work, directions will be given by the Project Manager and obeyed by the superintendent or

foreperson in charge of the particular work. Such directions will be confirmed in writing to the Contractor's authorized representative.

6.1.5 The Contractor shall identify, in writing, the individuals who are authorized to sign Change Orders to the Contract.

6.1.6 The Contractor shall remove their representative from the work and propose a substitute if Project Manager reasonably concludes that such representative is unable or unwilling to properly supervise the work in such a manner as to ensure its timely and successful completion in accordance with Contract Documents.

6.1.7 The Contractor shall maintain daily job site activity logs which record: location and number of all manpower on the site by their own and subcontractors' forces; all work being performed and whether such work is part of the base contract or change order; all construction equipment in use, and not in use, and reasons why not in use; weather and site conditions; and delays or obstructions to the work. The Contractor shall sign the log representing that the information contained therein is true, accurate and complete.

6.3 Labor, Materials and Equipment:

6.3.1 Contractor shall provide competent, suitable qualified personnel to lay out the work and perform construction as required by the Contract Documents. Contractor shall at all times enforce strict discipline and good order on the project. They shall not employ on the work any unfit person or anyone not skilled in the task assigned to them.

6.3.2 Contractor shall furnish all equipment, labor, transportation, and machinery, tools, appliances, other facilities and incidentals necessary for the execution, testing, initial operation and completion of work.

6.3.4 All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the instruction of the applicable manufacturer, fabricator or processors.

6.5 Subcontractors:

6.5.1 Contractor shall investigate and assure themself and the BCRCD of the experience and skill of all subcontractors performing work specified by the Contract Documents as well as the financial stability of such subcontractors. Contractor shall not recommend any subcontractor or other person or firm, whether initially or as a substitution against whom BCRCD, at BCRCD's sole discretion, may have reasonable objection. If BCRCD who has no duty to investigate, but has the right to do so, after due investigation, has a reasonable objection to any subcontractor, supplier or material person proposed by Contractor, Contractor shall propose an acceptable substitute. Contractor shall be fully responsible for all acts and omissions of their subcontractors, and of persons and organizations directly or indirectly employed by them and of persons and organizations for whose acts any of them may be liable to the same extent that they are responsible for the acts and omissions of persons directly employed by them. Nothing in the Contract Documents shall create any contractual relationship between the BCRCD and any subcontractor, or other person or organization having a direct contact with the Contractor, nor shall it create any obligation on the part of BCRCD to pay or see to the payment of any monies due any subcontractor or other persons or organizations.

6.5.3 The divisions and sections of the Specifications and the identifications of any Scope of Work shall not control the Contractor in dividing the work among subcontractors or delineating the work to be performed by any specific trade. Neither the Project Manager, nor BCRCD will act as arbiter to determine subcontract limits.

6.5.4 Contractor agrees to bind specifically every subcontractor to the applicable terms and conditions of the Contract Documents for the benefit of the BCRCD including, but not limited to, all time and notification requirements.

6.5.5 All work performed for Contractor by a subcontractor shall be pursuant to an appropriate agreement between Contractor and subcontractor which shall contain provisions for the waiver of all rights the contracting parties may have against one another for damages caused by fire or other perils covered by insurance. Contractor shall pay each subcontractor a just share of any such insurance moneys received by Contractor.

6.6 Patent Fees and Royalties:

6.6.1 Contractor shall pay license fees and royalties and assume all costs incident to the use, in the performance of the work, of any invention, design, process, product or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, device or product is specified in the Contract Documents for use in the performance of the work, and to the actual knowledge of BCRCD its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by BCRCD in the Contract Documents. Contractor shall indemnify and hold harmless BCRCD, Project Manager and anyone directly or indirectly employed by either of them from and against consultants' and other experts' fees and expenses arising out of any infringement of patent rights incident to the use in the performance of the work or resulting from the incorporation in the work of any invention, design, process, product or device not specified in the Contract Documents, and shall defend all such claims in connection with alleged infringement of such rights.

6.8 Laws and Regulations:

6.8.1 Contractor shall give notices and comply with all laws, ordinances, rules and regulations applicable to the work. Contractor shall use reasonable care and skill in determining whether or not the Specifications are at variance therewith, and, if they observe such variance, they shall give the Project Manager prompt written notice thereof. If Contractor performs any work knowing it to be contrary to such laws, ordinances, rules and regulations, and without such notice to the Project Manager shall bear all costs arising therefrom.

6.9 Taxes:

6.9.1 Contractor shall pay all sales, consumer use and other similar taxes required to be paid by them in accordance with the law of the place where the work is to be performed.

6.10 Use of the Premises:

6.10.1 Contractor shall confine their equipment, the storage of materials and equipment and the operations of their workcrew to areas permitted by law, ordinance, permits or the requirements of the BCRCD and of the Contract Documents, and shall not unreasonably encumber the premises with materials or equipment.

6.12 Safety and Protection:

Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the work. They shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

6.12.1.1 All employees on the work and other persons who may be affected thereby:

6.12.1.2 All the work and all materials or equipment to be incorporated therein, whether in storage on or off the site; and

6.12.1.3 Other property at the site or adjacent thereto, including trees, pavements, roadway, watercourses, structures and utilities not designated for removal, relocation or replacement in the course of construction.

6.12.1.4 The Contractor represents that they have read and are thoroughly familiar with the California State Occupational Safety and Health Act, and regulations for construction promulgated thereunder, and agrees to comply with the Act and all such regulations applicable to the performance of the work. The Contractor accepts the duty of enforcing those regulations by federal, state or BCRCD Safety and Health Inspectors at the Contractor's work place, at the job site, or at any area within the limits of construction; and accepts the outcome of any such inspections. Contractor assumes exclusive responsibility for, and agrees to defend, indemnify and hold harmless the BCRCD, Project Manager, and their elected officials, officers, agents, employees, consultants and representatives against all consequences of any violations of those regulations by the Contractor, including the payment of any fine, penalty and interest assessed in connection therewith, any court costs, undertakings, interest, and attorneys', accountants' consultants' and experts' expenses and fees incurred by the BCRCD.

6.12.2 Contractor shall comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss. They shall erect and maintain, as required by the conditions and progress of the work, all necessary safeguards for its safety and protection. They shall notify BCRCD of adjacent utilities when prosecution of the work might affect them. All damage, injury or loss to any property caused, directly or indirectly, in whole or in part, by Contractor, and/or subcontractor, or anyone employed by them shall be remedied by Contractor at Contractor’s own expense. Contractor's duties continue until such time as all the work is completed and Project Manager has issued a notice in accordance with paragraph 14.9 that work is acceptable.

6.12.3 Contractor shall designate a responsible member of their organization, at the site, satisfactory to the Project Manager, whose duty shall be the prevention of accidents. This person shall be Contractor's superintendent unless otherwise designated in writing by Contractor to Project Manager.

6.14 Cleaning:

6.14.1 Contractor shall keep the premises free from accumulations of waste materials, rubbish and other debris resulting from the work, and at the completion of the work they shall remove all waste materials, rubbish and debris from and about the premises, as well as all tools, construction equipment and machinery, and surplus materials. They shall leave the site clean and ready for use by the U.S. Forest Service and the public.

Contractor shall restore to original condition those portions of the site not designated for alteration by the Contract Documents.

6.15 Indemnification:

6.15.1 Contractor shall indemnify and hold harmless to the fullest extent permitted by law, the BCRCD Project Manager and their elected officials, officers, consultants, agents and employees, from and against all claims, damages, losses and expenses, including attorneys', accountants', consultants', and experts' fees and expenses, arising out of or resulting from the performance of the work attributable to bodily injury, sickness or death, or to injury to or destruction of tangible property, including the loss of use resulting therefrom, and caused in whole or in part by any negligent or other act or omission of Contractor, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether indemnification shall extend to claims, demands, or liability for injuries occurring after completion of the project as well as during the work's progress. Such obligation shall not be construed to negate, abridge or otherwise reduce any other obligation of indemnity which otherwise exists under the Contract Documents or at law as to any party or person described in this paragraph or otherwise.

6.15.2 In any and all claims against BCRCD Project Manager, their elected officials, officers, employees, consultants or agents by an employee of Contractor, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligation under subparagraph 6.15.1 shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for Contractor or any subcontractor under workmen's compensation acts, disability acts or other employee benefit acts.

6.16 Books and Records:

6.16.1 Contractor shall maintain books, records, documents and other evidence pertinent to the work in accordance with generally accepted accounting principles and practices. Such books, records, documents and other evidence shall be maintained at least until June 30, 2031. Access to the aforementioned books, records, documents and other evidence shall be available to the BCRCD or the Board, or any authorized representative of either, during the course of construction and for at least three years after completion of the project. Suitable facilities shall be provided for said access.

ARTICLE 7 - WORK BY OTHERS

7.1 BCRCD may perform additional work related to the project or it may award other direct contracts. Contractor shall afford the other persons or contractors who are parties to such direct contracts reasonable opportunity for the storage of materials and equipment and the execution of work. Contractor shall properly connect and coordinate their work with the work of others. No claim for time extension will be made by the Contractor due to any alleged problems or difficulties suffered due to work performed by others unless written notice within twenty-four hours of the commencement of said alleged delaying activities is given to the BCRCD.

7.2 If any part of Contractor's work depends, for proper execution or results, upon the work of any other such person or contractor, Contractor shall inspect and promptly report to Project Manager in writing any defects or deficiencies in such work that render it unsuitable for such proper execution and results. Contractor’s failure to report as such shall constitute an acceptance of the other work as fit and proper for the relationship of their

work, except as to defects and deficiencies which may appear in the other work after the execution of Contractor's work.

7.3 Contractor shall do all cutting, fitting, and patching of their work that may be required to make the several parts come together properly and fit to receive or be received by such other work. Contractor shall not endanger any work of others by cutting, excavating or otherwise altering their work, and will only cut or alter their work with the written consent of the BCRCD and of the other contractors whose work will be affected.

7.4 If the performance of additional work by other persons or contractors is not noted in the Contract Documents prior to the execution of the Agreement, written notice thereof shall be given to Contractor prior to starting any such additional work.

ARTICLE 8 - BCRCD'S RESPONSIBILITIES

8.1 Communications: BCRCD will forward all instructions and decisions to Contractor through the Project Manager.

8.2 Right to Stop Work: The BCRCD has the right to stop or suspend work, and to award other work.

8.3 Project Manager:

8.3.1 The BCRCD will designate a single individual as Project Manager to enable it to carry out its responsibilities at the site. The Project Manager is the BCRCD's agent and shall act as directed by and under the supervision of the BCRCD District Manager and Board. BCRCD may from time to time designate assistants or delegates, in writing, who are authorized to act on the Project Manager's behalf.

8.3.2 The Project Manager will be the BCRCD's sole authorized representative for the project.
8.4 Disputes Resolution:

8.4.1 A dispute, or claim, or other matter in question arising out of or relating to the Contract Documents which is not disposed of by agreement shall be decided by the Project Manager promptly and in writing as provided in the Contract Documents. The decision of the Project Manager shall be final and conclusive on the Contractor unless, within 5 days from the receipt of such decision, Contractor submits to Project Manager a written claims submission and documentation as defined in paragraph 8.6 below.

8.5 Disputed Work:

8.5.1 Should Contractor object to any decision, order, directive, notice, action, or omission of Project Manager, Contractor may, within 5 days after receipt or occurrence of the same, or before commencing with the disputed work, whichever occurs first, furnish to Project Manager a written notice stating such objections.

8.5.2 Contractor shall furnish to Project Manager, beginning with the first day and at the end of each day detailed hourly records for labor, construction equipment, and services; and itemized records of materials and equipment used that day in performance of the disputed work. Such records shall be of a form approved by Project Manager. Such records shall be signed by Contractor and verified by Project Manager.

8.5.3 Failure by Contractor to furnish such written notice and records specified in 8.5.1 and 8.5.2 shall constitute a waiver of Contractor's right to furnish a claim for the disputed work.

8.6 Claims Submission and Documentation:

8.6.1 Contractor may furnish a claim concerning a matter noticed in accordance with 8.5 to the BCRCD, 641 Entler Ave, Ste. 47, Chico, CA 95928.

8.6.2 Contractor shall furnish 3 certified copies of claim documentation. The claim documentation shall be complete when furnished. The evaluation of the Contractor's claim will be based on BCRCD's records and the Contractor's furnished claim documentation.

8.6.3 Claim documentation shall conform to generally accepted auditing standards and shall be in the following format: 1. General Introduction 2. General Background 3. Issues a) Index of Issues b) For each Issue 1) Background 2) Chronology 3) Contractor's Position (reason for BCRCD potential liability) 4) Supporting Documentation of Merit 5) Supporting Documentation of Damages 4. Critical Path Method Schedules, As-Planned and As-Built 5. Productivity Exhibits 6. Summary of Issues and Damages

8.6.4 Supporting documentation of merit for each issue shall be cited by reference, photocopied, or explained. Supporting documentation may include, but not be limited to general conditions, technical specifications, drawings, correspondence, conference notes, shop drawing, survey books, inspection reports, delivery schedules, test reports, daily reports, subcontracts, fragmentary critical path method schedules, photographs, technical reports, requests for information, field instructions, and other related records.

8.6.5 Supporting documentation of damages for each issue shall be cited, photocopied, or explained. Supporting documentation may include but not be limited to certified detailed labor, materials, equipment, and construction equipment and services costs; purchase orders; invoices; project as-planned and as-built costs; subcontractor payment releases; quantity reports; other related records; general ledger and any other accounting materials.

8.6.6 Each copy of claim documentation shall include the following certification: 1. I certify under penalty of perjury, according to the laws of the State of California that this claim is made in good faith, that the supporting documentation is accurate and complete to the best of my knowledge and belief; and that the amount requested accurately reflects the contract adjustments for which BCRCD is responsible. 2. Certification shall be signed in the same manner as the proposal was signed.

8.6.7 Should Contractor be unable to support any part of the claim and it is determined that such inability is attributable to falsity of such certification or misrepresentation of fact or fraud on the part of Contractor, Contractor shall be liable to BCRCD for three times the amount of damages which the BCRCD sustains, plus the cost of civil action and may be liable to the BCRCD for a civil penalty of up to ten thousand dollars for each false claim.

8.7 Decisions on Claims:

8.7.1 Claims of Contractor arising under and by virtue of the contract will be decided by the BCRCD Board of Directors, BCRCD District Manager, BCRCD Counsel, and the Project Manager all or in part who will furnish the decisions to Contractor in writing.

8.8 Release of Undecided Claims:

8.8.1 Undecided claims furnished to the BCRCD Board of Directors before execution of the final release of claims provided in 8.6 and not excepted therefrom shall be deemed released by Contractor upon execution of such release and will not be further considered by the BCRCD.

8.9 Exhaustion:

8.9.1 Contractor must exhaust all remedies and comply with all dispute resolution procedures set forth in paragraph 8.4 and 8.5 prior to filing suit which names the BCRCD Project Manager or any officer, employee, agent or affiliate thereof.

ARTICLE 9 - PROJECT MANAGERS STATUS DURING CONSTRUCTION

9.1 Visits to Site:

9.1.2 Project Manager will have access to the work at all times for the observation of the building operations, including the right to accept or reject materials and/or workmanship.

9.1.3 In cases of emergency the Project Manager may give directions to the Contractor, their authorized representative, or if neither are available, to the superintendent or foreperson in charge of the particular work concerning which directions are given. Such directions will be confirmed in writing by the Project Manager.

9.3 Rejecting Defective Work:

9.3.1 Project Manager will have authority to disapprove or reject work which is "defective" (which term includes without limitation work that is unsatisfactory, faulty, does not conform to the requirements of the Contract Documents, does not meet the requirements of any inspection, test or approval referred to in paragraph 13.2, or has been damaged prior to approval of final payment). Forest Service will also have authority to recommend to the Project Manager that they require special inspection or testing of the work, whether or not the work is fabricated, installed or completed.

ARTICLE 10 - CHANGES IN THE WORK:

10.1 The BCRCD may at any time or from time to time order additions, deletions or revisions in the general scope of work without invalidating the Contract Documents and without notice to the sureties.

10.2 Changes will be authorized by a Change Order. Upon receipt of a Change Order, Contractor shall immediately proceed with the work involved. All such work shall be executed under the applicable conditions of the Contract Documents. If any Change Order causes an increase or decrease in the contract price or any extension or shortening of the contract time, an

adjustment will be made as provided in Articles 11 and 12, on the basis of a claim made by either Contractor or BCRCD.

10.3 Changes, Omissions, or Additions shall be made only through a standard written order of the Project Manager and approved by the BCRCD. Change Orders will be issued only before or at the time of change, and the expense or responsibility for any change or damage without said order shall rest entirely with the Contractor.

10.4 BCRCD may order minor changes or alterations in the work not involving extra costs or extension of time, and not inconsistent with the overall intent of the Contract Documents. Such changes may be ordered by a Field Order.

10.5 When necessary, in order to avoid delay to the work, the Project Manager may authorize the Contractor to proceed with the work pending completion of a change order. This prior authorization may be verbal; however, it must be confirmed in writing as soon as possible by the authorizing individual. Whenever work is to proceed on the basis of such prior authorization, the Contractor must be notified in writing to proceed with the work pending approval of the change order. In the case of a change order requested by the Contractor, the BCRCD must have positive assurance that Contractor will execute the change order before allowing work to proceed. Preparation and final approval of change orders for work covered under prior authorization must be actively pursued. Prior authorization does not include authority to make payment for the work. Payment cannot be made until the official written change order process is completed.

10.6 No claims for adjustment of contract price or time for delays or costs due to material shortage, transportation difficulties, or labor shortage will be paid by BCRCD except as defined in subparagraphs 12.1.2 and 12.1.3.

10.7 Additional work performed by Contractor without authorization of a change order shall be at Contractor's own expense. Contractor shall not be entitled to an increase in the contract price or an extension of the contract time, except in the case of an emergency as provided in subparagraphs 6.1.4 or 9.1.3, for such work performed without a change order.

10.7 The BCRCD may order changes in the work. Notwithstanding any dispute or controversy that may arise in connection with a claim for adjustment of contract price, in the event of such changes Contractor shall proceed with the work promptly and diligently upon written order from Project Manager. The contract price may be changed pursuant to Article 11 without notice to the Surety.

10.8.3 DELETED ITEMS
Should any Contract item of work be deleted in its entirety (in the absence of an executed Contract Change Order covering the deletion), payment will be made to the Contractor for actual and direct costs, excluding overhead and profit, incurred prior to the date of notification in writing by the Project Manager of the deletion, except as provided for costs of handling materials. If acceptable material is ordered by the Contractor for the deleted item prior to the date of notification of the deletion by the Project Manager, and if orders for such material cannot be canceled, it will be paid for at the actual cost to the Contractor, excluding overhead and profit. In such case, the material paid for shall become the property of the Owner and the cost of any further handling will be paid for as extra work as provided in Article 11. If the material is returnable to the vendor and if the Project Manager so directs, the material shall be returned and the Contractor will be paid for charges made

by the vendor for returning the material, excluding any markup for overhead and profit to the Contractor. The cost of any further handling will be paid for as extra work as provided in Article 11.

10.9 In the event that there is any dispute between the BCRCD and Contractor with relation to any payment to be made under this contract, whether by reason of change order; progress payment; or otherwise, Contractor shall submit a claim pursuant to Articles 11 and 12 but will not be entitled to walk off the job or stop work in any manner and is under a full obligation to complete each and every term and condition of the contract.

10.10 Dispute resolutions provisions of paragraphs 8.5 and 8.6 are applicable to changes in the work except as in Articles 11 and 12.

ARTICLE 11 - CHANGE OF CONTRACT PRICE

11.1 Contract Price:

11.1.1 The Contract Price constitutes the total amount payable to Contractor for performing the work under the Contract Documents. All duties, responsibilities and obligations assigned to or undertaken by Contractor in respect to work under the Contract Documents shall be at their
expense without change of the Contract Price.

11.1.2 If Contractor wishes to make a claim for an increase to the contract price, they shall give Project Manager written notice thereof not later than five (5) days after the occurrence of the event giving rise to such claim. Within ten (10) days thereafter, Contractor shall supply all supporting documents for such claim, including but not limited to time slips for labor and time slips for equipment. Failure to provide all supporting documents shall constitute a waiver of such claim by Contractor.

11.1.3 The written notice shall set forth the reasons for which the Contractor believes additional compensation is due, the nature of the costs involved and the amount thereof. The notice must be given to the Project Manager prior to Contractor's performing the work giving rise to the claim for additional compensation.

11.1.4 Differences between the parties arising under and by virtue of the contract shall be brought to the attention of the respective parties at the earliest possible time in order that such matters may be promptly settled. The Contractor hereby agrees that they shall have no right to additional compensation for any claim for which written notice was not filed in strict compliance with these general conditions.

11.2 The cost or credit to the BCRCD resulting from a change in the work, from a prior authorization, or from any claim for an increase or decrease in the contract price shall be determined by the Project Manager in one of the following ways:

11.2.1 By a lump sum properly itemized, and showing direct cost and markup, and supported by such substantiating data as may be required by the Project Manager to permit evaluation; allowable markup shall not in any case exceed the amount set forth below: 1. For work performed by the Contractor's own forces, for changes up to $2,000, an additional 10% for overhead and 5% for profit may be added; 2. For changes in excess of $2,000, the sums in excess of $2,000 are allowed an additional 8% for overhead and 5% for profit; 3.For work performed by subcontractors, the subcontractors' billings shall be limited to the markups as described for the Contractor, except the Contractor may add 10% to the gross amount as set forth by the

subcontractor, as their fee for coordinating and implementing such changed work by the subcontractor; 4.Overhead includes, but is not limited to, insurance, supervision, office expense, management, transportation and small tools allowance.

11.2.2 Where the work involved is related to unit prices, by application of unit prices to quantities involved; or

11.2.3 On the basis of force account as provided for in paragraph 11.3 which shall be employed only at the Project Manager's sole discretion, which shall not be an election of the Contractor.

11.2.4 All work undertaken by prior authorization shall be on the basis of force account, until and unless a lump sum is agreed upon.

11.3 Force Account Payment - When extra work is to be paid for on a force account basis, the labor, materials, and equipment used in the performance of such work shall be subject to the approval of the Project Manager and compensation will be determined as follows:

11.3.1 Work Performed by Contractor - The Contractor will be paid the direct costs for labor, materials and equipment used in performing the work determined as hereinafter provided in Sections "Labor," and "Materials," except where agreement has been reached to pay in accordance with Section 11.3.4 "Work Performed by Special Forces or Other Special Services."

11.3.2 To the total direct costs computed as provided in Sections "Labor," and "Materials," there will be added a markup as defined in paragraph 11.2.1.

11.3.3 The above markups shall constitute full compensation for all overhead costs which shall be deemed to include all items of expense not specifically designated as cost or equipment rental in Sections "Labor," and "Materials." The total payment made as provided above shall be deemed to be the actual cost of such work and shall constitute full compensation therefor.

11.3.4 Work Performed by Special Forces or Other Special Services: When extra work paid for on a force account basis is performed by forces other than the Contractor's organization, the Contractor shall reach agreement with such other forces as to the distribution of the payment made by the BCRCD of such work. No additional payment therefore will be made by the BCRCD by reason of the performance of the work by a subcontractor or other forces.

11.3.4.1 Labor - The Contractor will be paid the cost of labor for the workcrew (including foreperson when authorized by the Project Manager) used in the actual and direct performance of the work. The cost of labor, whether the employer is the Contractor, subcontractor, or other forces, will be the sum of the following:

11.3.4.2 Actual Wages - The actual wages paid shall include any employer payments to or on behalf of the workcrew for health and welfare, pension, vacation, and similar purposes.

11.3.4.3 Labor Surcharge - To the actual wages as defined in Section 11.3.4.2 will be added a labor surcharge set forth in the California Department of Transportation publication entitled Labor Surcharge & Equipment Rental Rate Book, which is in effect on the date upon which the work is accomplished and which is part of the contract. Said labor surcharge shall constitute full compensation for all payments imposed by State and

Federal laws, specifically worker's compensation, social security, Medicare, Federal unemployment insurance, State unemployment insurance and State training taxes, and for all other payments made to, or on behalf of, the workmen, other than actual wages as defined in Section 11.3.4.2 and subsistence and travel allowance as specified in Section 11.3.4.4.

11.3.4.4 Subsistence and Travel Allowance - The actual subsistence and travel allowance paid to such workmen.

11.3.4.5 Materials - The BCRCD reserves the right to furnish such materials as it deems advisable, and the Contractor shall have no claims for costs and markup on such materials. Only materials furnished by the Contractor and necessarily used in the performance of the work will be paid for. The cost of such materials will be the cost to the purchaser, whether Contractor, subcontractor, or other forces, from the supplier thereof, except as the following:

11.3.4.6 If materials are procured by the purchaser by any method which is not a direct purchase from and a direct billing by the actual supplier to such purchaser, the cost of such materials shall be deemed to be the price paid to the actual supplier as determined by the Project Manager plus the actual costs, if any, incurred in the handling of such materials.

11.3.4.7 If the materials are obtained from a supply or a source owned wholly or in part by the purchaser, the cost of such materials shall not exceed the price paid by the purchaser for similar materials furnished from said source on contract items or the current wholesale price for such materials delivered to the job site, whichever price is lower.

11.3.4.8 If the cost of such materials is, in the opinion of the Project Manager, excessive, then the cost of such materials shall be deemed to be the lowest current wholesale price at which such materials are available in the quantities concerned delivered to the job site.

11.4 The amount of credit to be allowed to BCRCD for any change which results in a net decrease in cost of the work, will be the amount of the actual net decrease as determined by the Project Manager.

11.5 Whenever the cost of any work is to be determined pursuant to paragraph 11.3, Contractor will submit in form prescribed by BCRCD an itemized cost breakdown together with supporting data.

11.6 Disputes, claims and matters in question arising out of or relating to the interpretation of implementation of Article 11 shall be submitted and resolved in accordance with paragraph 8.5.

11.7 Cash Allowances - NOT APPLICABLE
11.8 All parties agree that the following form shall be used for all change orders:

RESOURCE CONSERVATION DISTRICT BUTTE COUNTY

Contract Change Order Form

Contract Change Order Number:_____
Date:_____ Sheet:____ of _____

_____. You are hereby directed to make the herein-described changes from the plans and specifications, or do the following described work in accordance with applicable provisions of the Contract Documents. Work described herein shall include furnishing of all materials, equipment, labor and services necessary for its completion. This Change Order constitutes a full accord and satisfaction as to claims for all additional costs and extensions of the contract time relating to the portion of the work described under the term "Item." The execution of this Change Order is a waiver of any rights or claims by the Contractor to any additional compensation for the "Item" work or extensions of the contract time for that work. ITEM: The above changes result in the following adjustments to the Contract Price: Add/Deduct
$_____.

Contract Time is increased / decreased / unchanged _____working days by this Change Order.

I, the undersigned Contractor, have given careful consideration to the change proposed and hereby agree to do the work above specified and will accept as full payment therefore the prices shown above.

Contractor: _____ Date: _____

Title:_____

RECOMMENDED FOR APPROVAL:

Project Manager: _____ Date: _____

Continues on next page

APPROVED BY:

District Manager: _____ Date: _____

Contract Change Order No: _____
Project: _____
Date: _____

The Contract is changed as follows:

CCO#	COR#	Description		Amount
		Requested by: Reason:	ADD	

		Requested by: Reason:	ADD	
		Requested by: Reason:	ADD	
		Total Change Order No: _____	ADD	$

The Original Contract Sum:	$
Net Change by previously authorized Change Orders:	$
The Contract Sum prior to Change Order:	$
The Contract Sum will be increased in the amount of:	$
The New Contract Sum including the Change Order will be:	$
The Contract Time will be extended:	Days

End of Contract Change Order Form

ARTICLE 12 - CHANGE OF THE CONTRACT TIME

12.1 Contract Time

12.1.1 The BCRCD may extend, reduce or adjust the contract time without invalidating the Contract Documents and without notice to the Surety. The contract time may only be changed by a change order. Any claim for an extension in the contract time shall be based on written notice to Project Manager within five (5) days of commencement of the event giving rise to the claim. The notice shall set forth the reasons for the delay, the date of its commencement, the extent of the delay, together with such supporting data as may be required by Project Manager. Change in the contract time shall be incorporated in a change order. Failure to present notice of claim in writing within the stated five days constitutes a waiver for any delay claim.

12.1.2 In the event it is deemed necessary to extend the time for completion of the work, such extensions shall in no way release any guarantee given by the Contractor pursuant to the provisions of the Contract Documents, or the contract let hereunder, nor shall such extension of time relieve or release the Sureties on the bonds executed pursuant to said provision. The Sureties in executing such bonds shall be deemed to have expressly agreed to any such extension of time. The amount of time allowed in any extension of time shall be limited to the period of the delay giving rise to the same as determined by the BCRCD.

12.1.3 The amount of time extension, if any, to which the Contractor is entitled shall be determined by the Project Manager. No damages of any sort shall be paid to Contractor for delay, disruption, halting, cessation or temporary abandonment, no matter from what cause. Parties acknowledge that on this project, revisions to the Plans for Construction of the Colby Mountain Recreation Project -Phase 2 could be needed, and Contractor waives, by entering into the Agreement with BCRCD, any damages caused by such revision or any other source during the term of this contract. Notwithstanding any dispute which may arise in connection with a claim for adjustment of the contract time, Contractor shall proceed with the work promptly and directly.

ARTICLE 13 - WARRANTY AND GUARANTEE; TEST AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.1 Warranty and Guarantee

13.1.2 Contractor warrants and guarantees to the BCRCD that all materials and equipment will be unless otherwise specified, all work will be of good quality, free from faults or defects, in accordance with the requirements of the Contract Documents and of any inspections, tests or approvals required, such as in Paragraph 14.6.1 and/or 13.2.

13.2. All unsatisfactory work, all faulty or defective work, and all work not conforming to the requirements of the Contract Documents at the time of acceptance thereof or of such inspections, tests or approvals shall be considered defective. All defective work, whether or not in place, may be rejected, corrected or accepted as the BCRCD may direct.

13.2 Tests and Inspections

13.2.1 If laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any work to be specifically inspected, tested or approved by some public body, Contractor shall assume full responsibility therefore, pay all costs in connection therewith, and furnish the Project Manager with the required certificates of inspection, testing or approval. All other inspections, tests and approvals required by the Contract Documents shall be performed by the Project Manager or BCRCD and the costs be paid by BCRCD unless otherwise specified.

13.2.2 Contractor shall give Project Manager timely notice of readiness of the work for all inspections, tests or approvals. If any such work required so to be inspected, tested or approved is covered before such inspections, tests, or approvals are made, without written approval of the Project Manager, it must, if requested by the Project Manager, be uncovered for observation, and such uncovering and replacement shall be at Contractor's expense.

13.2.3 Neither observations by Project Manager nor inspections, tests or approvals shall relieve Contractor from their obligations to perform the work in accordance with the requirements of the Contract Documents.

13.2.4 Any defective work, which may be discovered before final acceptance of the work, shall be corrected immediately by the Contractor, and any unsatisfactory materials shall be rejected, notwithstanding that they may have been overlooked by an inspector. The inspection of the work shall not relieve the Contractor of any of their obligations to perform satisfactory work as herein prescribed.

13.2.5 Failure or neglect on the part of the BCRCD or any of its authorized agents to condemn or reject bad or inferior work or materials shall not be construed to imply an acceptance of such work or materials if it becomes evident at any time prior to final acceptance of the work; neither shall it is construed as barring the BCRCD at any subsequent time from recovery of damages or of such a sum of money as may be needed to build all portions of the work in which fraud was practiced or improper materials used whenever found.

13.3 Access to Work

13.3.1 The BCRCD and its representatives will at all times have access to the work. Contractor Shall provide proper and safe facilities for such access and observation of the work and also for any inspection or testing thereof by others.

13.5 BCRCD May Stop the Work

13.5.1 If the work is defective, or Contractor fails to supply sufficient skilled workcrew or suitable materials or equipment, or if Contractor fails to make prompt payments to subcontractors or for labor, materials or equipment, BCRCD may order Contractor to stop the work, or any portion thereof, until the cause for such order has been eliminated. This right of BCRCD to stop the work shall not give rise to any duty on the part of BCRCD to exercise this right for the benefit of Contractor or any other party.

13.6 Correction or Removal of Defective Work

13.6.1 The Project Manager will require the Contractor, prior to approval of payment, without cost to BCRCD and as specified by Project Manager, to either correct any defective work, whether or not fabricated, installed or completed, or, if the work has been rejected by Project Manager, remove it from the site and replace it with

non-defective work. If Contractor does not correct such defective work or remove and replace such rejected work within a reasonable time, all as specified in a written notice from Project Manager, BCRCD may have the deficiency corrected or the rejected work removed and replaced by other persons. All direct or indirect costs of such correction or removal and replacement, including compensation for additional professional services, shall be paid by Contractor. Contractor shall also bear the expenses of making good all work of others destroyed or damaged by their correction, removal, or replacement of their defective work.

13.6.2 The Contractor shall remove from the site within 48 hours, when so directed by the Project Manager, any materials which are not in conformance with the Contract Documents.

13.7 One Year Correction Period

13.7.1 If, after the approval of final payment and prior to the expiration of one year after the date of Notice of Completion or such longer periods of time as may be prescribed by law or by the terms of any applicable special guarantee required by the Contract Documents, any work is found to be defective, Contractor shall promptly, without cost to BCRCD and in accordance with BCRCDs written instructions, either correct such defective work, or, if it has been rejected by BCRCD, remove it from the site and replace it with non-defective work. If Contractor does not promptly comply with the terms of such instructions, BCRCD may have the defective work corrected or the rejected work removed and replaced by other persons and all direct and indirect costs of such removal and replacement, including compensation for additional professional services, shall be paid by Contractor. The requirements of this paragraph shall be cumulative with such other indemnification, warranties and guarantees as provided by the Contract Documents, at law and in equity, and shall not be deemed a limitation of any sort on the rights and remedies of the BCRCD against the Contractor

13.7.1.1 The warranties, extended warranties and guarantees in these General Conditions and in the Specification shall be cumulative with such other indemnification, warranties and guarantees as provided by the Contract Documents, or at law or in equity, and shall be deemed a limitation of any sort on the rights and remedies of the BCRCD against the Contractor.

13.8 Acceptance of Defective Work

13.8.1 If, instead of requiring correction or removal and replacement of defective work, BCRCD prefers to accept it, it may do so. In such case, if acceptance occurs prior to approval of final payment, a change order shall be issued incorporating the necessary revisions in the Contract Documents, including appropriate reduction in the contract price; or, if the acceptance occurs after approval of final payment, an appropriate amount shall be paid by Contractor to BCRCD.

13.9 Work Neglected by Contractor

13.9.1 If Contractor fails to prosecute the work in accordance with the Contract Documents, including any requirements of the construction schedule, BCRCD may give Contractor written notice. Contractor shall respond to BCRCD within 24 hours' receipt of said notice, and conform to said notice within 7 days. BCRCD may, without prejudice to any other remedy it may have, make good the deficiencies, and the cost thereof (including compensation for additional professional services) shall be charged against Contractor. If the

payments then or thereafter due Contractor are not sufficient to cover such amount, Contractor shall pay the difference to BCRCD.

ARTICLE 14 - PAYMENTS AND COMPLETION

14.1 Schedules:

14.1.1 Work Schedule is described in the General Requirements. No progress payment will be made until after the Schedule has been updated as of the date of application for payment. Activity cost data will be incorporated into the form of Application for Payment furnished by the BCRCD.

14.2 Application for Payment:

14.2.1 Once work is complete Contractor shall submit to Project Manager for review an Application for Payment filled out and signed by Contractor covering the work completed as of the date of the application and accompanied by such data, vouchers and schedules as may reasonably be required. No payment shall be made for any work or material not specifically incorporated in the project, except equipment purchased by Contractor, delivered to and stored in a bonded warehouse acceptable to BCRCD.

14.2.2 Contractor will not be paid for Application for Payment until work quality is evaluated and approved by the Project Manager and Property Owner.

14.3 Contractor's Warranty of Title:

14.3.1 Contractor warrants and guarantees that title to all work, materials and equipment covered by any Application for Payment, whether incorporated in the project or not, will pass to BCRCD at the time of payment, free and clear of all liens, claims, security interests and encumbrances (hereinafter in these General Conditions referred to as "liens"). The BCRCD may, at any time, require the Contractor to post, at Contractor's expense, a lien release bond as to any lien filed against the project.

14.4 Approval of Payments:

14.4.1 Payment will be made only after receipt of a complete, adequately supported, properly documented and accurately addressed application for payment. Applications for payment may be sent electronically to thad@bcrcd.org. Failure to use the address exactly as provided above may result in return of the application for payment or payment request to the Contractor. All applications for payment must be approved by the BCRCD Project Manager. Payment shall be deemed complete upon deposit of the payment.
• Application for payment must be submitted within 10 days following performance of work.
• Payments shall be made by BCRCD to Contractor within thirty (30) calendar days.

14.4.1.1 The application for payment shall contain the following information:
i. The words “APPLICATION FOR PAYMENT” shall appear in a prominent location at the top of the page(s);
ii. Printed name of the Contractor;

iii. Business address of the Contractor, including P.O. Box or street address, City, State, and Zip Code;
iv. The date of the application for payment;
v. The project name; and
vi. An itemized account of the work for which the BCRCD is being billed by task;
vii. The time period covered by the application for payment, i.e., with the terms “from” and “through” [dates];
viii. A brief description of the work performed;
ix. The amount due by task. Other costs and charges shall be itemized at full cost supported by complete invoicing and other documentation;
x. The total amount due; this should be in a prominent location in the lower right-hand portion of the last page and clearly distinguished from other figures or computations appearing on the application for payment; the total amount due shall include all costs incurred by the Contractor under the terms of this Agreement; and
xi. Signature of Contractor

14.4.5 It is mutually understood and agreed that when under any provision of this contract the BCRCD shall charge any sum of money against the Contractor, the amount of such charge shall be deducted and retained by the BCRCD from the amount of the next succeeding progress estimate, or from any other moneys due or that may become due the Contractor on account of the contract. If on completion or termination of the contract such moneys due the Contractor are found insufficient to cover the BCRCD's charges against them, the BCRCD shall have the right to recover the balance from the Contractor or their sureties.

14.4.6 The BCRCD may withhold up to 125% of the estimated cost of remedial work from payments otherwise due the Contractor, if in the judgment of the Project Manager the Contractor has failed to make satisfactory progress on the completion of remedial work, or is otherwise in violation of any requirement, duty, obligation or covenant contained in the Contract Documents. Such withholding is supplementary to the retention amount required by these Contract Documents.

14.4.7 BCRCD may refuse to approve the payment because of subsequently discovered evidence, change in circumstances or the results of subsequent inspections or tests, and may nullify any such payments previously approved to such extent as may be necessary in their opinion to protect BCRCD from loss, because:

14.4.7.1 the work is defective, or completed work has been damaged requiring correction or replacement;

14.4.7.2 claims or liens have been filed, or there is reasonable cause to believe such may be filed;

14.4.7.3 the contract price has been reduced because of modification;

14.4.7.4 BCRCD has been required to correct defective work or complete the work;

14.4.7.5 of unsatisfactory prosecution of the work including failure to furnish acceptable submittals; or

14.4.7.6 the Contractor has failed to comply with the Contract Documents, direction of BCRCD or with the requirements of the law.

14.5 Notice of Completion:

14.5.1 Contractor will certify in writing to BCRCD, prior to final payment, that the entire project is substantially complete and request that BCRCD issue a Notice of Completion. Within a reasonable time thereafter, Project Manager and Contractor shall make a review of completeness. If Project Manager does not consider the project substantially complete, Project Manager will notify Contractor in writing giving their reasons. If Project Manager considers the project substantially complete, Project Manager will prepare a provisional Notice of Completion which shall fix the tentative date of Substantial Completion and the responsibilities for maintenance and utilities. There shall be attached to the provisional certificate a list of items to be completed or corrected before final payment, and the provisional certificate shall fix the time within which such items shall be completed or corrected, said time to be within the contract time.

14.5.2 Contractor shall have seven (7) days after receipt of the provisional certificate during which they may make written objection to Project Manager as to any provisions of the provisional certificate or attached list. If, after considering such objection, Project Manager concludes that the project is not substantially complete, Project Manager will within seven days after submission of the objection notify Contractor thereof in writing stating the reasons. Upon Contractor's completion of the items listed on the provisional certificate, and upon satisfaction of the terms and conditions of the provisional certificate, the Project Manager shall issue a final Notice of Completion, which shall fix date as may be necessary or appropriate. Project Manager's determination of the date of Substantial Completion and other items under this paragraph shall be final and conclusive on Contractor.

14.5.3 Project Manager shall have the right to exclude Contractor from the project site after the date of Substantial Completion, but Project Manager shall allow Contractor reasonable access to complete punch list items or perform correction and warranty work.

14.6 Partial Utilization:

14.6.1 Prior to final payment, Project Manager may request Contractor in writing to permit BCRCD to use a specified part of the project which it believes it may use without significant interference with construction of the other parts of the project. If Contractor agrees, it will certify to Project Manager that said part of the project is substantially complete and request Project Manager to issue a certificate of Substantial Completion for that part of the project. Within a reasonable time thereafter Project Manager and Contractor shall make an inspection of that part of the project to determine its status of completion. If Project Manager determines that such part is substantially complete, Project Manager shall issue a Certificate of Substantial Completion. If Project Manager does not consider that it is substantially complete, Project Manager will notify Contractor thereof in writing, giving its reasons.

14.6.2 Partial utilization shall not limit any warranty or guarantee by the Contractor, nor shall it constitute a waiver of any right of the BCRCD, its successors or assigns.

14.7 Final Inspection:

14.7.1 The Contractor shall give written notice that the project is complete. Project Manager and Property Owner will make a final review of completeness, and will notify Contractor in writing of all particulars in which

this review reveals that the work is incomplete or defective. Contractor shall immediately take such measures as are necessary to remedy such deficiencies.

14.8 Final Application for Payment:

14.8.1 Contractor shall complete all such corrections to the satisfaction of the Project Manager and deliver all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection and other documents required by the Contract Documents or by the Project Manager. Contractor may then make application for final payment following the procedure for progress payments. The final Application for Payment shall be accompanied by such data as the Project Manager may reasonably require, together with complete releases - waivers of liens in a form satisfactory to the Project Manager. Contractor shall also be required to furnish receipts or releases in full; and affidavit that the releases and receipts include all labor, all payrolls, material and equipment for which a lien could be filed, and that all payrolls, material and equipment bills, and other indebtedness connected with the work for which BCRCD might in any way be responsible, have been paid or otherwise satisfied; and consent of the Surety to final payment. If any subcontractor, material person, fabricator or supplier fails to furnish a release or receipt in full, Contractor may be required at Project Manager's sole discretion to furnish a bond or other collateral satisfactory to Project Manager to indemnify BCRCD against any lien, stop notice, or any other loss or liability. This payment is made pursuant to paragraph 14.11.

14.9 Approval of Final Payment:

14.9.1 If, on the basis of observation and review of the work during construction, final inspection and review of the final Application for Payment, as required by the Contract Documents, Project Manager is satisfied that the work has been fully and satisfactorily completed and that Contractor has fulfilled all their obligations under the Contract Documents, Project Manager will file a Notice of Completion and, within fifteen (15) days after receipt of the final Application for Payment, approved by Project Manager, indicate in writing its approval for payment.

14.9.2 If, on the basis of observation and review of the work during construction, final inspection and review of the final Application for Payment, as required by the Contract Documents, Project Manager is not satisfied that the work has been fully and satisfactorily completed, and that Contractor has not fulfilled all their obligations under the Contract Documents, Project Manager will, within fifteen (15) days after receipt of the final Application for Payment, indicate in writing their disapproval for payment. Thereupon Project Manager will give written notice to Contractor indicating in writing the reasons for refusing to approve final payment, in which case Contractor shall make the necessary corrections and resubmit the Application.

14.9.3 BCRCD shall make payment, including retention, to Contractor, pursuant to an approved final application for Payment, within 15 days of its approval, or on the 30th day following the recording of the Notice of Completion, whichever date is later. The approval and payment procedures described in paragraphs 14.10, 14.11, and 11.4 shall apply to this paragraph.

14.9.4 The Contractor and each assignee under any assignment in effect at the time of final payment shall, if required by the Project Manager, execute and deliver at the time of final payment and as a condition precedent to final payment, a release in form and substance satisfactory to and containing such exemptions as may be found appropriate by the BCRCD, discharging the BCRCD, Project Manager, and their elected officials, officers, agents, and employees of and from all liabilities, obligations and claims arising under this contract.

14.10 Contractor's Continuing Obligation:

14.10.1 Contractor's obligation to perform the work and complete the project in accordance with the Contract Documents shall be absolute. Neither approval of any progress or final payment by BCRCD, nor the issuance of a Notice of Completion, nor any payment by BCRCD to Contractor under the Contract Documents, nor any use or occupancy of the project by BCRCD shall constitute an acceptance of work not in accordance with the Contract Documents.

14.11 Waiver of Claims:

14.11.1 The making and acceptance of each progress payment and of final payment shall constitute a waiver of all prior claims by Contractor against BCRCD which have not been brought to the notice of the BCRCD as provided in the Contract Documents.

14.11.2 If any claim or lien or stop-notice or any other demand for payment or security therefore, including claims or demands upon the performance and payment bond sureties, is made or filed with or against BCRCD, the project or the premises by any person claiming that Contractor or any subcontractor or other person under it has failed to perform its contractual obligations or to make payment for any labor, services, materials equipment, taxes or other items or obligations furnished or incurred for or in connection with the work, or if at any time there shall be evidence of such non-performance or non-payment or of any claim or lien or stop-notice or other demand for which, if established, BCRCD might become liable and which is chargeable to Contractor; or if Contractor or any subcontractor or other person under it causes damage to the work or to any other work on the project; or if the Contractor fails to perform or is otherwise in default under any of the terms or provisions of the Contract Documents, the Project Manager shall have the right to retain from any payment then due or thereafter to become due an amount which in their sole discretion they deem sufficient to:

14.11.2.1 satisfy, discharge and defend against any such claim or lien or stop-notice or other demand, or any action which may be brought or judgment which may be recovered thereon;

14.11.2.2 make good any such non-payment, nonperformance, damage, failure or default; and

14.11.2.3 compensate BCRCD for and indemnify it against any and all losses, liability, damages, costs and expenses (including attorneys', accountants', consultants' and experts' fees and costs) which may be sustained or incurred in connection therewith.

14.11.3 BCRCD shall have the right to apply and charge against Contractor as much of the amount retained as may be required for the foregoing purposes. If the amount retained is insufficient therefore, Contractor shall be liable for the difference and upon written demand immediately pay the same to the BCRCD. The provisions of this paragraph are in addition to such other rights and entitlements as the BCRCD may enjoy against Contractor as elsewhere provided in the Contract Documents, and at law and in equity.

14.11.4 Should any subcontractor, material person, supplier or other such person file or maintain any action on or respecting a claim of mechanic's lien, stop-notice, against payment or performance bond, Contractor shall immediately and at their own expense procure, furnish and record appropriate release bonds in accordance with California Civil Code Sections 3082 through 3267, inclusive, and California Code of Civil Procedure

Sections 409 through 409.7, inclusive. Upon Contractor's failure immediately to procure, furnish and record such release bonds, BCRCD shall have right to procure and record such release bonds, and to retain from Contractor's payment the cost thereof. The provisions of this paragraph are in addition to such other rights and entitlements as enjoyed by the BCRCD against Contractor as elsewhere
provided in the Contract Documents, and at law and in equity.

14.12 Price Reduction For Defective Cost or Pricing Data

4.12.1 If the BCRCD determines that any price (including profit) negotiated in connection with the contract, or any cost reimbursable under this contract, was increased by any significant sums because the Contractor, or any subcontractor furnished incomplete or inaccurate cost or pricing data or data not current, then such price or cost or profit shall be reduced accordingly and the contract shall be modified in writing to reflect such reduction. Failure to agree on a reduction shall be subject to the Disputes Resolution clause of this contract.

14.12.2 Since the contract is subject to reduction under this clause by reason of defective cost or pricing data submitted in connection with certain subcontracts, the Contractor may wish to include a clause in each such subcontract requiring the subcontractor to appropriately indemnify the Contractor. It is also expected that any subcontractor subject to such indemnification will generally require substantially similar indemnification for defective cost or pricing data required to be submitted by their lower tier subcontractors.

14.13 Covenant Against Contingent Fees

14.13.1 The Contractor warrants that no person or selling agency has been employed or retained to solicit or secure this contract upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by the Contractor for the purpose of
securing business. For breach or violation of this warranty the BCRCD shall have the right to annul this contract without liability or in its discretion to deduct from the contract price or consideration, or otherwise recover, the full amount of such commission, percentage, brokerage, or contingent fee.

14.14 Gratuities

14.14.1 If the BCRCD of Butte County finds, after notice and hearing, that the Contractor or any of the Contractor's agents or representatives offered or gave gratuities (in the form of entertainment, gifts, or otherwise) to any official, employee, or agent of the BCRCD in an attempt to secure a contract or favorable treatment in the awarding, amending, or making any determinations related to the performance of this contract, the BCRCD may, by written notice to the Contractor, terminate the right of the Contractor to proceed under this contract. The BCRCD may also pursue other rights and remedies that the law or this contract provides. However, the existence of the facts upon which the BCRCD makes such findings shall be in issue and may be reviewed in proceedings under the remedy clause of this contract.

14.14.2 In the event this contract is terminated as provided in this clause, the BCRCD shall be entitled:

(1) to pursue the same remedies against the Contractor as it could pursue in the event of a breach of the contract by the Contractor, and

(2) as a penalty in addition to any other damages to which it may be entitled by law, to exemplary damages in an amount (as determined by the BCRCD) which shall be not less than 3 nor more than 10 times the costs the Contractor incurs in providing any such gratuities to any such officer or employee.

ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

15.1 BCRCD May Suspend Work

15.1.1 The BCRCD may, at any time and without cause, suspend the work or any portion thereof by notice in writing to Contractor. Contractor shall resume the work when so ordered in writing by BCRCD.

15.2 BCRCD May Terminate

15.2.1 The BCRCD may, without prejudice to any other right or remedy and after giving Contractor and their Surety seven (7) calendar days written notice, terminate the services of Contractor and take possession of the project and of all materials, equipment, tools, construction equipment and machinery thereon owned by Contractor, and finish the work by whatever method it may deem expedient, if the Contractor is adjudged as bankrupt or insolvent, or if they make a general assignment for the benefit of their creditors, or if a trustee or receiver is appointed for Contractor or for any of their property, or if they file a petition to take advantage of any debtor's act, or to reorganize under the bankruptcy or similar laws, or if they fail to supply sufficient skilled workcrew or suitable materials or equipment, or if they fail to make prompt payments to subcontractors or for labor, materials or equipment or if they disregard laws, ordinances, rules, regulations or orders of any public body having jurisdiction, or if they disregard the authority of Project Manager, or if they otherwise violate any provisions of the Contract Documents. In such case Contractor shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the contract price exceeds the direct and indirect costs of completing the project, including compensation for additional professional services, such excess shall be paid to Contractor. If the costs exceed such balance, Contractor shall pay the difference to BCRCD.

15.2.2 The termination of the Contractor's services by the BCRCD shall not affect any rights of the BCRCD against the Contractor then existing or which thereafter accrue. The retention of any payment of money by BCRCD due Contractor will not release the Contractor from liability.

15.2.3 The BCRCD may, after seven (7) calendar days' written notice to Contractor, without cause and without prejudice to any other right or remedy, elect to abandon the project and terminate the agreement. In such case, Contractor shall be paid for all work then executed, any expense sustained, plus a reasonable profit.

15.2.4 The Contractor may not, under any condition, terminate or stop work because of a dispute, claim or any matter in controversy under the Contract Documents, then under submission, or previously resolved by a final and conclusive decision under paragraph 8.4.

ARTICLE 16 - MISCELLANEOUS

16.1 Giving Notice

16.1.1 Notice shall be deemed to have been validly given if delivered in writing to the individual or member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the party who gives the notice. Notice shall be effective as of the date of personal service or mailing.

16.2 General

16.2.1 All moneys not paid when due hereunder shall bear interest at the rate of 7% annually.

16.2.2 All specifications, drawings, and copies thereof furnished by the Project Manager shall be the property of BCRCD. They shall not be used on another project, and, with the exception of those sets that have been signed in connection with the execution of the Agreement, shall be returned to the BCRCD on request upon completion of the project.

16.2.3 The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder, and, in particular but without limitation, the warranties, guarantees and obligations imposed upon Contractor by the General Conditions and the rights and remedies available to BCRCD and Project Manager thereunder, shall be in addition to, and shall not be construed in any other way as a limitation of, any rights and remedies available to them which are otherwise imposed or available by law, by special guarantee or by other provisions of the Contract Documents.

16.2.4 Should the BCRCD or Contractor suffer injury or damage to their person, property, any of their employees or agents, or others for whose acts they are legally liable because of any error, omission or act, notice of said injury shall be made in writing to the BCRCD within five (5) days of the first observance of such injury or damage.

16.2.5 The Contract Documents shall be governed by the laws of the State of California. In case any provision of the Contract Documents, including without limitation these General Conditions, shall be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall not in any other way be affected or impaired.

16.2.6 No waiver by BCRCD of any provision of the Contract Documents, including without limitations these General Conditions, shall constitute a waiver of any other provision thereof.

16.2.7 The waiver of any instance is not a waiver in the second instance.

ARTICLE 17 - EQUAL OPPORTUNITY

The Contractor shall maintain policies of employment as follows:

(1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following:

Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

(2) The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.

(3) The contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the contractor's legal duty to furnish information.

(4) The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(5) The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(6) The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(7) In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(8) The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance:

Provided, however, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

The applicant further agrees that it will be bound by the above equal opportunity clause with respect to its own employment practices when it participates in federally assisted construction work: *Provided,* That if the applicant so participating is a State or local government, the above equal opportunity clause is not applicable to any agency, instrumentality or subdivision of such government which does not participate in work on or under the contract.

The applicant agrees that it will assist and cooperate actively with the administering agency and the Secretary of Labor in obtaining the compliance of contractors and subcontractors with the equal opportunity clause and the rules, regulations, and relevant orders of the Secretary of Labor, that it will furnish the administering agency and the Secretary of Labor such information as they may require for the supervision of such compliance, and that it will otherwise assist the administering agency in the discharge of the agency's primary responsibility for securing compliance.

The applicant further agrees that it will refrain from entering into any contract or contract modification subject to Executive Order 11246 of September 24, 1965, with a contractor debarred from, or who has not demonstrated eligibility for, Government contracts and federally assisted construction contracts pursuant to the Executive Order and will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon contractors and subcontractors by the administering agency or the Secretary of Labor pursuant to Part II, Subpart D of the Executive Order. In addition, the applicant agrees that if it fails or refuses to comply with these undertakings, the administering agency may take any or all of the following actions: Cancel, terminate, or suspend in whole or in part this grant (contract, loan, insurance, guarantee); refrain from extending any further assistance to the applicant under the program with respect to which the failure or refund occurred until satisfactory assurance of future compliance has been received from such applicant; and refer the case to the Department of Justice for appropriate legal proceedings.

(9) ***Subcontracts.*** Each nonexempt prime contractor or subcontractor shall include the equal opportunity clause in each of its nonexempt subcontracts.

END OF SECTION

DECISION MEMO
COLBY MOUNTAIN RECREATION PROJECT
U.S.D.A. FOREST SERVICE
LASSEN NATIONAL FOREST
ALMANOR RANGER DISTRICT
BUTTE, PLUMAS, AND TEHAMA COUNTIES, CALIFORNIA

BACKGROUND

The Colby Mountain Recreation Project is a collaborative effort conducted by the Butte County Resource Conservation District, Northern California Regional Land Trust, Sierra Buttes Trail Stewardship, and Chico Velo to enhance trail-based recreation near the community of Jonesville in Lassen National Forest. With the support of the U.S. Forest Service, the Project has developed over months of stakeholder engagement and incorporates forest health demonstration sites, environmental education facilities, day-use and emergency response amenities and an extensive network of multi-use trails.

The new trail system will expand and enhance recreational opportunities in the Lassen National Forest for many user groups by providing long-term, sustainable trails built in a safe and resource sensitive manner. The project will support community recovery of Jonesville following the 2018 Camp Fire by increasing the quality of life for existing or displaced area residents and will aid in building a sustainable tourism revenue base for Butte County during the fire recovery process. Ultimately, the project will serve several disadvantaged communities and lower the barrier to nature access for school children and residents of all ages.

DECISION

I have decided to implement the Colby Mountain Recreation Project to construct approximately 36 miles of new non-motorized single-track trails, improve two exiting trailheads, and construct one new trailhead, one foot bridge, two wet water crossings, build exclusionary fencing, and install an information sign at the fence location. Activities will include tree and shrub cutting as needed for construction. Specific actions are the following:

Trail Construction:

We will construct about 36 miles of new non-motorized single-track trails out of Jonesville Snow Park (see Project map). The trail system will offer a variety of distance and terrain options for

multiple user groups including 0.92 miles of pedestrian-only use trails and 34.77 miles of non-motorized multi-use trails. Table 1 is a list of the trails and their estimated distances, trail classes, and uses. Trail classes are defined in the Trail Class Matrix in the Forest Service Handbook 2353, Section 14.2, Exhibit 01.

There will be two methods of trail construction, the full professional build, and the hybrid build, described in the next two bullet points:

- The Colby Drop trail, Humboldt Drop trail, Meadow trail, Robber Roost Connector trail, and Willow Creek trail will be built using mechanized equipment such as a mini excavator or trail-specific dozer, followed by a professional hand crew. This is called a full professional build method used for complex or specialized trails.
- The Escape trail, Home trail, Lookout trail, Yana Rim trail, and Yana Rim Alt. Loop trail will be built using a hybrid method. Some segments of the trails will be built utilizing the professional build method. On the remaining trail segments, we will use a single excavator to excavate the trail prism followed by volunteers to rake and compact the trail tread.

Table 1 Trail distance, class and uses.

Trail Name	Estimated Distance (miles)	Trail Class	Uses
Escape	8.35	Class 3	Non-motorized bikes, equestrians, hikers
Colby Drop	1.38	Class 4	Non-motorized bikes, hikers
Home	4.35	Class 3	Non-motorized bikes, equestrians, hikers
Lookout	2.11	Class 3	Non-motorized bikes, equestrians, hikers
Meadow Trail	0.92	Class 4	Hikers
Yana Rim	9.64	Class 2	Non-motorized bikes, equestrians, hikers
Yana Rim Alt. Loop	0.44	Class 2	Non-motorized bikes, equestrians, hikers

Willow Creek	4.76	Class 3	Non-motorized bikes, hikers
Humboldt Drop	3.4	Class 3/2	Non-motorized bikes, hikers
Robbers Roost Connector	0.34	Class 3	Non-motorized bikes, hikers
TOTAL MILEAGE	35.69		

Trailhead Improvement and Construction:

We will build or improve three trailheads to provide access for the new trail system and improve user experience. Table 2 summarizes the proposed trailhead improvements. Trailhead activities will be the following:

- We will rebuild the existing parking lot at the Jonesville Snow Park parking lot and expand it eastward and construct a well, a helipad, and a trail information kiosk. We will also build a bioswale for the parking lot expansion. The bioswale will be vegetated and include specialized soil mixes to treat, absorb and convey stormwater runoff.
- We will improve the existing Humboldt Summit trailhead currently used for the Pacific Crest Trail (PCT). We will build a designated parking lot for the new Colby Drop, Humboldt Drop, and Willow Creek trails, construct one vault-style toilet, install a kiosk for the PCT and another one for the Colby Mountain trail, build hitching posts, and install picnic tables. The new parking lot will accommodate equestrian trailer parking.
- We will construct a new trailhead called The Hub at the junction of National Forest System roads 27N06 and 27N36 near the northern edge of the project area. The Hub will access and link the Lookout, Escape, Colby Drop, Home, and Yana Rim trails. The Hub will include a parking area, one vault-style toilet, hitching posts, and picnic tables.
- The parking area at the Colby Mountain Lookout will be used as a trailhead for the Lookout Trail which will provide access to the Colby Drop and Escape trails.

Table 2. Trailhead Improvements

Trailhead	Existing/New	Improvements
Jonesville Snow Park	Existing trailhead, with proposed improvements	rebuild and expand existing parking lot, bioswale, trail

		information kiosk, a drinking water well, helipad
Humboldt Summit	Existing trailhead, with proposed improvements	vault toilet, designated parking, hitching posts, separate kiosk for PCT and Colby Mountain, equestrian trailer parking, picnic tables
Hub (27N06 and 27N36)	New trailhead construction	vault toilet, parking, hitching posts, picnic tables

Bridge, Wet Crossings, and Exclusionary Fencing

One 15-foot bridge will be built on the southern end of the Home trail where it will cross an unnamed drainage in section 11, T26N, R04E, M.D.M.

One wet crossing will be constructed along the northern end of the Home trail in section 35, T27N, R04E, M.D.M. and one on the north end of the Willow Creek trail where it crosses Willow Creek in section 31, T27N, R05E, M.D.M. The wet crossings will be constructed with hardened entrances to minimize the steam banks' impacts and limit sediment inputs.

We will build exclusionary fencing along 20 feet of the Home Trail in section 11, T26N, R04E, M.D.M. to bar access to a fen and install an information sign for the sensitive area.

Tree and Shrub Removal

Live trees less than 10 inches diameter at breast height (DBH) and shrubs will be cut during the construction or maintenance of the trails' eight-foot-wide corridor in accordance with the trail class. Where a trail cannot be routed around a tree that is 10-inches DBH or larger, it will be cut and removed, such as in areas where tree density is high. Best efforts will be made to avoid cutting sugar pine (*Pinus lambertiana*), western white pine (*P. monticola*), Jeffery pine (*P. jeffreyi*), and ponderosa pine (*P. ponderosa*) trees. No trees 30 inches DBH and larger will be cut unless it is a safety issue.

Trees that are less than 10-inches DBH and shrubs that are cut will be lopped and scattered to a depth not to exceed 12 to 18 inches. For trees 10-inch DBH to less than 30-inch DBH, once the tree has been cut down, tree branches and tops of trees to a 6-inch diameter will be cut from the bole of the trees and lopped and scattered. Larger bole material can be left on site or piled.

During construction of the Jonesville Snow Park parking lot expansion, trees can be mechanically cut and removed, possibly through a small timber sale, or cut by hand. Shrubs will be cut, and slash will be piled and burned or chipped and scattered.

Shrubs will be removed for improvements to the Humboldt Summit trailhead and the construction of the Hub trailhead, but no tree removal will occur at these locations.

INTEGRATED DESIGN FEATURES

The following Integrated Design Features (IDF) are resource protection measures that were developed by specialists for the proposed action and are incorporated as part of the decision for this project. They are in addition to Best Management Practices (BMP) and standards and guidelines from the Lassen Land and Resource Management Plan, as amended. These IDF are included for implementation parameters that will be incorporated into treatments, contracts, or used to guide Forest Service or partner personnel in conducting implementations.

Botany

Threatened, Endangered and Sensitive Plant Species:

1. Rare plant surveys shall be completed prior to Project implementation and any occurrences of TES or SI plant species discovered will be protected through flag- and-avoid methods and with incorporation of any additional protection measures recommended by Forest Botany personnel.
2. All occurrences of *Meesia triquetra* (three-ranked humpmoss) and *Meesia uliginosa* (broad-nerved hump-moss) their associated springs, meadows and fens will be flagged and avoided from all ground disturbing activities and protected with a fence from potential impacts.
3. All ground-disturbing activities will be excluded from within 50 feet of occurrences of *Botrychium* species. Locations will be displayed as control areas on all contract maps.
4. All ground-disturbing activities will be excluded from within 25 feet of occurrences of *Piperia colemanii* species.

Invasive Plant Species:

5. All off-road equipment will be weed-free prior to entering the Forest. Staging of equipment will be done in weed free areas.
6. Known noxious weed infestations will be identified, flagged where possible, and mapped for this Project. Locations will be displayed on contract maps. Identified invasive plant species' sites within or adjacent to the Project area will be evaluated by forest personnel and treated by forest botany staff prior to Project implementation and the sites avoided. Any larger or un-pullable infestations will be avoided by harvesting equipment or equipment used will be washed on site before leaving the infested area and entering un-infested areas to prevent spreading invasive plants across the Project area.

7. New small infestations identified during Project implementation will be evaluated and treated according to the species present and Project constraints and avoided by Project activities.
8. Post Project monitoring for implementation and effectiveness of treatments and control of new infestations will be conducted as soon as possible and for a period of two years after completion of the Project.
9. If Project implementation calls for mulches or fill, they will be certified weed-free. Seed mixes used for re-vegetation of disturbed sites will consist of locally adapted native plant materials.

Cultural Resources

Cultural Resources on Forest Service land are managed and protected through the Programmatic Agreement (PA) among the U.S.D.A. Forest Service, Pacific Southwest Region (Region 5), California State Historic Preservation Officer, Nevada State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding the Processes for Compliance with Section 106 of the National Historic Preservation Act for Management of Historic Properties by the National Forests of the Pacific Southwest Region (2018; R5 PA). Archaeological surveys were conducted in 2022 to identify archaeological sites within the proposed trail corridor. Site specific Approved Standard Protection Measures (SRPM), as outlined in the R5 PA, Appendix E, will be used to protect cultural resources to ensure the undertaking will have no adverse effect on the resource. Standard Resource Protection Measures for this project include the following:

10. Trails will be routed to avoid archaeological sites, artifacts, and features.
11. Mechanical equipment will be prohibited within archaeological sites.
12. An Archaeological monitor will be present during project activities near sensitive archaeological areas.
13. In the event cultural resources are discovered during project implementation (unanticipated discovery) all work shall immediately cease in the area identified and the Lassen National Forest Heritage Staff shall be notified immediately. Should any cultural resources become damaged in unanticipated ways by activities proposed in this Project, the steps described in the R5 PA for inadvertent effects will be followed.
14. LNF Heritage staff will be kept informed of the status of various stages of the Project to ensure Standard Resource Protection Measures are in place and adhered to during implementation.
15. Monitoring of cultural resources may occur during and after the Project has been completed to ensure the effectiveness of protection measures.

Silviculture

16. **Borate Treatment**: In the proposed Jonesville Snow Park parking lot expansion area, live conifer trees with a 14-inch and larger stump diameter will be treated with an Environmental Protection

Agency (EPA)-approved borate compound which is registered in California for the prevention of annosus root disease. No EPA-approved borate will be applied within 25 feet of known Sensitive and Special Interest (SI) plants or within 25 feet of live streams and meadow/wetlands.

17. **Sugar Pine Trees**: All sugar pine trees identified as rust resistant or as a candidate for rust resistance will be protected. A $20,000 fine will be imposed for each rust-resistant or candidate tree damaged during operations. Healthy sugar pine trees showing no observable signs of blister rust will be favorably retained.

Wildlife Resources

18. **Known Populations**: The following Threatened and Endangered Species (TES) are known to be present in the LNF: Sierra Nevada Yellow-legged Frog, Foothill Yellow-Legged Frog, Northern Spotted Owl, Central Valley Steelhead, Central Valley Spring-run Chinook, and Gray Wolf. If populations of TES species are discovered in the Project Area, consultation with USFWS will be initiated as needed and direction from the 2004 SNFPA ROD and 2014 USFWS Programmatic Biological Opinion will be applied.
19. **New Wildlife Findings**: Where subsequent surveys identify occupied threatened, endangered, or sensitive species habitat, PACs, den site buffers, or other protections will be established in coordination with the forest service biologist as described in the 2004 Sierra Nevada Forest Plan Amendment (SNFPA) Record of Decision (ROD) (USDA 2004b).
20. **Nest Trees and Wildlife Habitation:** All trees with nest structures in them or that show signs of current wildlife habitation shall be retained, regardless of the diameter.
21. **Down Wood and Snags**: In accordance with the LRMP (USDA-FS 1992 p. 4-37), coarse woody debris (CWD, large logs and snags ≥ 15-inch DBH) already on the ground will be retained and protected to the greatest extent possible from disturbance during treatment. Snags 15-inches DBH and larger will be retained, where possible. If a trail reroute is not possible, a gap will be cut for the trail to allow the two ends of the tree to remain as habitat.
22. **Trees in PACs**: Within California spotted owl and northern goshawk PACs, the maximum size tree to be cut will be 6-inch DBH. Trees larger than 6-inch DBH will only be cut if approved by a Forest Service Wildlife Biologist. If any trees greater than 6-inch DBH are cut in PACs, they will be left in place, although they may be moved off trail alignment.
23. **Wildlife Limited Operating Periods**: Limited operating periods (LOPs) including no construction with power tools will apply during implementation to protect key wildlife species listed in the Biological Evaluation (BE)/Biological Assessment (BA).
    a. **California Spotted Owl:** A California spotted owl LOP from March 1st to August 15th will apply to stands within ¼ mile of all spotted owl protected activity centers (PACs). The LOP may be lifted after surveys if no nesting spotted owls are confirmed. If a California spotted owl nest is found within any of the proposed treatment units and is outside of all current

PACs, the nest will be protected through the placement of a new PAC or the realignment of an existing PAC boundary.

b. **Northern Goshawk:** A goshawk LOP from February 15th to September 15th will be applied within ¼ mile of all goshawk PACs or within ¼ mile of a nest if a nest is confirmed. The LOP may be lifted if it is determined that the protected activity centers (PACs) are not occupied. If agoshawk nest is found within any of the proposed treatment units and is outside of all current PACs, the nest will be protected through the placement of a new PAC or the realignment of an existing PAC boundary.

c. **Pacific Fisher:** If a fisher den site is identified, a 700-acre area consisting of the highest quality habitat in a compact arrangement will be delineated around the den site. The den site area will be protected from vegetation treatments with a LOP from March 1st through June 30th as long as habitat remains suitable or until another Regionally approved management strategy is implemented. If a fisher rest site (female or male) is found within a treatment unit, the rest site structure, (e.g., log, snag, tree) will be protected from being damaged during Project implementation.

d. **Pacific marten:** If a marten den site is identified, a 100-acre area consisting of the highest quality habitat in a compact arrangement will be placed around the den site. The den site area will be protected from vegetation treatments with a LOP from February 15th through July 31st as long as habitat remains suitable or until another Regionally approved management strategy is implemented. If a marten rest site (female or male) is found within a treatment unit, the rest site structure, (e.g., log, snag, tree) will be protected from being damaged during Project implementation.

e. **Monarch Butterfly:** Disturbance to the Monarch butterfly host species, milkweed, will be avoided, where found, throughout Project implementation.

f. **Gray Wolf:** If a wolf den or rendezvous site is discovered during implementation of the proposed Project, an LOP from April 1 through July 15 may be implemented and coordination with CDFW and the Service shall be pursued. Further discussions and coordination with CDFW and the Service may result in a modified distances or more flexible dates for this specific conservation measure.

g. **Amphibians:** If populations of TES amphibians are discovered in the Project area, direction from the 2004 SNFPA ROD and 2014 USFWS Programmatic Biological Opinion for 4 Sierra Nevada Amphibians (updated in 2023 to include Foothill yellow-legged frog) will be applied. A pre- construction survey or biological monitor of the water crossings may be conducted to assess for the presence of amphibians.

Hydrology

The LNF LRMP includes Forest-wide Standards and Guidelines to maintain or, where necessary, improve water quality using BMPs. The following BMP's (FS-909a, National BMP for Water

Quality Management on National Forest System Lands, April 2012) will be applied to the project plan and implementation document.

Aquatic Ecosystems BMPs (Apply these BMPs where trail construction goes through riparian conservation areas.

24. **AqEco-2**. Operations in Aquatic Ecosystems
25. **AqEco-4**. Stream Channels and Shorelines

Recreation

Recreation activity BMPs

26. **Rec-1.** Recreation Planning
27. **Rec-2.** Developed Recreation Sites
28. **Rec-3.** Dispersed Use Recreation
29. **Rec-4.** Motorized and Nonmotorized Trails

Transportation

Road BMPs

30. **Road-10.** Equipment Refueling and Servicing

CATEGORY OF EXCLUSION

This action is categorically excluded from documentation in an environmental impact statement (EIS) or an environmental assessment (EA). The applicable category of actions for the Colby Recreation project is identified in agency procedures under Code of Federal Regulations (CFR), Title 36:

- Section 220.6 (e) Category (1) Construction and reconstruction of trails.
- Section 220.6 (e) Category (22) Construction, reconstruction, decommissioning, or disposal of buildings, infrastructure, or improvements at an existing recreation site, including infrastructure or improvements that are adjacent or connected to an existing recreation site and provide access or utilities for that site. Recreation sites include but are not limited to campgrounds and camping areas, picnic areas, day use areas, fishing sites, interpretive sites, visitor centers, trailheads, ski areas, and observation sites. Activities within this category are intended to apply to facilities located at recreation sites managed by the Forest Service and those managed by concessioners under a special use authorization.
- Section 220.6 (e) (24), Construction and realignment of up to 2 miles of National Forest System roads and associated parking areas.

These categories of actions are applicable because the purpose of the project is to build a system of non-motorized, sustainable trails in a safe and resource sensitive manner, provide supporting infrastructure to improve visitor experience, and protect sensitive natural resources.

I find that there are no extraordinary circumstances that will warrant further analysis and documentation in an EA or EIS. I considered resource conditions identified in agency procedures that should be considered in determining whether extraordinary circumstances might exist:

- Federally listed threatened or endangered species or designated critical habitat, species proposed for Federal listing or proposed critical habitat, or Forest Service sensitive species (terrestrial species): a Biological Assessment and Biological Evaluation (BA/BE) for terrestrial Wildlife Species was prepared. The findings are that:
    - There will be **no effect** on the following federally listed threatened and endangered species or their designated critical habitat: northern spotted owl, gray wolf, and North American wolverine
    - There will be **no effect** on the following Forest Service Sensitive Species: bald eagle, great gray owl, greater sandhill crane, willow flycatcher, yellow rail, fringed myotis, pallid bat, Sierra Nevada red fox, and Townsend's big-eared bat.
    - The actions **may affect** individuals of the following species, but the actions are not likely to result in a trend toward Federal listing or the loss of viability for these species: California spotted owl, northern goshawk, Pacific marten, Pacific fisher, monarch butterfly, and western bumblebee.
- Federally listed threatened or endangered species or designated critical habitat, species proposed for federal listing or proposed critical habitat, or Forest Service sensitive species (aquatic species): a BA/BE for aquatic species was prepared that showed:
    - There will be **no effect** on the following federally listed threatened and endangered aquatic species or their designated critical habitat: Shasta crayfish, Central Valley spring-run chinook, Central Valley steelhead, delta smelt, California red-legged frog, Sierra Nevada yellow-legged frog, foothill yellow-legged frog. There is no designated critical habitat for the Sierra Nevada yellow-legged frog or California red-legged frog within the project area and critical habitat has not been designated for the foothill yellow-legged frog at this time. Further, there are no current or historic detections of the Sierra Nevada yellow-legged frog, foothill yellow-legged frog, or California red-legged frog in the project area.
    - There will be **no effect** on the following aquatic Forest Service Sensitive Species: black juga, California floater, Great Basin rams-horn, kneecap lanx, montane peaclam, nugget pebblesnail, scalloped juga, Shasta hesperian snail (*Vespericola*

shasta), Topaz juga, Eagle Lake rainbow trout, Goose Lake redband trout, hardhead, Pacific lamprey, Cascades frog, northwestern pond turtle. Cascades frogs were last detected in and around the project area in 2014 and have since not been detected despite numerous survey efforts. Given this lack of recent occupancy and the inclusion of BMPs and IDFs designed to minimize potential effects to the species and its habitat, the Colby Mountain Recreation Project will not affect this species.

- Federally listed threatened or endangered species or designated critical habitat, species proposed for Federal listing or proposed critical habitat, or Forest Service sensitive species (botanical species): a BE/BA was conducted to review the potential effects of the proposed Colby Mountain Recreation Project on federally listed Threatened or Endangered species and Forest Service Region 5 Sensitive (TES) plant species.
    - The Colby Mountain Recreation Project area does not contain any known Federally-listed plant species nor any designated critical habitat.
    - The project may affect individuals of the following Region 5 Sensitive species *Botrychium ascendens* (upswept moonwort), *Botrychium crenulatum* (scalloped moonwort), *Botrychium minganense* (Mingan moonwort), *Botrychium montanum* (western goblin), *Botrychium pinnatum* (northwestern moonwort), *Botrychium pedunculosum* (stalked moonwort*), Meesia uliginosa* (broad-nerved hump-moss) and *Silene occidentalis ssp. longistipitata* (long-stiped campion.) and associated habitat, the project is not likely to result in a trend toward Federal listing or loss of viability for these species with the implementation of IDFs.
- Floodplain, wetlands, or municipal watersheds – The Project Area is located outside of the 100-year floodplain and will not create an impact to the floodplain. The proposed action will have little to no impact on wetlands. The project area is within the Butte Creek watershed, which is a municipal watershed that sources municipal and domestic supply to Chico. Best Management Practices (BMPs) will be used to improve water quality where necessary according to the LNF LRMP Forest-wide Standards and Guidelines.
- There are no congressionally designated areas such as wilderness, wilderness study areas, or national recreation areas within the project area.
- There are no inventoried roadless areas or potential wilderness areas within the project area.
- There are no research natural areas within the project area.

- American Indians and Alaska Native religious or cultural sites, archaeological sites, or historic properties or areas: Pursuant to the National Historic Preservation Act, 1966 as modified by the Region 5 (R5) Programmatic Agreement (PA) (2018), 36 CFR 800, and Forest Service Manual 2360, archaeological surveys were conducted in 2022 to identify archaeological sites within the trail corridors. Site specific Approved Standard Protection Measures, as outlined in the R5 PA (2018), Appendix E, will be used to protect cultural resources to ensure the undertaking will have no adverse effect on the resource.

PUBLIC INVOLVEMENT

Public meetings for this action have been held on the following dates at the designated locations:

- Forest Advisory Committee, Monday, November 25, 2019
- Public Event at Sierra Nevada Brewery, Monday, November 25, 2019
- Butte County Board of Supervisors, January 28, 2020
- Forest Advisory Committee, January 25, 2021
- Butte Meadows Jonesville Community Association, Saturday, October 2, 2021
- Connected Communities/ Colby Mountain- Butte Meadows Meeting, Saturday, October 23, 2021
- Connected Communities/ Colby Mountain- Chico Meeting, Sunday, November 21, 2021

This project was published on the Butte County Resource Conservation District website during project initiation in 2019.

This action was first listed as a proposal on the Lassen National Forest Schedule of Proposed Actions (SOPA) in January 2023. On July 24, 2023, scoping letters and emails with copies of the Proposed Action, Purpose, and Need (PA/PN) document were sent to eight regional tribal organizations. Also on July 24, 2023, scoping letters with a link to the Colby project website and emails with the PA/PN and scoping letter attached were sent to interested and affected parties that included adjacent landowners, grazing allotment permitholders, groups responding to the proposal on the SOPA, and federal, state, and local agencies. Responses were due by September 23, 2023.

Fifty individuals and/or organizations provided comments. No issues were raised that required or resulted in modifying the proposed action.

FINDINGS REQUIRED BY OTHER LAWS AND REGULATIONS

This decision is consistent with the 1992 Lassen National Forest Land and Resource Management Plan and 1993 Record of Decision (ROD) as amended by the 2004 Sierra Nevada Forest Plan Amendment Final Supplemental Environmental Impact Statement and ROD and the

Sierra Nevada Forests Management Indicator Species Amendment Final Environmental Impact Statement and ROD (2007). This decision is consistent with all other applicable laws and regulations including the Endangered Species Act, Clean Water Act as amended, Clean Air Act as amended, National Historic Preservation Act, and Executive Order 13112: Invasive Species- 64 FR 6183 (February 8, 1999).

This project will be conducted in accordance with requirements of the California Central Valley Regional Water Quality Control Board to ensure compliance with California Water Code and the Federal Clean Water Act.

The Federal Land Policy and Management Act of October 21, 1976, the National Environmental Policy Act of 1970, and the National Forest Management Act of 1976, combined give the Forest Service the authority and responsibility for protection of resources and management of National Forest System lands.

Administrative Review (Appeal) Opportunities

This decision is not subject to appeal and administrative review

This decision is not subject to appeal by individuals or organizations.

Implementation Date

Implementation of this decision may occur immediately after this Decision Memo is signed.

Contact

For additional information concerning this decision, contact: Russell Nickerson, Lassen National Forest, Almanor District Ranger, russell.nickerson@usda.gov, (530) 258-2141.

Russell Nickerson 04/01/2024

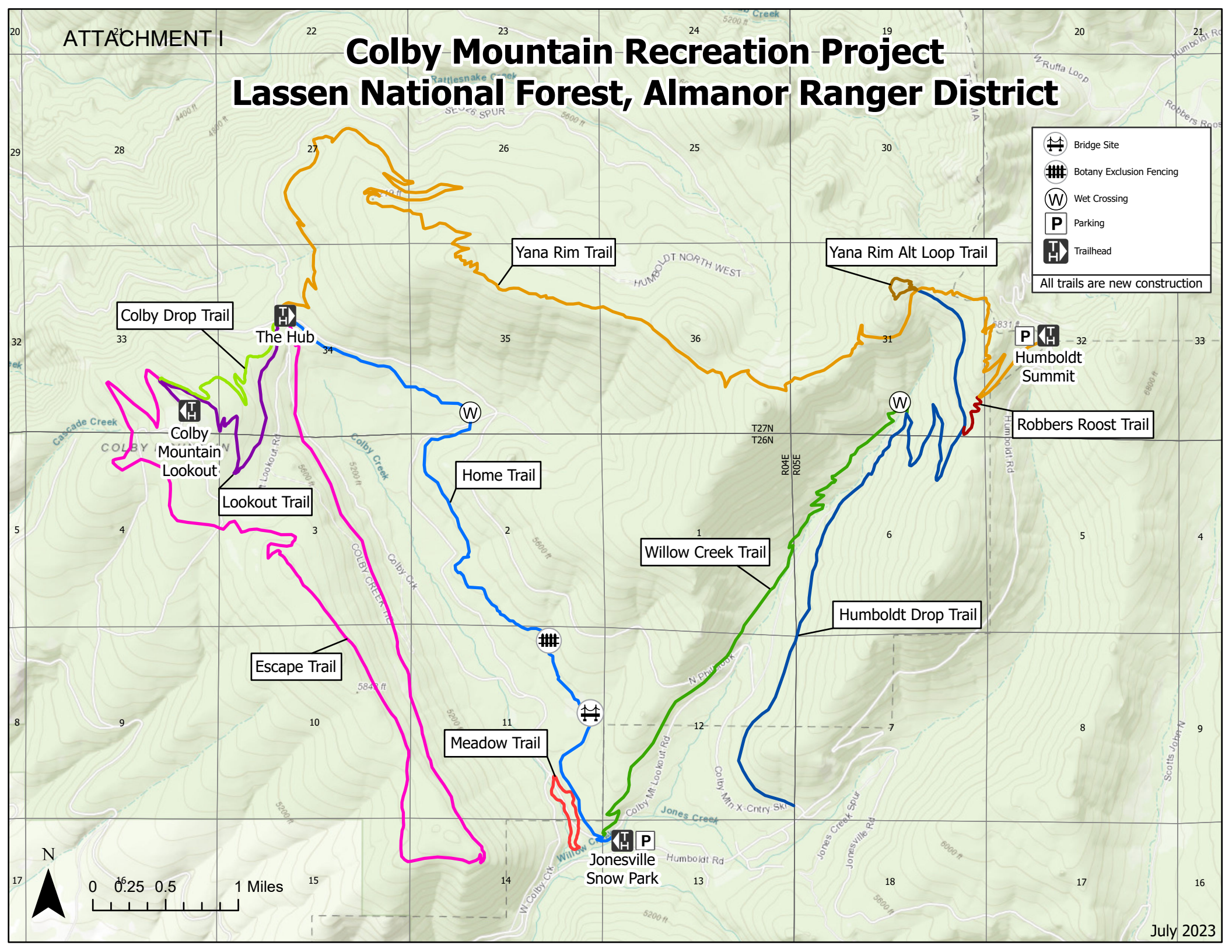
Russell Nickerson Date

Almanor District Ranger, Lassen National Forest

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ATTACHMENT I

Colby Mountain Recreation Project
Lassen National Forest, Almanor Ranger District



ATTACHMENT J

WORKING TRAIL NAME		PROPOSED TRAIL NAME
Home		Home
Lookout		Lookout
Colby Mountain		Escape
Flow		Colby Drop
Unnamed Colby Mtn. Connector		n/a (this will be signed as an extension of Lookout)
Peaks		Yana Rim
Willow Creek 1		Willow Creek
Willow Creek 2		Humboldt Drop
Unnamed Humboldt Summit Connector		Robber's Roost
Connected Communities Segment		Lost Sierra-Jonesville
Meadow Trail		Meadow Classroom Trail

PLEASE NOTE: The following Colby Mountain Recreation Area Trails Master Plan utilized working trail names per planning purposes since the report was completed these names have been revised. Above is a table that contains the names referenced in the report along with the updated proposed names.

Colby Mountain Recreation Area
Trail Master Plan



Prepared by:

TRAIL LABS CO

Prepared for:

FOREST SERVICE
US
DEPARTMENT OF AGRICULTURE

RESOURCE
CONSERVATION DISTRICT
OF BUTTE COUNTY

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Project Area

The Colby Meadows project area is located in a relatively remote area along the southwestern edge of the Lassen National Forest, at the boundaries of Tehama and Butte counties (Figure 1). The small mountain community of Jonesville (population: unknown) is located directly at the base of the project area, along with the similarly small community of Butte Meadows (population: 41), which is several miles to the west. The closest metropolitan center is the City of Chico (population: 94,529), which is located approximately 38 miles to the west of the project area, and roughly an hour's drive.

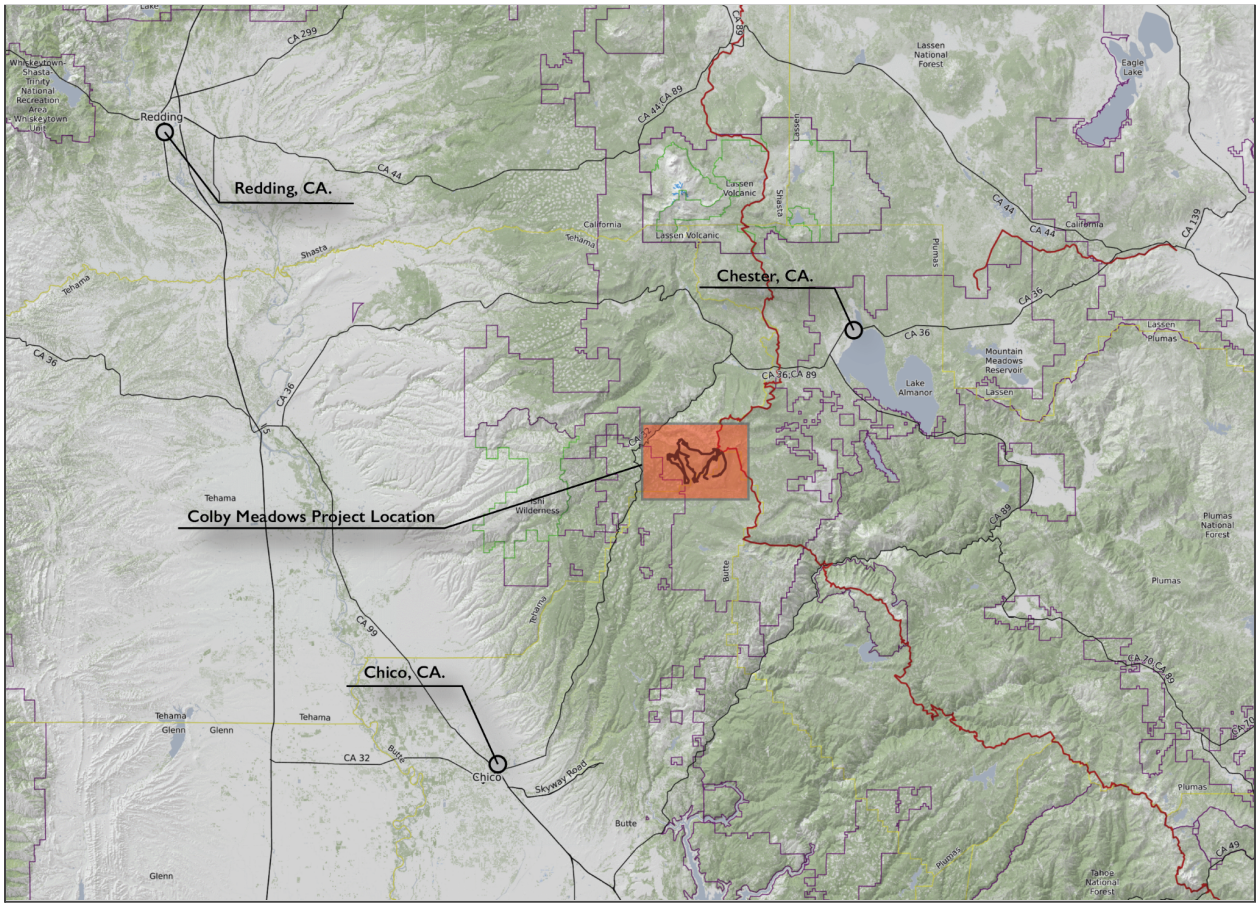


Figure 1: Regional Project Location Map

The project area is approximately 11,000 acres in size and exists within four watershed units (HUC); Willow Creek (5521.300102), Cascade Creek (5509.140103), Rattlesnake Creek (5509.200202), and N. Fork Calf Creek (5509.200203) (Figure 2)(Cal Fire: Forest Practice Watershed Mapper v2). The majority of trails planned for the project area exist within the Willow Creek watershed unit, with limited trail lengths associated with the upper boundaries of the other watershed units. Within the Willow Creek watershed unit, three main creeks drain the project area; Jones Creek, Willow Creek, and Colby Creek, from east to west respectively. The tributaries of Jones Creek and Willow Creek join just upstream of the confluence with Colby Creek, which then enters Butte Creek just along the southwestern edge of the project area;

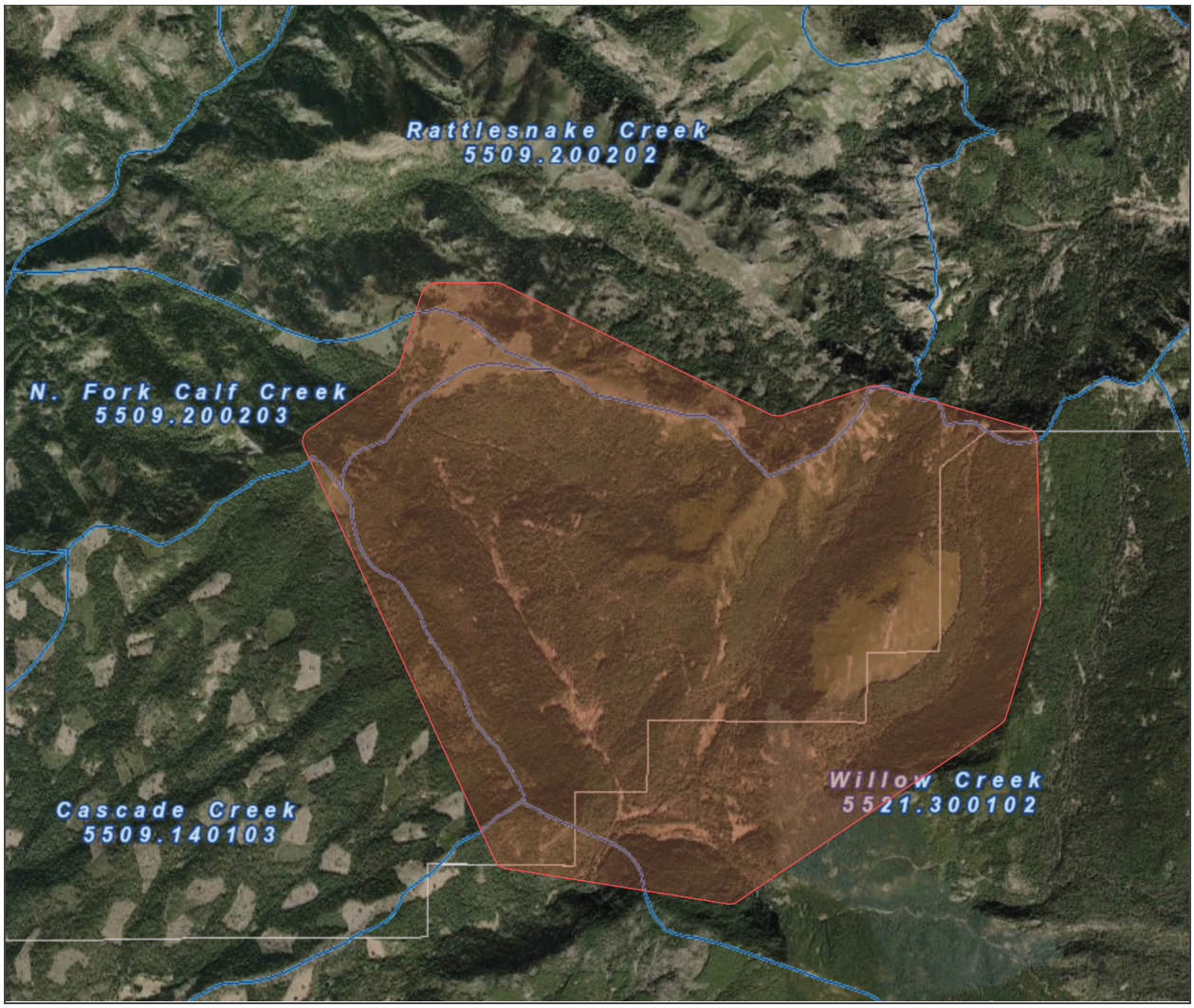


Figure 2: Approximate Colby Meadows Project Area Boundary with HUC watersheds as identified by CalFire

Butte Creek is listed as a 303(d) channel with the State Water Resources Control Board (Cal Fire: Forest Practice Watershed Mapper v2).

The mapped geology of the project area is tertiary volcanic flow rocks; minor pyroclastic deposits (Tv) (California Geological Survey). This information was supported by field observations made by the trail planning team of similar surface formations and terrain, tree and vegetation types, and soils as those encountered in Mt. Shasta, which is listed as a similar geologic type (volcanic rocks). This similarity has bearing on trail building methodologies, and will be discussed in some detail later in the report.

Soil reports for the project area were generated from the NRCS Web Soil Survey to examine several key soil qualities and features (Parent Material, Drainage Class), soil erosion (K Factor), and suitabilities and limitations for recreation (Paths and Trails, Off-Road Motorcycle Use). The Parent Material soil report for the project area suggests two major soil types; residuum weathered from basalt (~18.7%), and residuum weathered from volcanic breccia (~73.2%). The

dominant soil type of residuum weathered from volcanic breccia is found throughout the Colby Creek and Willow Creek drainages, while the Jones Creek drainage is dominated by residuum weathered from Basalt. The Drainage Class soil report suggests well drained soils for nearly the entire project area, while the K Factor (whole soil) soil report predicts low erosion potential, also for nearly the entire project area. Most K values are suggested to fall between 0.5 to .10. Looking at suitability for recreation, both soils reports (Paths and Trails and Off-Road Motorcycle) suggest similar ratings for the project area at “Very Limited” for approximately 75% of the site, and “Limited” for 17% and 22% respectively (see Appendix for complete reports). *No soil test pits were made during field investigations of the site to confirm these reports.

The ecoregion of the project area is suggested as Low Southern Cascades Mixed Conifer Forest (3,000’ - 7,600’ elevation). Tree species commonly found in this environment are incense cedar, white fir, Shasta red fir, and Jeffrey pine, as well as shrubs such as manzanita and ceanothus (US Geological Survey). The trail planning team validated this classification during field investigations. Tree age, species and density varied across the site, with some areas consisting of smaller, dense stands, while other areas had much older, widely spaced stands. Several zones of dense ceanothus and manzanita exist in the project area, which can be easily identified via publicly available remote sensing, and which were avoided during trail rerouting or new trail planning.

Trail Planning, System Design and Field Investigations

The initial trail system design and field reconnaissance was conducted by the Butte County Resource Conservation District (Butte County RCD) with assistance from a professional trail builder (personal communication). The result was a well informed and logical conceptual trail system which offered a variety of quality trail experiences for different use types, as well as good trail system flow and connectivity. The next and final step in the planning design process was field validation of the conceptual trail plan, and then ground location (flagging) and mapping of the trail routes; Trail Labs Co (TLC) was hired and tasked with this role.

The TLC trail planning team began field investigations in May of 2021. Initial field reconnaissance of the conceptual trail routes, along with supporting remote sensing data, indicated strong viability of the conceptualized system; of the six initial trails planned, only one was eliminated - Humboldt trail. This was primarily due to terrain limitations (heavy brush) and high complexity for construction (remoteness, lack of access). The planning team also felt the design grade of the trail would result in low quality trail experience, and more viable options were available.

The remaining five trails - Colby Mountain, Flow, Home, Lookout, and Peaks - were scouted and then located (flagged) between May and November of 2021. Minor changes were made to alignments of each trail in order to optimize their targeted user and trail experience. Optimizations included grade adjustments (+/-), control point routing (rocks, cliffs, trees, roads, drainages, trail junctions), property boundaries, terrain (hillslope steepness, wet areas, burned

areas, vegetation and tree density/types), and aspect. Once trail location was complete for these trails, alternatives for Humboldt trail were then investigated.

The initial routing of Humboldt trail connected two trailheads within the system - Humboldt Summit and The Hub - and sought to offer a trail experience for downhill “enduro” style mountain biking. Applying sustainable grade and design principles to this targeted use, along with information collected during scouting and location of the other trails, the planning team provided several viable routing options. The result was the addition of two trails to the system; Willow Creek East and Willow Creek West.

Additionally, a trail route was requested by the Butte County RCD for inclusion in the Connected Communities Trail Master Plan, which is currently being proposed by Sierra Buttes Trail Stewardship. In general, the Connected Communities project seeks to connect 15 Northern Sierra communities through a world-class multi-use trail system. Jonesville and the Colby Meadows trail system is identified in that plan as the western-most connection to the trail system, and a route was needed to connect Humboldt Summit with the community of Jonesville. In the fall of 2021 the trail planning team scouted and located a suitable route on the eastern edge of the project area which met the given design criteria.

Trail Uses & Recommendations

The trail landscape of the region surrounding the Colby Meadows project area offers ample opportunities for hiking and equestrians, but is much more limited for mountain biking. The nearest population center of Chico, CA. offers 30.5 miles of non-motorized trails in Upper Bidwell Park, which are accessible to all use types (hiking, equestrian, mountain biking), but offers limited quality opportunities for mountain biking. This is primarily due to shallow soils underlain by a rocky geology type, the result of which is a rough riding, moderately unsafe trail experience for mountain biking, and one which offers almost no opportunity for new or inexperienced mountain bike users.

The proposed Colby Mountain trail system offers excellent opportunities for all use types, but especially for mountain biking. The soils, terrain, circulation, and specific opportunities for mountain biking offered in the proposed trail system creates a trail landscape which will be highly desirable for mountain bike users of all skill levels and abilities. Additionally, it will meet the needs of a recreation group not historically considered during trail development, and have an especially positive impact on the mountain bike community of Chico, CA.

With the concept of developing a trail system highly inclusive of mountain biking comes additional considerations of how to manage use types. Equestrian use can cause significant impacts to non-hardened trail tread surfaces, which especially diminishes the experiential quality of a trail for mountain bike users. High speed interactions between mountain bikes and equestrians, or mountain bikes and hikers can pose potentially significant risks to both users. Trails designed and built with highly insloped corners - very desirable for downhill travel on mountain bikes - may be awkward for hikers, or unrideable for equestrians without causing trail

damage. All of these things, along with others, are critically important to consider when designing a trail system such as the one proposed.

With these and many other use considerations in mind, it is recommended that the following trails receive these specific designations:

- Flow Trail: Mountain bike only, directional travel - downhill
- Willow Creek Trail (East): Mountain bike only, directional travel - downhill
- Willow Creek Trail (West): Mountain bike only, direcational travel - downhill
- Connected Communities Trail: Mountain bike and single-track moto only
- Meadow Trail: Hiking only

Additionally, a newer consideration for trail systems designed with mountian bike use in mind is electric bicycles (e-bikes). E-bike use has grown rapidly over the last five years, and as with most new outdoor recreation technology, it has outpaced land management policy. Currently, limited data is available on the physical impacts of e-bikes to trails, or potential conflicts between trail uers. The decision on how to manage this use is further complicated by how e-bikes are classified within the USDA Forest Service (FS):

The FS's Travel Management Rule (TMR) defines "motor vehicle" as "any vehicle which is self-propelled, other than: (1) a vehicle operated on rails; and (2) any wheelchair or mobility device, including one that is battery-powered, that is designed solely for use by a mobility-impaired person for locomotion, and that is suitable for use in an indoor pedestrian area" (36 CFR 212.1). E-bikes currently are considered motor vehicles and subject to regulation under the TMR: "New technologies that merge bicycles and motors, such as e-bikes, are considered motor vehicles under 212.1 of the TMR." 80 Federal Register 4503 (Jan. 28, 2015).

With a lack of science-based information to develop agency-wide policy, and the complexitiy of exisiting definitions, the FS has directed line officers to designate trails for e-bike use at the local level. In California, the Lake Tahoe Basin Management Unit (LTBMU) has undertaken a Basin Wide Trail Analysis to bring it's trail managment practices more in alignment with Subpart B of the TMR and move towards desired conditions. This analysis will likely provide guidance for other Forests seeking to determine the appropriateness of Class 1 e-bike use on existing and new trails.

Until the LTBMU study is complete, identifying which new and existing trails may or may not be suitable for e-bike use could prove a challenging task. However, with a planned trail system such as Colby Meadows, thoughtful inclusion of Class 1 e-bike use likely makes sense, as these trails would be designed and built with sustainable trail construction methods specific to mountain bikes.

Trail Construction

The Colby Mountain Project area offers a diverse and beautiful landscape within which to build trails, but as with all trail construction projects, also presents unique challenges. The following section provides a discussion of relevant trail construction topics which will influence the project timeline and cost. Additionally, it is important to consider that the cost of trail construction has risen 10-15% per year in the past few years. If it is anticipated that the project will be funded and built several years from now, it is recommended that provided cost estimates be adjusted accordingly. All trail construction cost estimates provided are for a full professional trail crew. Costs do not include heavy vegetation clearing which would fall beyond the scope of normal trail work.

Timing & Seasonality

The hot, dry summers of California, coupled with the snowfall patterns seen at the elevations of the project area create a rather narrow window of ideal conditions for trail construction. The best trail building conditions tend to occur between the beginning of March, and extend to early or mid July. During this time, soil moisture will allow for ideal trail compaction, leaving the constructed trail in a well compacted, fully finished condition. Trails completed during this period of time can and should be opened to use if possible, as user traffic will further compact the trail tread.

From July to October, hot and dry conditions work to create poor soil moisture conditions for compaction, and creating a fully finished trail becomes increasingly difficult. Once soil moisture becomes too low, tread excavation and mechanical compaction should be done carefully and only on a limited basis. Repeated movement of excavation equipment or compactors over the tread surface will destabilize the soil matrix, and result in a poorly compacted trail surface. These trails should not be opened to use until soil moisture levels increase to levels adequate for proper soil compaction.

Along with the poor soil compaction conditions commonly seen during the July to October, additional challenges associated with dust, heat, and fire must be considered. The volcanic soils found in the project area will create dusty conditions in the summer months, creating issues for trail building equipment and operators. It is common for equipment air filters to require replacement every other week during this period, and for operators to wear N95 or higher particulate respirators to avoid breathing issues. The heat also limits operator and laborer capacity, as daily start and stop times must be adjusted to avoid peak temperatures, and long term exposure tends to lead to exhaustion and diminished production efficiency, and in the worst case, health and safety issues. Lastly, fire is a major concern during this time, and presents a significant impact to daily production. Fire protection levels tend to be very high during this time, as the risk of intense wildfire is a serious threat. As such, operation windows become much shorter, and a daily fire watch must be instituted after work is complete.

In summary, the July to October trail building window is a highly inefficient period within which to perform trail construction. It is not recommended that trail construction occur during this period

however, if it must, expect much lower daily production numbers, as well as higher construction costs. It is advised that an increase of 15%-20% cost per foot be expected if work is to occur during this period, along with a similarly sized decline in production.

The period from October to December can offer an excellent time for trail construction, or a poor one; it all depends on weather patterns. Sometimes the northern California area can see a wet fall prior to winter snowfall, providing a window of 60-75 days of good trail construction conditions. Conversely, it can remain dry, but with cooler temperatures, and no precipitation until snowfall in December. In this scenario, trail construction conditions will remain poor. It is recommended to prepare for this time as a possible construction window, but not to count on it for achievement of annual production goals.

Methods

Based on discussions with the project proponent, there are two recommended methods of trail construction: full professional build, and hybrid build.

The full professional build method should be used for trails which are either complex and specialized, or have a high degree of difficulty or remoteness. Complex or specialized trails are those which seek to offer a specific trail experience and which require a unique and specialized skill set to create, and/or a high degree of effort and resources. These are commonly jump, flow or downhill trails, and the trail features, sequence, size, and build process are critically important to achieving a quality trail experience and sustainability. For these trails, it is recommended that 1-2 excavators be used, followed by a professional hand crew. Trails recommended for full professional build are:

- Flow Trail
- Willow Creek East and West
- Meadow Trail

For the hybrid build method, professional trail builders pioneer the trail corridor, excavating the trail prism with a single excavator, which is then followed by volunteers raking and compacting the trail tread, trimming roots, and raking off shoulder berms which might be left from excavation. This type of build method can be integrated with the full professional build method, where some segments of the trail are a hybrid build and some a professional build. Trails which are suitable for a hybrid build are:

- Home Trail
- Colby Mountain Trail
- Lookout Trail
- Peaks Trail
- Main Parking Area Connector Trail
- Connected Communities Trail

Soil & Rockiness

Discussed earlier, the project area is characterized by volcanic soils. These soils are excellent to work with during ideal soil moisture conditions, but conversely very difficult to work with during dry conditions. Additionally, they can contain highly variable rock content which can change quickly along a trail corridor, and without any surface indicators.

During ideal soil moisture conditions, trail tread can be compacted with a plate compactor for wider, smoother trails, and by hand for narrower and rougher trails. When soil moisture conditions become less than ideal or poor, it is not recommended that a plate compactor be used. During this time, hand compaction can be attempted, but success is likely to be limited. The most suitable method for soil compaction during dry periods is to: 1) limit mechanical traffic over the excavated tread, and 2) excavate the final tread surface carefully, and if possible, with a single compressed bucket movement behind the excavator. If the trail has been constructed during dry conditions, prevent use until soil moisture levels become adequate for proper compaction.

Rockiness of the soils in the area is likely to be variable, with some areas having high rockiness, and others low. During field observations, road cuts on 27N06, 27N07A, and 27N36A revealed a soil matrix with high rock content, with size classes generally in the cobble to boulder range. As it is difficult to predict the true extent and heterogeneity of the soil matrix across the site, and based on these observations of road cuts, it is recommended that skeleton buckets be on hand during construction. If builders encounter a soil matrix such as that seen along the road cuts, a skeleton bucket will allow for quick removal of cobbles from the trail prism, without long periods of sorting being required. A thumb for the excavator is also helpful in these situations, although not required. If a soil matrix with a high rock content is encountered during construction, especially for trails with higher hillslope gradients which require larger excavations, daily production will be diminished and construction costs will be higher.

Vegetation

Vegetation can have a significant impact on production during trail construction, and can dramatically increase construction costs. During the planning phase of this project, extra steps were taken to avoid areas of heavy vegetation and ensure more funding could be used for trail construction, and less on vegetation removal. However, sometimes areas of heavy vegetation cannot be avoided and additional resources must be allocated for a particular trail to be built. For areas of heavy vegetation, it is recommended that whenever possible a vegetation removal contractor be used instead of trail crews to open the trail corridor. This is due to the high level of resources and personnel needed for effective trail corridor clearing when vegetation is heavy. One cost effective resource to consider is Cal Fire inmate crews. These teams cost a fraction of that of professional vegetation crews, and they generally do a good job.

It is recommended that trail segments with heavy vegetation be identified and scheduled for clearing at least a year in advance of trail construction, and additional funds be allocated for this

activity. Specific trail segments requiring clearing are identified for each trail in the Trail Log section of this report.

The Dixie Fire

On July 13, 2021, a fire began near Cresta Powerhouse in the Feather River Canyon that would ultimately become the largest single fire in California history, burning 963,309 acres. During its progression northward, the fire threatened to burn Jonesville and the surrounding project area but was stopped at Humboldt Road. Although the project area was spared the devastation that can come from a severe wildfire, the impacts of indirect fire suppression measures can be seen at various locations.

Most notably, a long segment of the initial routing of the Colby Mountain trail was impacted by the creation of a mechanically made (dozer) fire line (Figure 3). The fire line cleared all trees and vegetation along a ridgeline (and trail route) for approximately 2 miles. Upon a post-fire inspection of the ridge, it was determined that the trail route was no longer viable and an alternative route was scouted and then located.

Three other locations in the project area were also impacted by fire suppression activities: the Humboldt Summit trailhead, the Connected Communities trail, and the Lookout trailhead and Access trail. The impacts at each of these locations were not enough to necessitate changes in the proposed trail alignments or infrastructure at these locations, but they are worth noting. At the Humboldt Summit trailhead, the fire burned up to the intersection of the trailhead with Humboldt Road and trees on the south/southeastern side of the road are moderately burned. The area was mechanically cleared; however, it was largely void of trees and vegetation prior to the fire. The entire route of the Connected Communities trail was burned, and to a high severity in some areas. Little to no organic material remains in these areas although it may provide a unique and informative trail experience. Lastly, the Lookout trailhead and access trail were



Figure 3: Example of mechanically constructed fire line at Colby Meadows. Photo taken at Lookout trailhead. Lookout Access trail route can be seen within the fire line corridor along the right side of the cleared area.

impacted by mechanical clearing (dozer) to create a fire line. These activities actually improved conditions at this location, clearing what was a large manzanita field and reducing trail construction costs.

Proposed Trail System

Overview

At approximately 39.3 miles, the proposed Colby Meadows trail system is an interesting and diverse network that will serve the needs of many types of trail users (Figure 4). The system travels through unique rock formations, viewsheds, and forest types providing a variety of terrain and trail experiences. Shorter loops and open, flowing sections of trail meet the needs of families and day hikers; an easily accessible jump line trail provides a progressive mountain biking specific opportunity; longer trail loop options offer challenge for endurance focused riders and hikers; and downhill directional trail, accessible by both shuttle or human-powered travel, will provide trail experiences optimized for mountain bike use. With the addition of the Connected Communities trail, a motorized trail experience is also available. A summary of the primary trails proposed for the system is provided in Table 1. *Note: the table does not include short connector trails.*

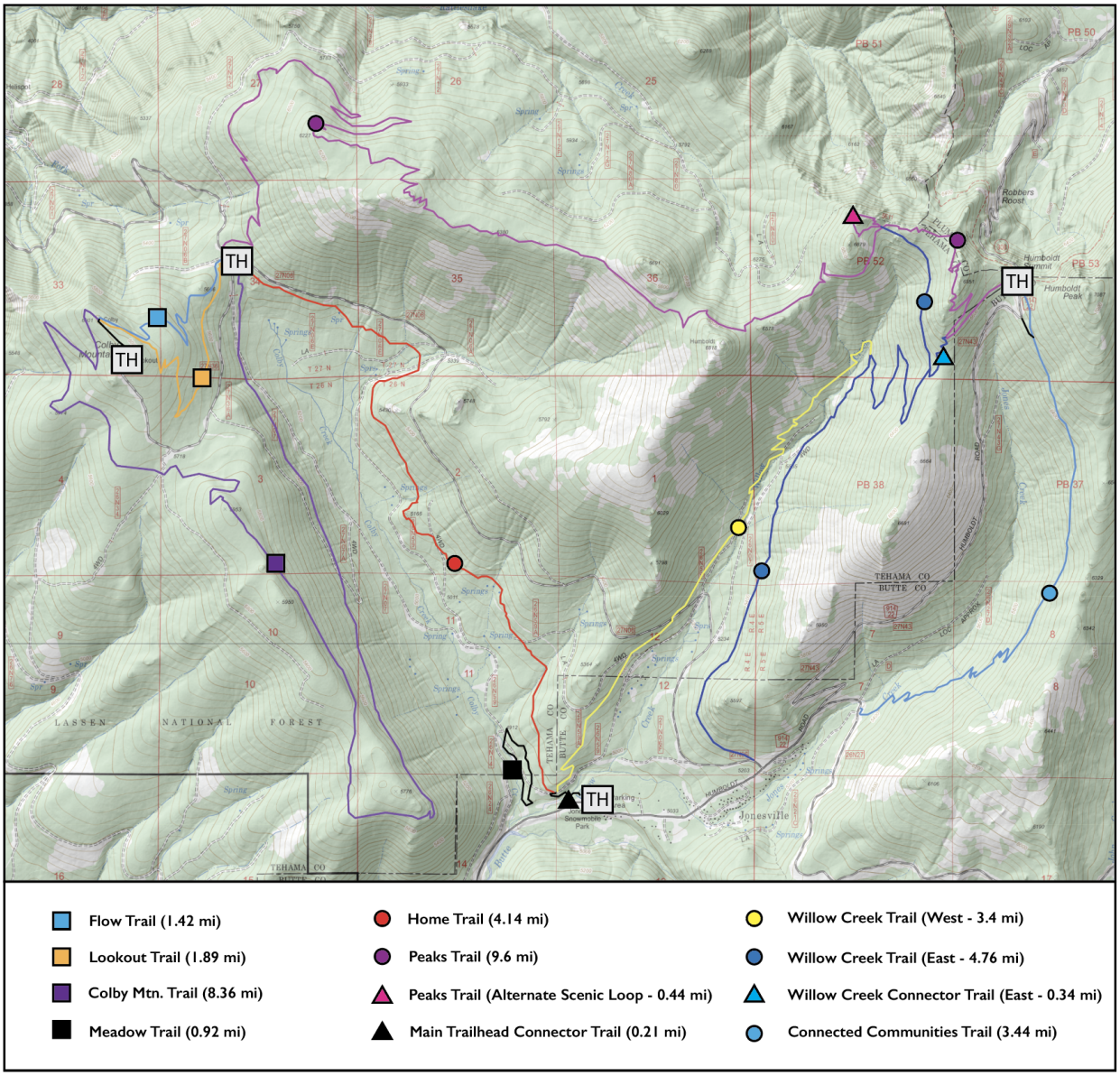


Figure 4: Colby Meadows Trail System

Trailheads

The four trailheads for the Colby Mountain trail system can be seen in Figure 4, identified by the square symbol with “TH” lettering inside. The main trailhead for the Colby Meadows trail system will be located at the Jonesville Snow Park staging area (Figure 5). Historically, this area has primarily been used for snowmobile access to groomed trails via Humboldt Road.

Approximately one acre in size, the facility currently features pit toilets, a kiosk, and an emergency phone. The Colby Meadows Recreation Area plan will incorporate historical uses as well as the needs of several groups of recreationalists. The plan includes rebuilding the existing

Table 1: Colby Meadow Trail System - Proposed Trails

Trail Name	Designed Use	Length (mi.)	Average Grade (%)
Meadow	Walking / Hiking	0.92	2
Home	Multi-Use	4.14	4
Lookout	Multi-Use	1.89	5
Flow	Mountain Bike *(Directional Travel)*	1.42	6
Colby Mtn.	Multi-Use	8.36	3
Peaks	Multi-Use	9.64	3.5
Willow Creek West	Mountain Bike *(Directional Travel)*	3.4	6
Willow Creek East	Mountain Bike *(Directional Travel)*	4.76	6
Connected Communities	Multi-Use, Motorized	3.44	7

parking lot and expanding it eastward, adding a bioswale to capture parking lot runoff, adding a drinking water source, helipad, and a comprehensive trail information kiosk.

Located at the southern edge of the trail system, and situated as the first accessible location encountered by visitors, it serves to provide information and direct access to the trail system. Meadow Loop trail, Home trail, and Willow Creek West trail (Figure 5) all connect directly to this location. The Meadow Loop trail will offer visitors an easy, hiking only experience with direct access to Colby Creek and Meadow, educational trail-side elements, and take the user through a variety of forest and landscape types. Home trail provides a direct connection to several other trails in the system; Lookout, Peaks, and Colby Mtn trails. This connection is made via a 4.14 mile gentle climb, which leads to the Hub trailhead where the three aforementioned trails connect with Home trail (Figure 6). Willow Creek West - a downhill directional trail - provides users with a direct return route to the main trailhead should they wish to descend from Humboldt Summit to this location. Also depicted in Figure 4 is a short connector trail which links the parking area to Home and Willow Creek West trails.

The Hub trailhead (Figure 6) is located at the northern edge of the trail system, and serves as a central “hub” linking the trails of the upper trail system (Lookout, Colby Mt, Flow, and Peaks) with the main trailhead and the lower trail system via Home trail. It also offers a parking area for visitors who wish to bypass the main trailhead and Home trail, and utilize just those trails of the upper system in this area. These visitors would access the Hub via the 27N06 USDA Forest Service (USFS) road, a well-maintained and surfaced forest access road.

From the Hub, Lookout trail provides access to the Flow and Colby Mtn trails via the Colby Mtn. trailhead. Both of these trails return back to the Hub, offering multiple loop options for this

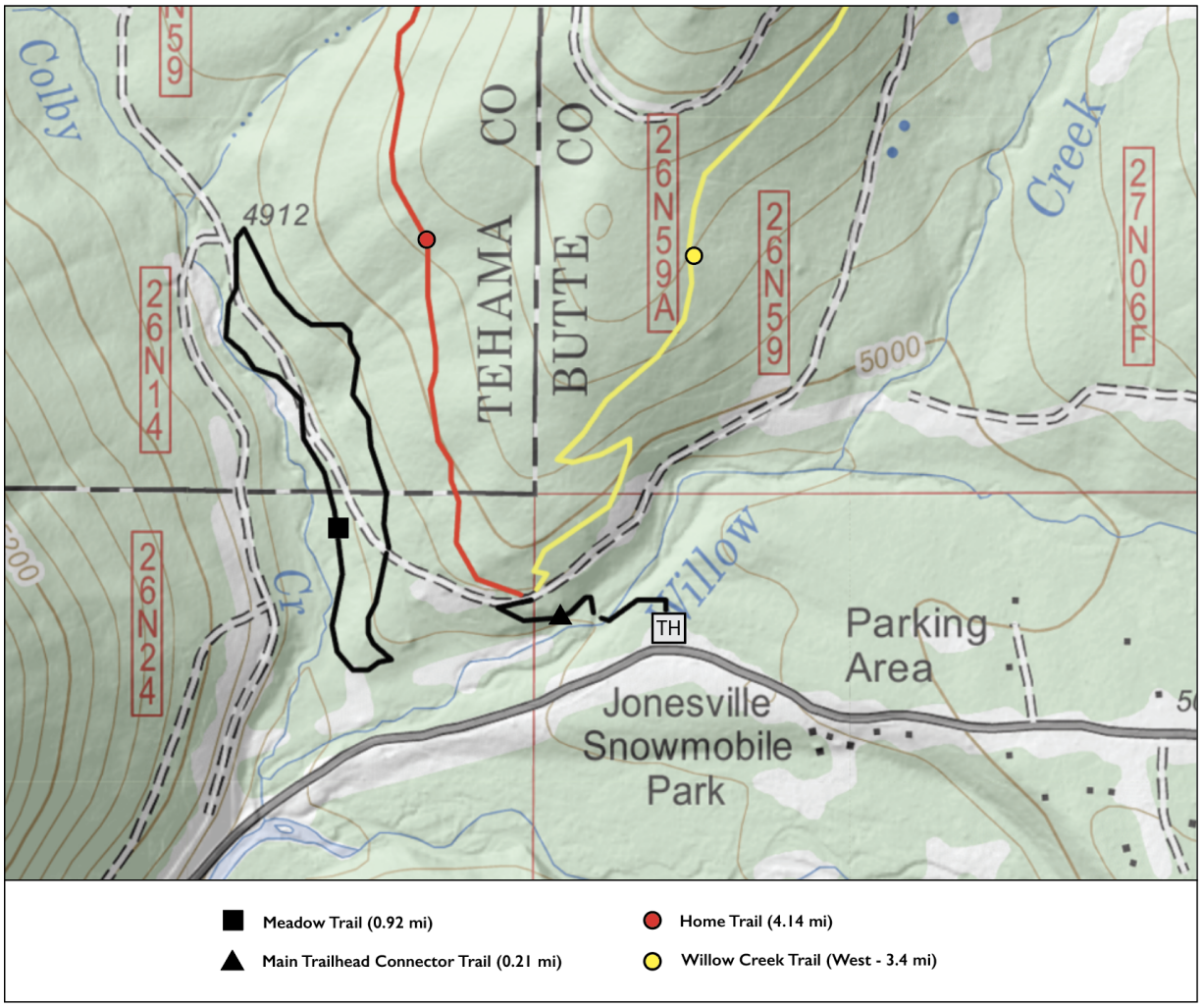


Figure 5: Main Trailhead and connecting trails

location. An additional out and back option is provided from this location via Peaks trail, or a larger loop could be connected through this location via Home trail, Peaks trail, and Willow Creek West. This route would originate from the main trailhead, pass through the Hub, and link Peaks and Willow Creek West high up in the system, which then returns to the main trailhead. The Hub also offers those wishing to stay overnight a good location for dispersed camping, and the option to “session” the flow trail, or just utilize trails which offer a more remote experience.

To the west of the Hub, and at a slightly higher elevation, the Colby Mtn. trailhead offers visitors upper connections to Flow and Colby Mtn. trails (Figure 6). This location can be accessed from the Hub trailhead via Lookout trail, or can be shuttled via USFS forest road 27N36, which also originates from the Hub trailhead.

Lastly, Humboldt trailhead provides direct access to Peaks, Willow Creek East and West, and the Connected Communities trails at the eastern edge of the system (Figure 7). Easily accessible via Humboldt Road, the Humboldt trailhead serves as a shuttle drop location for those visitors seeking a downhill mountain bike experience. From this location, all trails

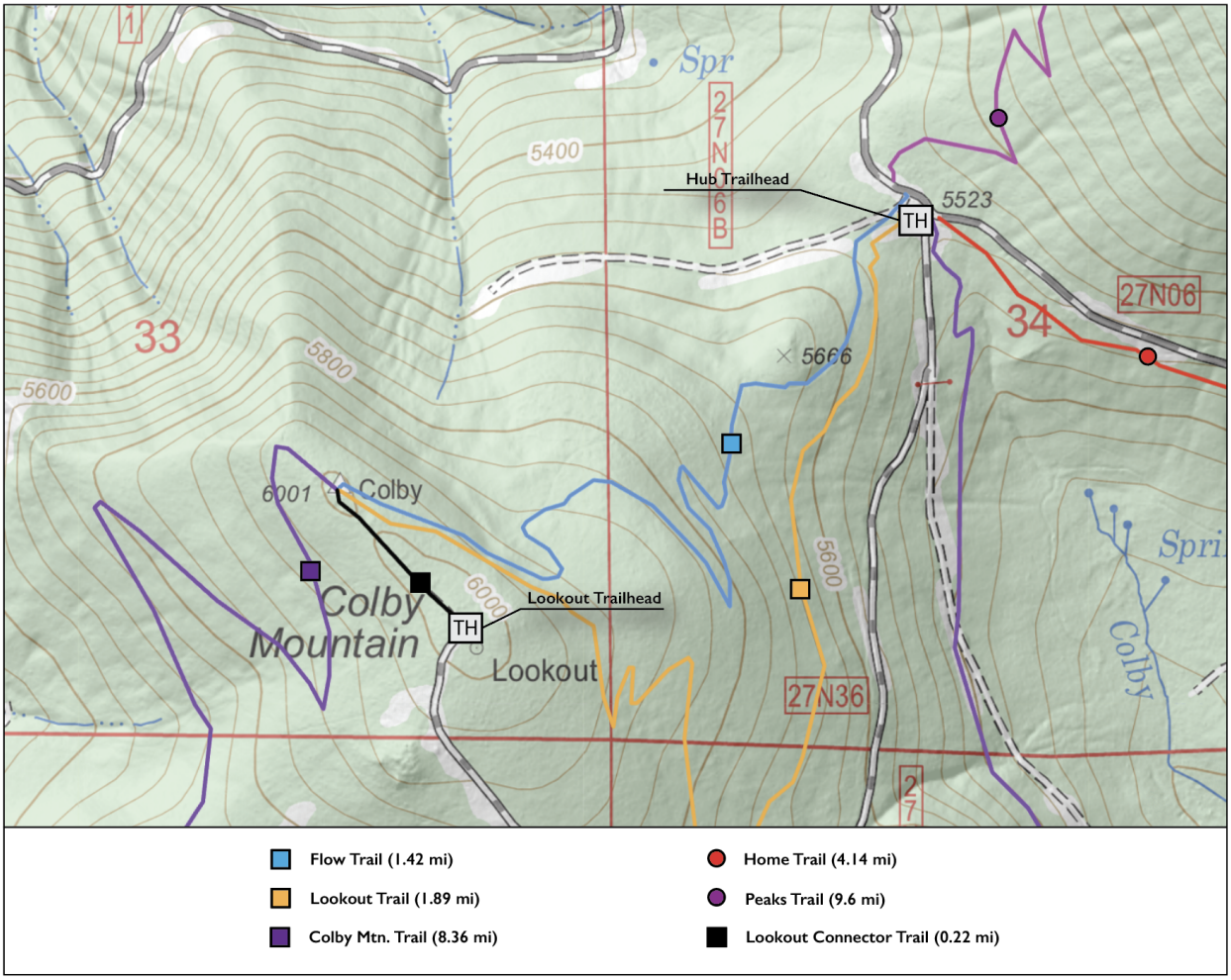


Figure 6: Hub & Lookout Trailheads and connecting trails

descend, taking users to either the intersection of Humboldt road and 27N06 (via Willow Creek East), the main trailhead (via Willow Creek West), the Hub trailhead (via Peaks), or forest road 26N27 near Jones Creek (via Connected Communities). The Humboldt trailhead also offers a direct high elevation connection to the Pacific Crest Trail, where users can experience clear views of Mt. Lassen and the Lassen National Forest. As part of the project improvements will be made to the Humboldt trailhead that include: designated parking, vault toilet, seperate kiosk for PCT and Colby Mountain, equestrian trailer parking, picnic tables, and hitching posts.

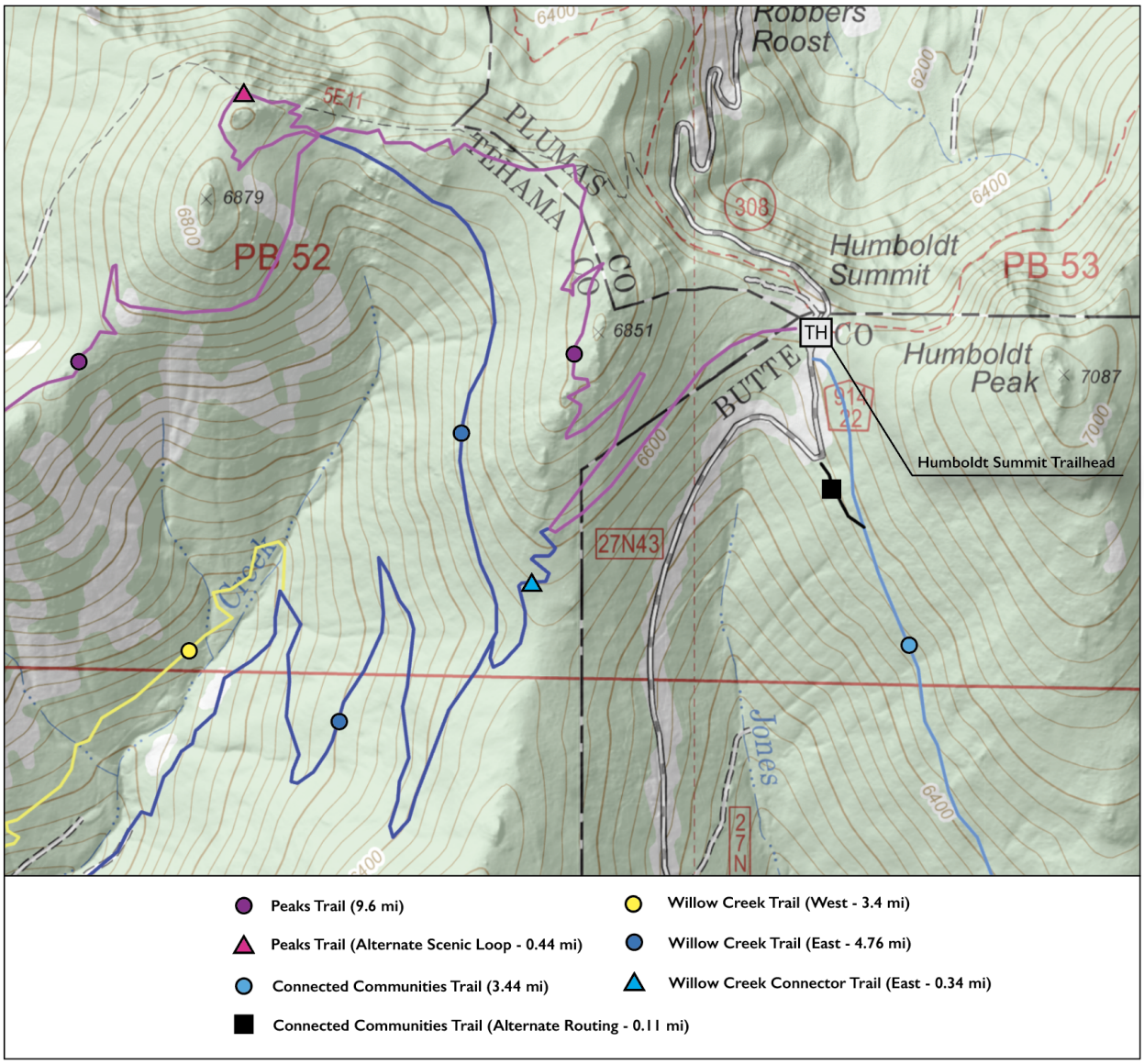


Figure 7: Humboldt Summit Trailhead and connecting trails

Trail Log

Home Trail

Physical Challenge	Technical Difficulty	Designed Use	Length (mi)	Average Grade (%)
Low	Low	Multi-Use	4.14	4

Design Objective

Home Trail will serve as the primary link to the rest of the Colby Mountain trail system and offer a pleasant trail experience for all users. At the lower end, the trail will connect to the main trailhead located at the Jonesville Snowmobile Park trailhead. At the upper end, the trail will connect to the Hub trailhead, which provides connections to nearly all other trails in the system. The trail is designed to be used in both directions of travel, by all non-motorized use types, and be accessible to all skill levels of mountain bikes. It is designed to meet USFS Class 3 Design Parameters for bicycle use.

Trail Narrative

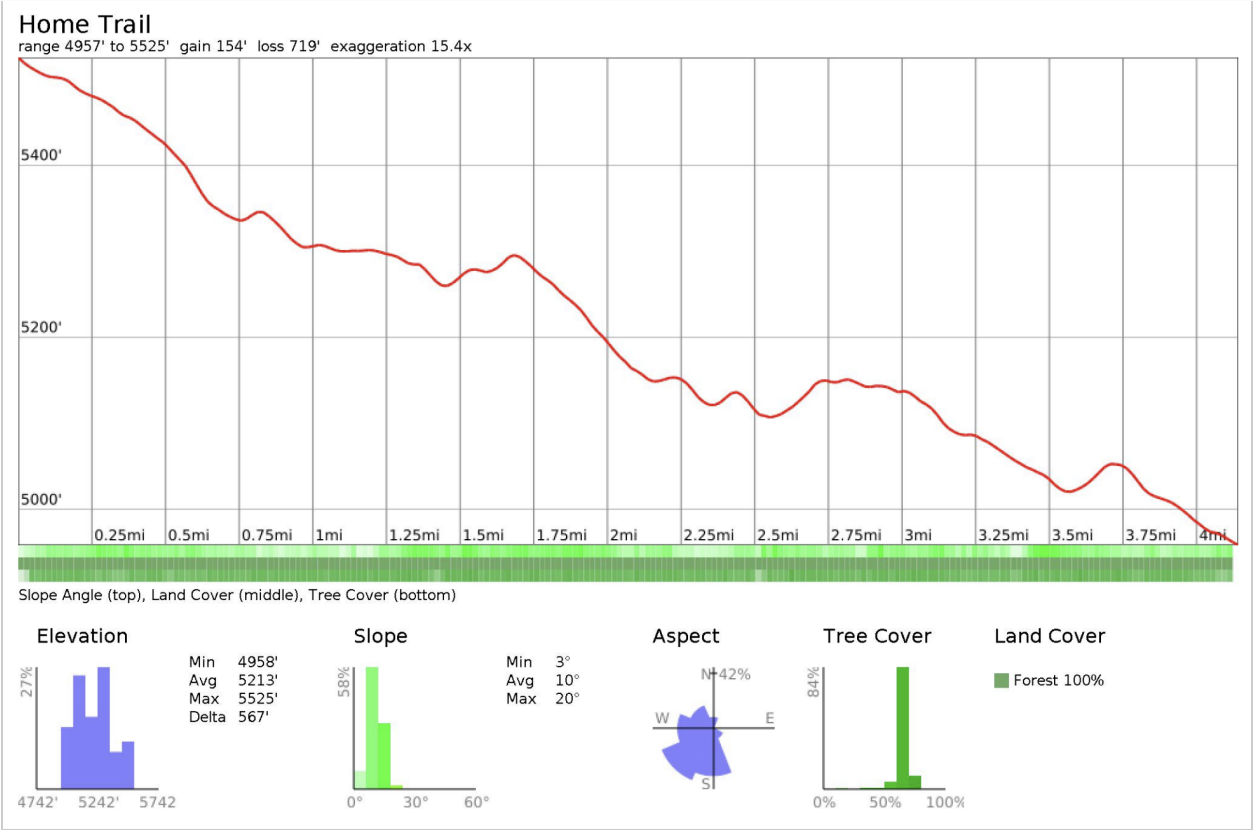
From the Snowmobile Park trailhead, Home trail immediately crosses Willow Creek before beginning a gentle climb uphill toward the Hub trailhead. This trail is characterized by gentle rolling grades and long, easy climbing segments, punctuated by short descents. Along most of its length, the trail passes through mixed conifer forest and several meadows with clear views throughout. It also passes by several meadow areas, several notable large conifers, and interesting rock features, all of which offer an idyllic trail experience for all users. The field crew also encountered several interesting rock features along the alignment. These will provide the user with optional challenges and provide viewsheds, facilitating an adventurous user experience.

Builder Notes **(**All distances noted are measured from bottom of trail)

- USFS Trail Class: Class 3 - Developed
- Recommended Use Types: Hiking, Mountain Biking, Equestrian
- Direction of Travel: Uphill, Downhill
- Start Elevation: 5,000’ - Main trailhead at Jonesville Snowmobile Park
- End Elevation: 5,525’ - Hub trailhead
- NRCS Soil Type(s): residuum weathered from volcanic breccia
- Topography: Gentle Terrain, Low to Moderate Hillslopes: 15°- 20°
- Organic Debris: Downed trees - light, sporadic clearing required
- Brush & Vegetation: Ceanothus, manzanita - light
- Streams: Class II - 1, Class III - 1

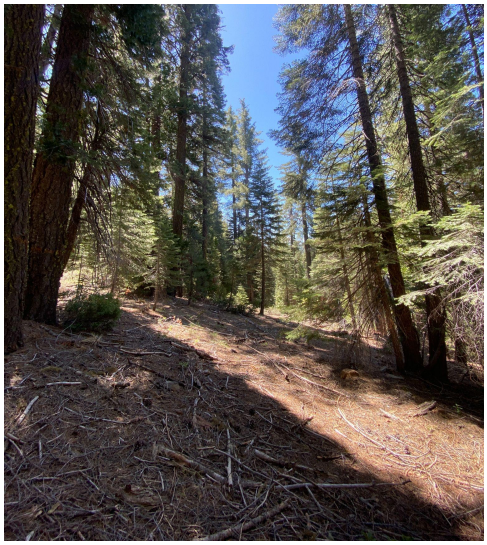
- Bridges: one approximately 30 ft. bridge at 2,450 ft. (unnamed drainage)
- Road Crossings & Access: Trail parallels forest road 27N06 and crosses forest road 26N59. Several spur roads provide access along the length of the trail.
- Recommended Construction Type: Mechanized (mini-excavator), machine or hand finish
- Estimated Construction Days: 65 build days
- Estimated Construction Cost: $207,000 - 248,400

Trail Profile



General Trail Corridor and Terrain Images





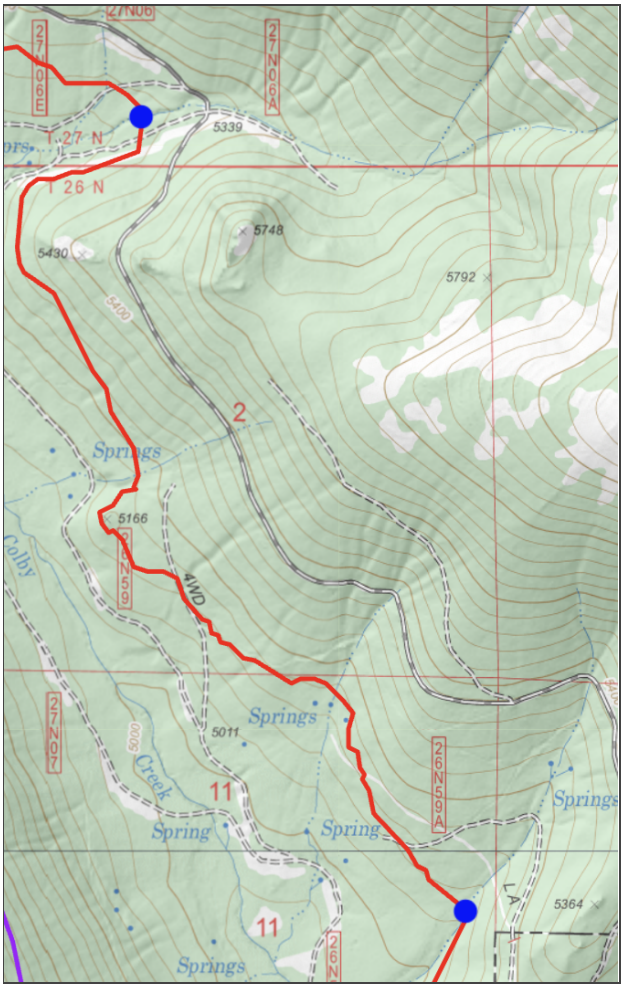




Stream Crossings on Home Trail







Stream crossing locations on Home trail

Lookout Trail

Physical Challenge	Technical Difficulty	Designed Use	Length (mi)	Average Grade (%)
Low to Moderate	Low	Multi-Use	1.89	5

Design Objective

Lookout trail is designed as a multi-use, climbing-focused alignment that will serve as a return/loop trail for Flow, as well as provide an option for equestrian trail users. At the lower end, the trail will connect to the Hub trailhead, which provides connections to nearly all other trails in the system. At the upper end, Lookout will connect to both Flow and Colby Mtn. trails, providing loop options for a variety of experiences. Though intended as a climbing trail, it is designed to

be used in both directions of travel, by all non-motorized use types, and be accessible to all skill levels of mountain bikes. It is designed to meet USFS Class 3 Design Parameters for bicycle use.

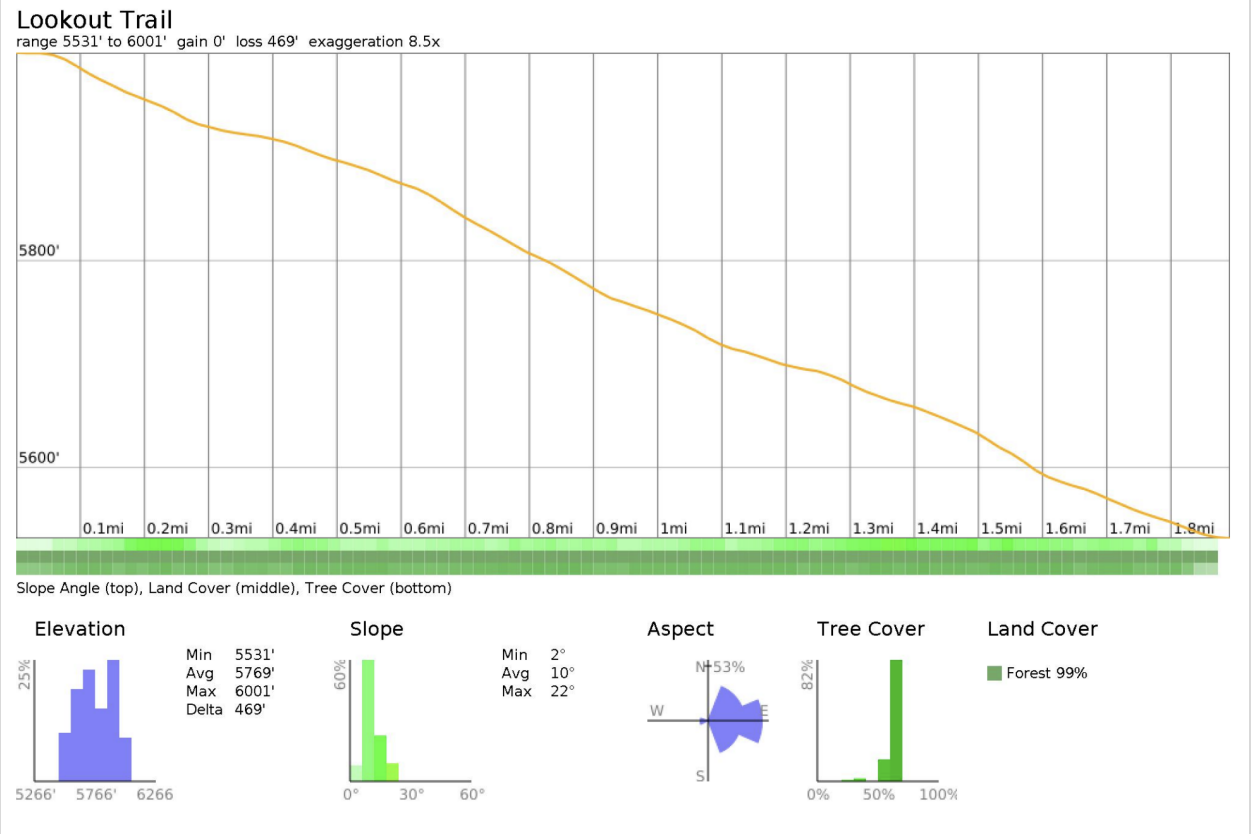
Narrative

Beginning at the Hub trailhead, the Lookout trail will have a slightly wider (30”) tread and features climbing turns intended for mountain bike access to the Flow trail. However, it is designed to handle all trail users as a two-way trail. The trail climbs steadily at a moderate grade from the Hub to the Colby Mtn. trailhead, traveling through mixed forest with several notable large conifers. Nearing the upper trailhead, the corridor will require brush clearing due to dense manzanita. The corridor will also require removal of large down trees throughout the alignment.

Builder Notes **(**All distances noted are measured from bottom of trail)

- USFS Trail Class: Class 3 - Developed
- Recommended Use Types: Hiking, Mountain Biking, Equestrian
- Direction of Travel: Uphill, Downhill
- Start Elevation: 5,523’ - Hub trailhead
- End Elevation: 6,000’ - Colby Mountain Lookout trailhead
- NRCS Soil Type(s): residuum weathered from volcanic breccia
- Topography: Gentle Terrain, Moderate Hillslopes: 15°- 25°
- Organic Debris: Downed trees - light, generally open forest
- Brush & Vegetation: Ceanothus, manzanita - moderate to heavy clearing required from 7,339 ft. to 9.979 ft.
- Streams: None
- Bridges: None
- Road Crossings & Access: Accessible via forest road 27N06 at both top and bottom.
- Recommended Construction Type: Mechanized (mini-excavator), machine or hand finish.
- Estimated Construction Days: 35 build days
- Estimated Construction Cost: $95,000 - $113,400

Trail Profile



General Trail Corridor and Terrain Images











Flow Trail

Physical Challenge	Technical Difficulty	Designed Use	Length (mi)	Average Grade (%)
Low to Moderate	Intermediate to Advanced	Mountain Bike *(Directional Travel)*	1.42	6

Design Objective

The Flow trail will utilize the established bench of the old fire lookout road. The trail is currently used by mountain bikes, hikers, and equestrians. The goal of this trail would be to reshape the old roadbed into a flow-style trail, featuring frequent grade reversals and berms with in-sloped corners. It is designed to be looped with the Lookout trail, but at the lower end the trail will connect to the Hub trailhead, which provides connections to nearly all other trails in the system.

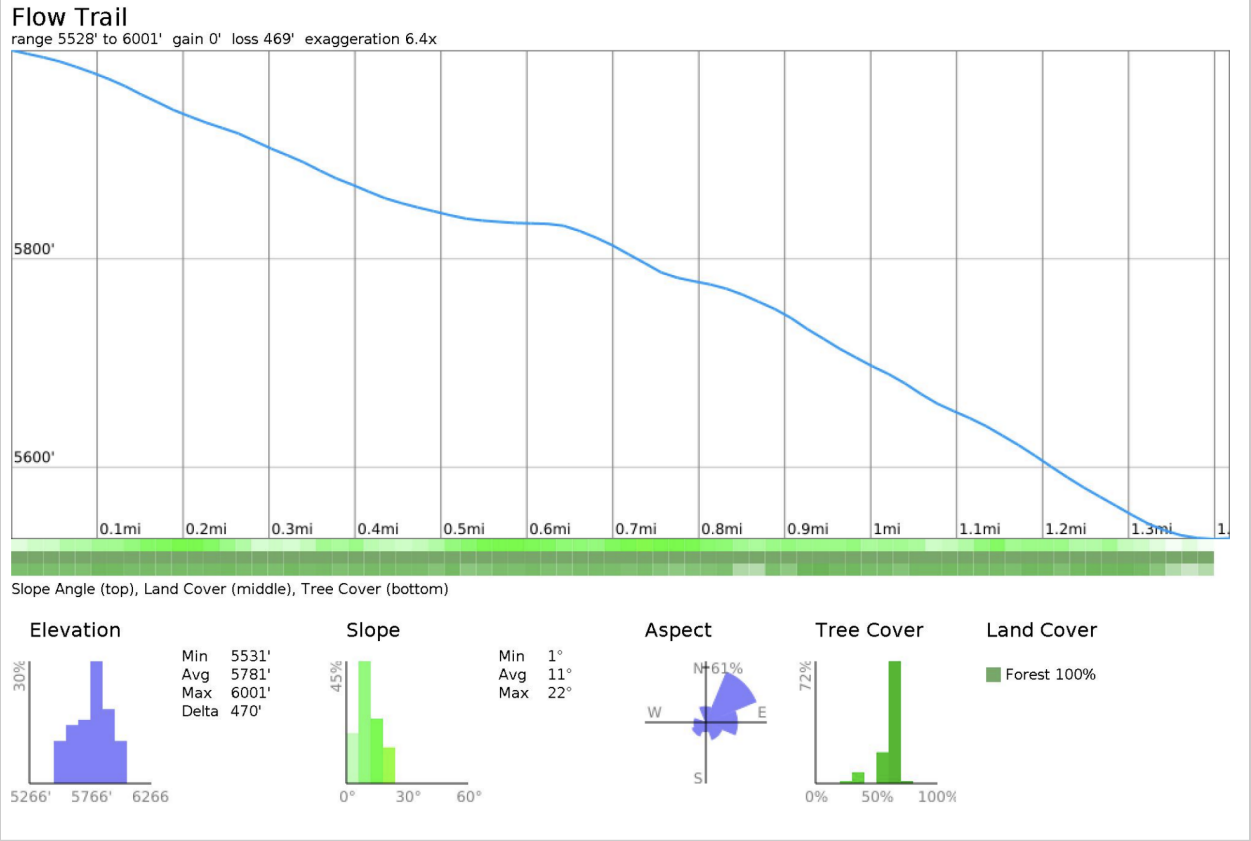
Trail Narrative

Designed primarily for mountain bike use, this progression-focused trail will feature medium to large sized rollers, jumps, and berms meant to be ridden in the downhill direction. To make this trail suitable for all skill levels, large features will either be rollable or will feature a ride-around option.

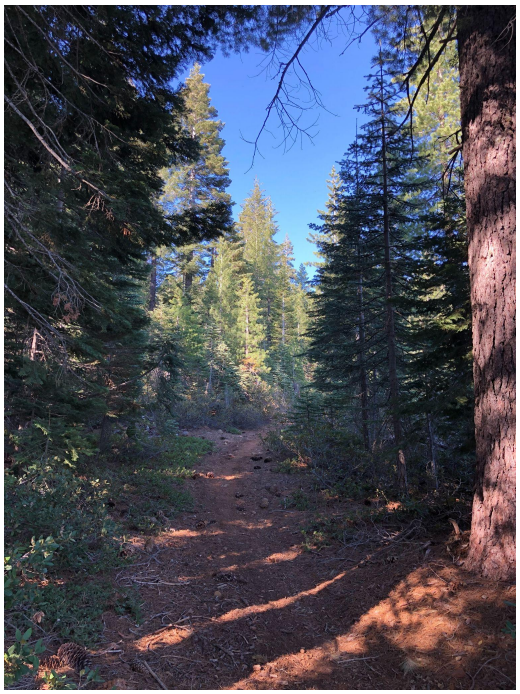
Builder Notes **(**All distances noted are measured from bottom of trail)

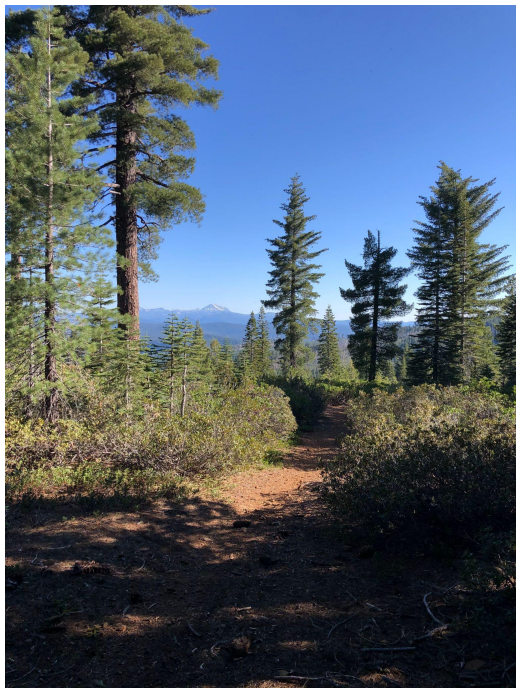
- USFS Trail Class: Class 4 - Highly Developed
- Recommended Use Type: Mountain Biking
- Direction of Travel: Downhill
- Start Elevation: 5,523’ - Hub trailhead
- End Elevation: 6,000’ - Colby Mountain Lookout trailhead
- NRCS Soil Type(s): residuum weathered from volcanic breccia
- Topography: Gentle Terrain, Moderate Hillslopes: 10°- 25°
- Organic Debris: None - open road bed for most of trail, with exception of middle reroute.
- Vegetation & Brush: Ceanothus, manzanita - heavy clearing required from 1,690 ft. to 1,800 ft; 2,904 ft. to 5,597 ft.
- Streams: None
- Bridges: None
- Road Crossings & Access: Forest roads 27N06 and 27N36.
- Recommended Construction Type: Mechanized (mid-sized excavator & mini-excavator), machine finish with hand shaping and plate compacting.
- Estimated Construction Days: 50 build days
- Estimated Construction Cost: $150,000 - $200,000

Trail Profile



General Trail Corridor and Terrain Images





Colby Mountain Trail

Physical Challenge	Technical Difficulty	Designed Use	Length (mi)	Average Grade (%)
Moderate	Intermediate	Multi-Use	8.36	3

Design Objective

The upper end of Colby Mtn. trail begins at the Colby Mtn. Lookout, and then after a brief traverse to the north, descends to the south where it meets with the base of Colby ridge. After climbing to the ridge, it descends the east side of the landform and then crosses over it at a prominent saddle. Once on the west side of the ridge, the trail descends and then climbs to its southern nose, traverses it, and then makes a gradual descent to the Hub trailhead. The trail is meant to provide a sense of adventure and remoteness for trail users. It incorporates rock features and forest type typical of the region, and as the longest trail of the West Zone provides a challenge for endurance-focused riders.

Trail Narrative

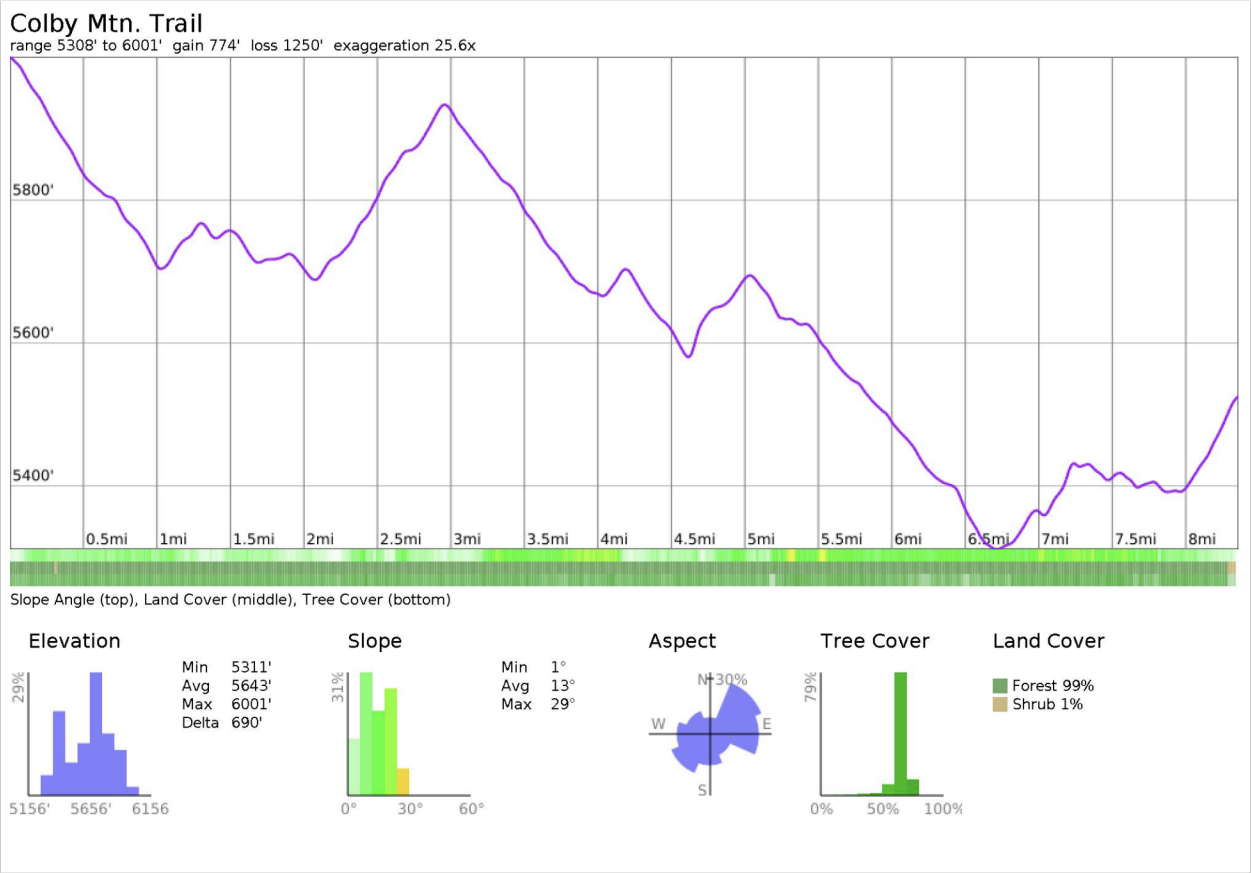
The Colby Mtn. trail will feature open sightlines and Lassen views throughout its route down Colby ridge. Several rock features throughout the alignment will provide optional challenges for trail users. Upon reaching the southern nose of Colby ridge, the trail turns back to the north descending through mixed conifer forest. After crossing road 27N07A, it finishes on a short climb back to the Hub Trailhead.

Builder Notes **(**All distances noted are measured from bottom of trail)

- USFS Trail Class: Class 3 - Developed
- Recommended Use Types: Hiking, Mountain Biking
- Direction of Travel: Uphill, Downhill
- Start Elevation: 5,523’ - Hub trailhead
- End Elevation: 6,000’ - Colby Mountain Lookout trailhead
- NRCS Soil Type(s): residuum weathered from volcanic breccia
- Topography: Moderate terrain, average hillslope: 10°- 30°; 30°- 40° from 14,256 ft. - 16,843 ft.
- Organic Debris: Downed trees - clearing required from 17,160 ft. - 31,363 ft.
- Brush & Vegetation: Ceanothus, manzanita - sporadic heavy clearing required from 36,000 ft.- 46,200 ft.
- Streams: None
- Bridges: None
- Road Crossings & Access: Forest roads 27N36, 27N06, 26N34 and 27N36A.

- Recommended Construction Type: Mechanized (mini-excavator), machine or hand finish. Some hand building may be required at the southern end of Colby Mountain Ridge.
- Estimated Construction Days: 130 build days
- Estimated Construction Cost: $418,000 - $500,000

Trail Profile



General Trail Corridor and Terrain Images













Peaks Trail

Physical Challenge	Technical Difficulty	Designed Use	Length (mi)	Average Grade (%)
Moderate to High	Intermediate to Advanced	Multi-use	9.64	3.5

Design Objective

This will be the longest trail in the system, providing a high reward for endurance-focused users. This trail begins at Humboldt Summit and connects to the Hub trailhead, or riders may descend a gravity focused trail spurring off of the ridge. This trail showcases the volcanic geology typical of the Southern Cascades, with technical rock features encountered frequently.

Trail Narrative

The trail will travel around and/or over seven high points before skirting the 2008 Cub Complex Fire footprint, finally connecting to the Hub trailhead. It has no stream crossings and will feature many natural rock features. Much of the ridge is treeless and rocky, creating an alpine experience. A narrow, rough tread will provide riders with challenge while enjoying scenic vistas of Lassen National Park, Lake Almanor, Rattlesnake Creek and Deer Creek. The trail will also provide views of the 2021 Dixie Fire burned area to the east.

Builder Notes **(**All distances noted are measured from bottom of trail)

- USFS Trail Class: Class 2 - Moderately Developed
- Recommended Use Types: Hiking, Mountain Biking
- Direction of Travel: Uphill, Downhill
- Start Elevation: 6,600’ - Humboldt Summit trailhead
- End Elevation: 5,523’ - Hub trailhead
- NRCS Soil Type(s): residuum weathered from volcanic breccia
- Topography: Ridgeline
- Organic Debris: Minimal - generally open fir forest. Moderate to heavy downed trees 40,280 ft. - 50,740 ft., and in Cub Fire burn scar.
- Brush & Vegetation: Ceanothus, manzanita. Sporadic clearing required throughout. Heavy brush from 29,779 ft. to 32,366 ft., and in Cub Fire burn scar and from 0 ft. to 6,000 ft.
- Streams: None
- Bridges: None
- Road Crossings & Access: Humboldt Rd., forest roads 27N80 and 27N06.

- Recommended Construction Type: Mechanized (mini-excavator), hand finish. Some hand building will be required along rocky outcroppings. Alternate loop (0.5 mi) will likely require hand building.
- Estimated Construction Days: 200 - 250 build days
- Estimated Construction Cost: $500,000 - 600,000

Trail Profile



General Trail Corridor and Terrain Images

















Willow Creek East Trail

Physical Challenge	Technical Difficulty	Designed Use	Length (mi)	Average Grade (%)
Moderate	Intermediate to Advanced	Mountain Bike (Directional Travel)	4.76	6

Design Objective

A mountain bike focused, directional trail designed for easy shuttling via a direct connection to Humboldt Rd. and forest road 27N06.

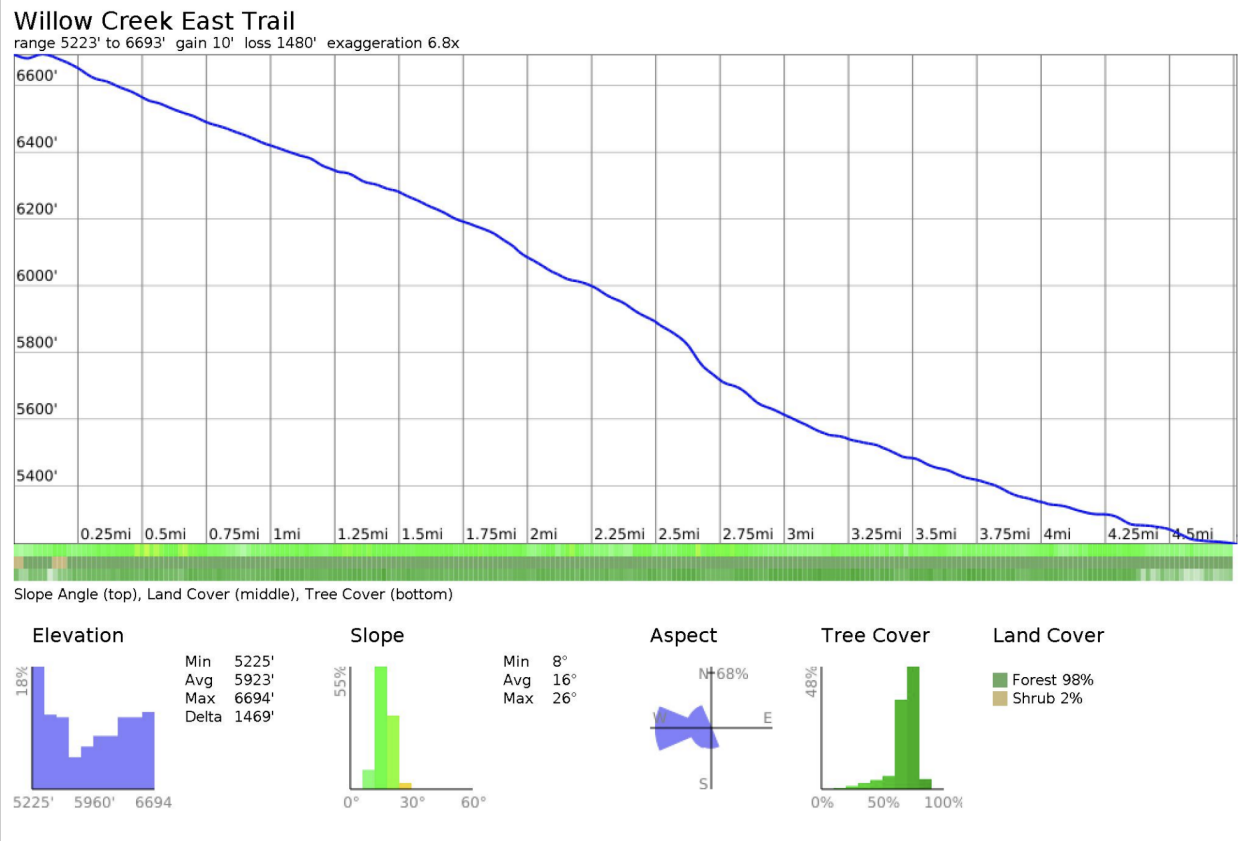
Trail Narrative

After passing scenic viewpoints along the Peaks ridge, this trail descends the east side of the Willow Creek drainage. After passing several natural rock features and traveling through old growth fir forest, the trail has a fast, flowy descent back to forest road 27N06. It includes a short road-to-trail conversion shortly after the junction with Willow Creek West. Shuttle staging options are forest road 27N06 and the Main trailhead at Jonesville Snowmobile Park.

Builder Notes **(**All distances noted are measured from top of trail)

- USFS Trail Class: Class 3 - Developed
- Recommended Use Types: Mountain Biking
- Direction of Travel: Downhill
- Start Elevation: 6,699’ - Junction with Peaks trail at 1.85 mi.
- End Elevation: 5,225’ - Junction with forest road 27N06 and Humboldt Road
- NRCS Soil Type(s): residuum weathered from volcanic breccia
- Topography: Moderate terrain, average hillslope: 20°-35°
- Organic Debris: Open fir forest, minimal vegetation
- Brush & Vegetation: Ceanothus & manzanita, sporadic clearing required.
- Streams: None
- Bridges: None
- Road Crossings & Access: Machine accessible via Peaks trail, Humboldt Rd., and forest roads 27N06, 27N07.
- Recommended Construction Type: Mechanized (mini-excavator) bench construction and shaping, hand finished. Some hand building may be required.
- Estimated Construction Days: 95 build days
- Estimated Construction Cost Range: $238,000 - $285,600

Trail Profile



General Trail Corridor and Terrain Images









Willow Creek West Trail

Physical Challenge	Technical Difficulty	Designed Use	Length (mi)	Average Grade (%)
Moderate	Intermediate to Advanced	Mountain Bike (Directional Travel)	3.4	6

Design Objective

A mountain bike trail, optimized for downhill directional travel which takes users directly to the main trailhead from the Humboldt Summit trailhead. It also provides a connection to the main trailhead for users making a large loop via Home, and Peaks trails.

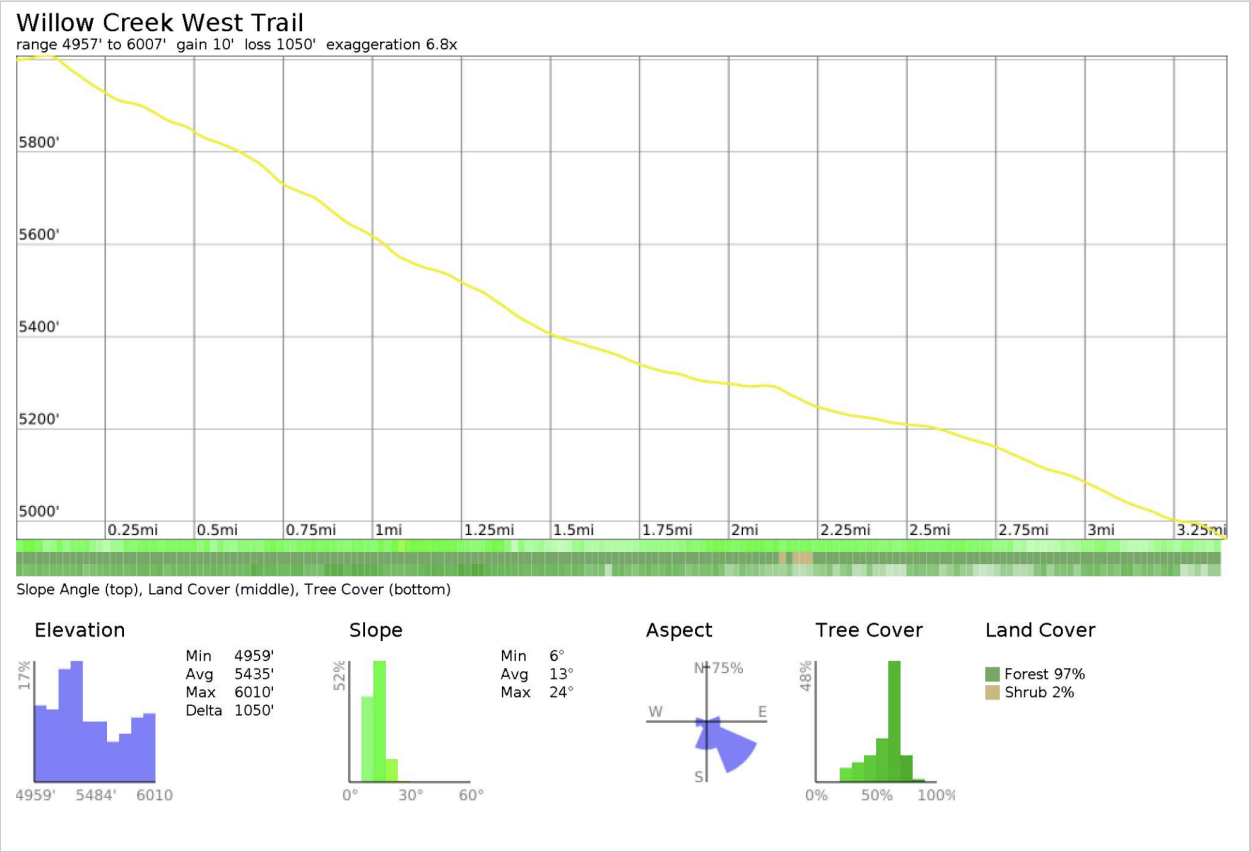
Trail Narrative

This trail splits off Willow Creek East, crossing Willow Creek and then descending along the west side of the drainage. It features frequent rock features, technical sections, a short road-to-trail conversion, and views of Willow Creek throughout. After crossing 27N06 road, the trail descends consistently through open, previously logged forest down to a junction with the start of Home trail, where a short connector trail leads to the main trailhead.

Builder Notes **(**All distances noted are measured from top of trail)

- USFS Trail Class: Class 3 - Developed
- Recommended Use Types: Mountain Biking
- Direction of Travel: Downhill
- Start Elevation: 6,014’ - Junction with Willow Creek at 2.26 mi.
- End Elevation: 4,959’ - Junction with Home trail and forest road 26N59
- NRCS Soil Type(s): residuum weathered from volcanic breccia
- Topography: Moderate terrain, average hillslope: 20°-35°
- Organic Debris: Shrubs (moderate), forest surface organics and trees. Downed trees throughout.
- Brush & Vegetation: Manzanita, sporadic clearing required.
- Streams: Willow Creek, Class II
- Bridges: Undetermined (rock ford or bridge - USFS recommendation needed)
- Road Crossings & Access: Acces via roads 27N06, 26N59A, and 26N59.
- Recommended Construction Type: Mechanized (mini-excavator), machine or hand finish. Some hand building may be required.
- Estimated Construction Days: 60 build days
- Estimated Construction Cost: $170,000 - $204,000

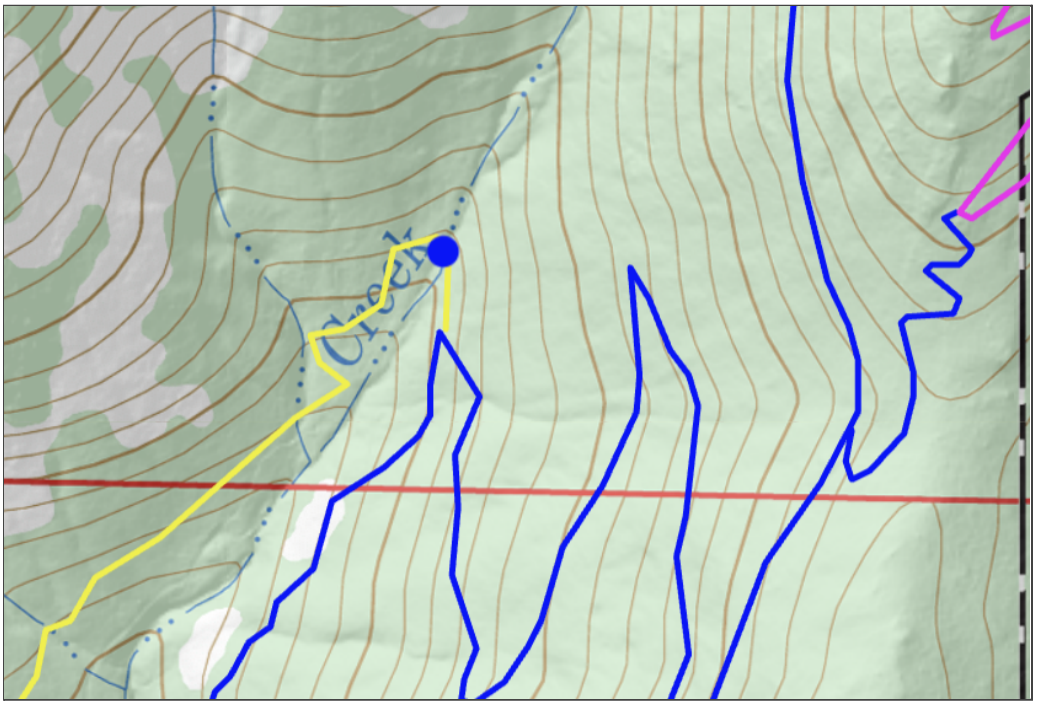
Trail Profile



General Trail Corridor can be seen in photos from Willow Creek East as they exhibit similar terrain and forest type.

Stream Crossing on Willow Creek West





Stream crossing location on Willow Creek West

Willow Creek Connector Trail

Physical Challenge	Technical Difficulty	Designed Use	Length (mi)	Average Grade (%)
Moderate	Intermediate to Advanced	Mountain Bike (Directional Travel)	0.34	9.5

Design Objective

A short, direct connector trail which links Peaks trail to the Willow Creek trails, eliminating a ridgeline traverse along Peaks trail for mountain bike users seeking primarily a downhill experience.

Trail Narrative

At 0.5 miles from the Humboldt Summit trailhead, this connector trail descends from a rocky outcropping on the Peaks trail. It will offer a fast, mountain bike focused connection to the Willow Creek trails. It travels through several rocky sections and old growth red fir forest.

Builder Notes **(**All distances noted are measured from top of trail)

- USFS Trail Class: Class 3 - Developed
- Recommended Use Types: Mountain Biking
- Direction of Travel: Downhill
- Start Elevation: 6,629’ - Junction with Peaks Trail at 0.5 mi.
- End Elevation: 6,459’ - Junction, Willow Creek East at 0.86 mi.
- NRCS Soil Type(s): residuum weathered from volcanic breccia
- Topography: Ridgeline with steep to moderately steep hillslopes
- Organic Debris: typical forest surface organics and some downed trees
- Brush & Vegetation: Ceanothus, manzanita. Sporadic clearing required.
- Streams: None
- Bridges: None
- Road Crossings & Access: None
- Recommended Construction Type: Mechanized (mini-excavator) bench, with hand or machine finish.
- Estimated Construction Days: 15 build days
- Estimated Construction Cost: $15,000 - $20,000

No Profile due to short trail length

See Willow Creek and Peaks trail photos for general terrain and forest type

Meadow Trail

Physical Challenge	Technical Difficulty	Designed Use	Length (mi)	Average Grade (%)
Low	None	Hiking / Walking	0.92	2

Design Objective

An easy walking/hiking trail loop connecting directly with the Main trailhead, and offering visitors an educational experience highlighting the natural beauty and systems which exist at Colby Meadows.

Trail Narrative

The Meadow trail takes users through two distinctly different landscapes as it gently meanders along a nearly one mile loop. The upland portion of the trail moves through typical forested terrain found in the Colby Meadows area, while the lowland meadows portion of the trail travels adjacent to Colby Creek and Colby Meadow. The meadow segment of the trail offers excellent views of the creek and general meadow area, as well as restoration sites within the meadow, offering an excellent educational opportunity. This low gradient, easily accessible trail is well suited for those looking for a peaceful, relaxing walk in the area.

Builder Notes

- USFS Trail Class: Class 4 - Highly Developed
- Recommended Use Types: Hiking
- Direction of Travel: Uphill, Downhill
- Start Elevation: 4,934’ - Junction with 26N59 road
- End Elevation: 4,934’ - Junction with 26N59 road
- NRCS Soil Type(s): residuum weathered from volcanic breccia
- Topography: gentle rolling terrain, upland forest, meadow
- Organic Debris: typical forest surface organics, little to no downed trees
- Brush & Vegetation: Ceanothus, manzanita. Minimal clearing needed. Small patches of saplings need to be removed as well.
- Streams: None
- Bridges: None
- Road Crossings & Access: Main trailhead, 26N59

- Recommended Construction Type: Mechanized (mini-excavator & tracked skid steer). Possible import of crushed ⅜- tread material for all weather use, and to eliminate trenching from surface organic removal. Optional use of onsite borrow if available.
- Estimated Construction Days: 25 build days
- Estimated Construction Cost: $200,000 - $280,000

No Profile due to short trail length and limited elevation change.

General Trail Corridor and Terrain Images









Main Trailhead Connector Trail

Physical Challenge	Technical Difficulty	Designed Use	Length (mi)	Average Grade (%)
Low	Low to Intermediate	Multi-Use	0.21	5

Design Objective

A short, direct connector trail linking the Main trailhead to the start of Home trail, as well as the end of Willow Creek West trail.

Trail Narrative

Beginning at the Main trailhead, this connector trail descends gently to Willow Creek where it will cross an existing bridge, and then climb at a moderate grade through several rock formations. At its upper end, the trail connects with the start of Home trail (to the north/northwest) and end of Willow Creek West (north/northeast), at a junction with the 26N59 road.

Builder Notes

- USFS Trail Class: Class 3 - Developed
- Recommended Use Types: Hiking, Mountain Biking, Equestrian
- Direction of Travel: Uphill, Downhill
- Start Elevation: 4,943’ - Main trailhead
- End Elevation: 4,956’ - Junction, Willow Creek West trail, Home trail, 26N59 road
- NRCS Soil Type(s): residuum weathered from volcanic breccia
- Topography: gentle forested terrain, meadow, rocky outcrop
- Vegetation & Organic Debris: shrubs, grasses, and forest surface organics in upland terrain
- Brush Type(s): Ceanothus, very limited
- Streams: Willow Creek
- Bridges: 1 - existing
- Road Crossings & Access: Main trailhead, 26N59 road
- Recommended Construction Type: Mechanized (mini-excavator), with hand finish and moderate rock work (powered rock hammer for breaking up outcrop).
- Estimated Construction Days: 15 build days
- Estimated Construction Cost: $15,000 - $20,000

No Profile due to short trail length and limited elevation change.
General Trail Corridor and Terrain Images









Connected Communities Trail

Physical Challenge	Technical Difficulty	Designed Use	Length (mi)	Average Grade (%)
Moderate	Intermediate to Advanced	Multi-Use Motorized (single track) Mountain Bike (Directional Travel)	3.44	7

Design Objective

A single-track motorized, and multi-use trail which connects the community of Jonesville and the Colby Meadows Recreation Area with Humboldt Summit, and the broader Connected Communities Trail System.

Trail Narrative

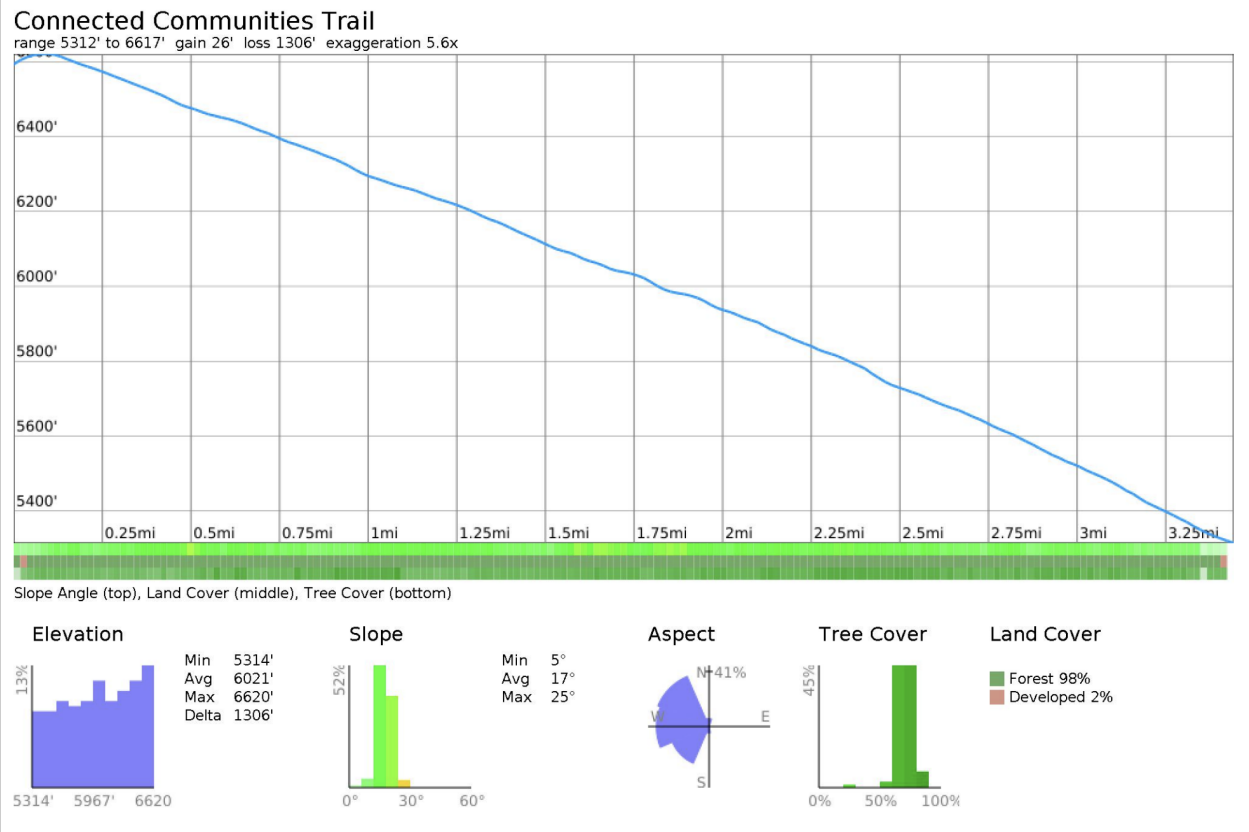
Beginning at the lower end, the trail starts at a junction with forest road 26N27 where it crosses Jones Creek. The trail climbs through moderately to severely burned forest from the Dixie Fire, and along the way, passes through several unique rock formations exposed by the fire. Hillslope terrain is moderate along most of the trail. The lack of vegetation and high severity of the fire creates a unique landscape for a trail, and should serve as a strong contrast to the green, forested settings of the rest of the Colby Meadows trail system. At the upper end, the trail connects with the Humboldt Summit trailhead, either directly as routed, or via an alternate route (0.11 mi) which connects to Humboldt Rd. just downhill of the summit. The alternate route is to be selected for construction should the Pacific Crest Trail Association find the primary connection point unsuitable.

Builder Notes

- USFS Trail Class: Class 3 - Developed
- Recommended Use Types: Mountain Biking, OHV - Single Track Moto
- Direction of Travel: Uphill, Downhill
- Start Elevation: 5,314’ - Junction with forest road 26N27
- End Elevation: 6,593’ - Junction with Humboldt Rd. and Humboldt Summit trailhead
- NRCS Soil Type(s): residuum weathered from basalt

- Topography: moderate hillslopes, previously forested
- Vegetation & Organic Debris: None
- Brush Type(s): None
- Streams: None
- Bridges: None
- Road Crossings & Access: Humboldt Rd.(upper end), 26N27 road (lower end)
- Recommended Construction Type: Mechanized (mini-excavator), bench and finishing, limited hand work
- Estimated Construction Days: 60 build days
- Estimated Construction Cost: $172,000 - $206,000

Trail Profile



General Trail Corridor and Terrain Images



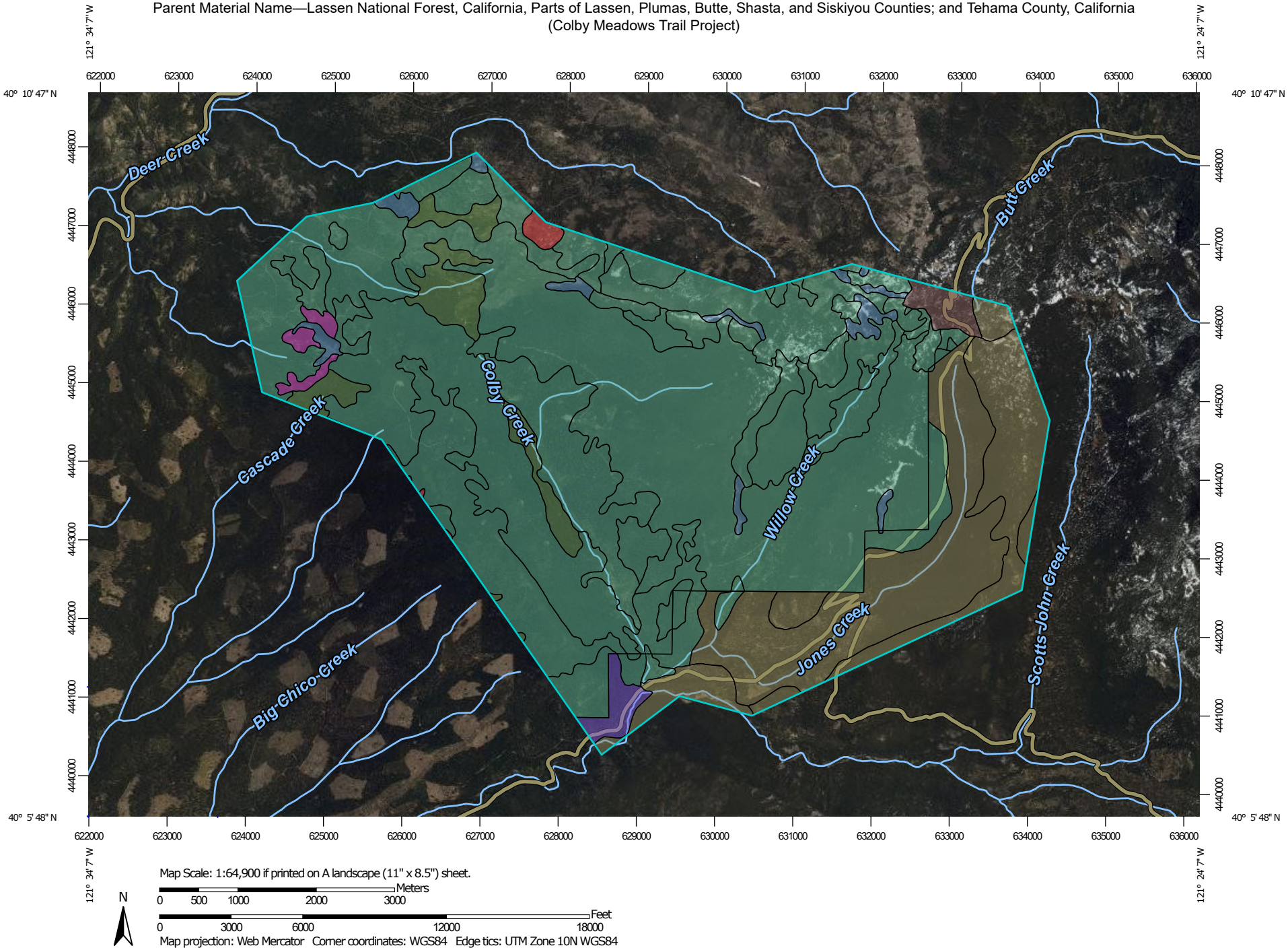






Appendices

Soil Reports


121° 34' 7" W
121° 24' 7" W
40° 10' 47" N
40° 5' 48" N
622000
623000
624000
625000
626000
627000
628000
629000
630000
631000
632000
633000
634000
635000
636000
4448000
4447000
4446000
4445000
4444000
4443000
4442000
4441000
4440000
Deer Creek
Butt Creek
Colby Creek
Cascade Creek
Willow Creek
Jones Creek
Scotts John Creek
Big Chico Creek
Map Scale: 1:64,900 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0 500 1000 2000 3000
Feet
0 3000 6000 12000 18000
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- colluvium
- glaciofluvial deposits derived from andesite
- glaciofluvial deposits derived from basalt
- residuum
- residuum and/or colluvium derived from volcanic rock
- residuum weathered from basalt
- residuum weathered from volcanic breccia
- residuum weathered from volcanic rock
- Not rated or not available

Soil Rating Lines

- colluvium
- glaciofluvial deposits derived from andesite
- glaciofluvial deposits derived from basalt
- residuum
- residuum and/or colluvium derived from volcanic rock
- residuum weathered from basalt
- residuum weathered from volcanic breccia
- residuum weathered from volcanic rock
- Not rated or not available

Soil Rating Points

- colluvium
- glaciofluvial deposits derived from andesite
- glaciofluvial deposits derived from basalt
- residuum
- residuum and/or colluvium derived from volcanic rock
- residuum weathered from basalt
- residuum weathered from volcanic breccia
- residuum weathered from volcanic rock
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at scales ranging from 1:20,000 to 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Lassen National Forest, California, Parts of Lassen, Plumas, Butte, Shasta, and Siskiyou Counties
Survey Area Data: Version 14, Sep 8, 2021

Soil Survey Area: Tehama County, California
Survey Area Data: Version 15, Sep 6, 2021

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 8, 2019—Jun 21, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Parent Material Name

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
84	Sheld family, moderately deep-Lithic Xerumbrepts association, 0 to 35 percent slopes.	residuum weathered from basalt	653.6	5.7%
85	Sheld family, moderately deep-Lithic Xerumbrepts association, 35 to 70 percent slopes.	residuum weathered from basalt	156.1	1.4%
86	Sheld family-Sheld family, moderately deep complex, 0 to 35 percent slopes.	residuum weathered from basalt	1,253.4	10.9%
92	Sheld family, moderately deep-Sheld family-Rock Outcrop complex, 35 to 70 percent slopes.	glaciofluvial deposits derived from basalt	97.8	0.9%
119	Washougal-Skalan families association, 15 to 35 percent slopes.	glaciofluvial deposits derived from andesite	98.3	0.9%
129	Yallani-Sheld families complex, 35 to 50 percent slopes.	residuum weathered from basalt	25.1	0.2%
131	Yallani family-Sheld family, moderately deep association, 35 to 70 percent slopes.	residuum weathered from basalt	52.2	0.5%
MkDtc	McCarthy sandy loam, 10 to 30 percent slopes	residuum weathered from volcanic breccia	42.3	0.4%
RtFtc	Rockland	residuum	0.4	0.0%
WrE2t	Windy rocky sandy loam, moderately deep, 10 to 50 perce nt slopes , eroded	residuum weathered from volcanic breccia	1.0	0.0%
WsDtc	Windy stony sandy loam, 10 to 30 percent slopes	residuum weathered from volcanic breccia	95.1	0.8%
WsEtc	Windy stony sandy loam, 30 to 50 percent slopes	residuum weathered from volcanic breccia	152.2	1.3%
Subtotals for Soil Survey Area			**2,627.7**	**22.9%**
Totals for Area of Interest			**11,476.3**	**100.0%**

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
CgD	Cohasset stony loam, 10 to 30 percent slopes	residuum weathered from volcanic rock	429.0	3.7%
CgE	Cohasset stony loam, 10 to 50 percent slopes, MLRA 22B	residuum and/or colluvium derived from volcanic rock	41.6	0.4%
CkF	Colluvial land, volcanic rocks	colluvium	73.8	0.6%
IrE	Iron Mountain rocky sandy loam, 30 to 50 percent slopes	residuum weathered from volcanic breccia	62.2	0.5%
IrF	Iron Mountain rocky sandy loam, 50 to 65 percent slopes	residuum weathered from volcanic breccia	14.7	0.1%
MkD	McCarthy sandy loam, 10 to 30 percent slopes	residuum weathered from volcanic breccia	564.2	4.9%
MkE	McCarthy sandy loam, 30 to 50 percent slopes	residuum weathered from volcanic breccia	766.3	6.7%
MmF	McCarthy stony sandy loam, 50 to 65 percent slopes	residuum weathered from volcanic breccia	44.3	0.4%
RtF	Rockland	residuum	195.2	1.7%
WgD	Windy gravelly sandy loam, 10 to 30 percent slopes	residuum weathered from volcanic breccia	27.9	0.2%
WgE	Windy gravelly sandy loam, 30 to 50 percent slopes	residuum weathered from volcanic breccia	468.0	4.1%
WnF	Windy rocky sandy loam, 50 to 65 percent slopes	residuum weathered from volcanic breccia	132.8	1.2%
WrE2	Windy rocky sandy loam, moderately deep, 10 to 50 percent slopes, eroded	residuum weathered from volcanic breccia	365.5	3.2%
WsD	Windy stony sandy loam, 10 to 30 percent slopes	residuum weathered from volcanic breccia	1,090.1	9.5%
WsE	Windy stony sandy loam, 30 to 50 percent slopes	residuum weathered from volcanic breccia	4,359.4	38.0%
WsF	Windy stony sandy loam, 50 to 65 percent slopes	residuum weathered from volcanic breccia	213.5	1.9%
Subtotals for Soil Survey Area			**8,848.5**	**77.1%**
Totals for Area of Interest			**11,476.3**	**100.0%**

Description

Parent material name is a term for the general physical, chemical, and mineralogical composition of the unconsolidated material, mineral or organic, in which the soil forms. Mode of deposition and/or weathering may be implied by the name.

The soil surveyor uses parent material to develop a model used for soil mapping. Soil scientists and specialists in other disciplines use parent material to help interpret soil boundaries and project performance of the material below the soil. Many soil properties relate to parent material. Among these properties are proportions of sand, silt, and clay; chemical content; bulk density; structure; and the kinds and amounts of rock fragments. These properties affect interpretations and may be criteria used to separate soil series. Soil properties and landscape information may imply the kind of parent material.

For each soil in the database, one or more parent materials may be identified. One is marked as the representative or most commonly occurring. The representative parent material name is presented here.

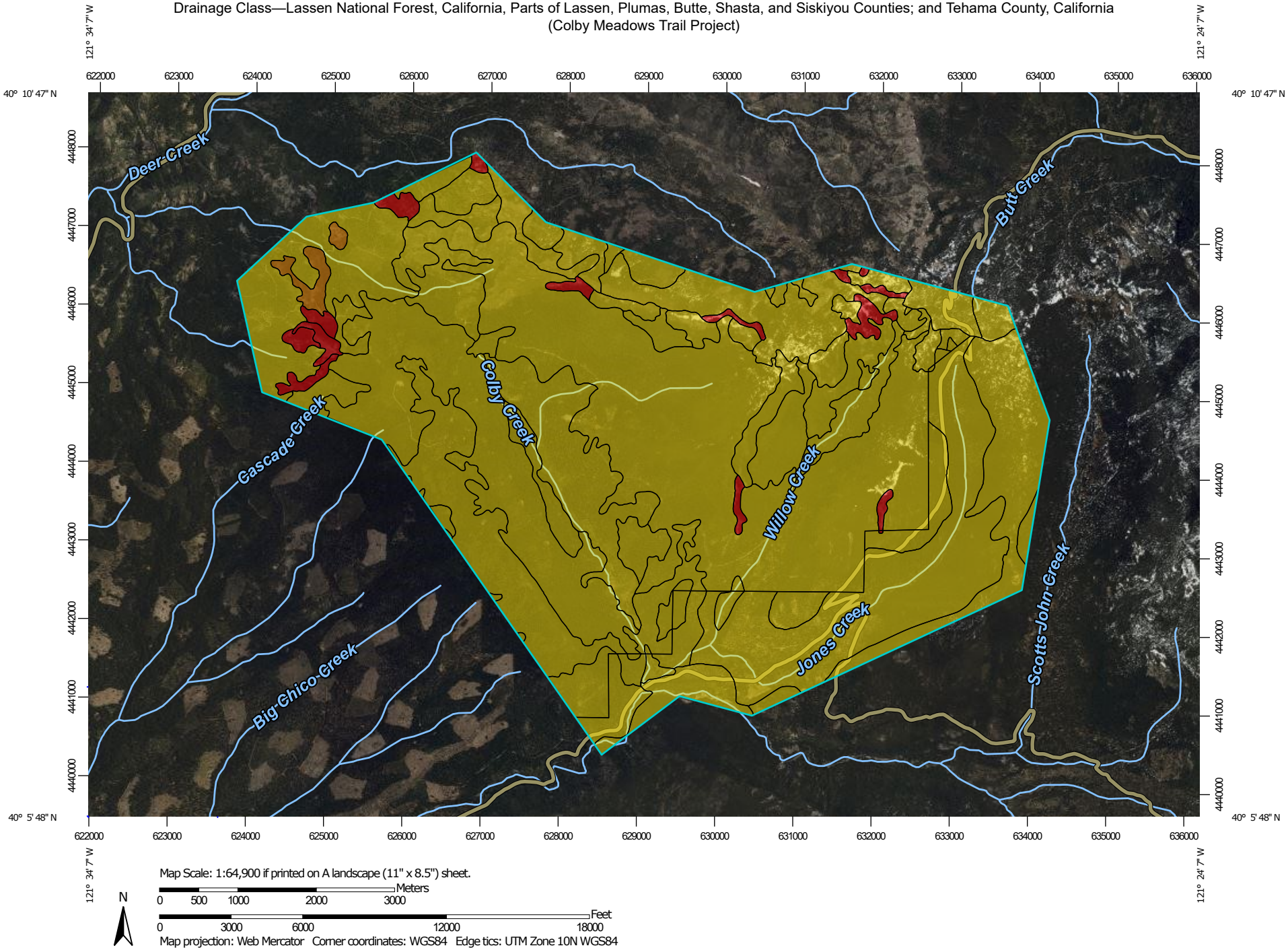
Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Drainage Class—Lassen National Forest, California, Parts of Lassen, Plumas, Butte, Shasta, and Siskiyou Counties; and Tehama County, California
(Colby Meadows Trail Project)



MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- Excessively drained
- Somewhat excessively drained
- Well drained
- Moderately well drained
- Somewhat poorly drained
- Poorly drained
- Very poorly drained
- Subaqueous
- Not rated or not available

Soil Rating Lines

- Excessively drained
- Somewhat excessively drained
- Well drained
- Moderately well drained
- Somewhat poorly drained
- Poorly drained
- Very poorly drained
- Subaqueous
- Not rated or not available

Soil Rating Points

- Excessively drained
- Somewhat excessively drained
- Well drained
- Moderately well drained
- Somewhat poorly drained
- Poorly drained
- Very poorly drained
- Subaqueous
- Not rated or not available

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- Streams and Canals

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- Rails
- Interstate Highways
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- Major Roads
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Background

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Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Lassen National Forest, California, Parts of Lassen, Plumas, Butte, Shasta, and Siskiyou Counties
Survey Area Data: Version 14, Sep 8, 2021

Soil Survey Area: Tehama County, California
Survey Area Data: Version 15, Sep 6, 2021

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 8, 2019—Jun 21, 2019

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Drainage Class

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
84	Sheld family, moderately deep-Lithic Xerumbrepts association, 0 to 35 percent slopes.	Well drained	653.6	5.7%
85	Sheld family, moderately deep-Lithic Xerumbrepts association, 35 to 70 percent slopes.	Well drained	156.1	1.4%
86	Sheld family-Sheld family, moderately deep complex, 0 to 35 percent slopes.	Well drained	1,253.4	10.9%
92	Sheld family, moderately deep-Sheld family-Rock Outcrop complex, 35 to 70 percent slopes.	Well drained	97.8	0.9%
119	Washougal-Skalan families association, 15 to 35 percent slopes.	Well drained	98.3	0.9%
129	Yallani-Sheld families complex, 35 to 50 percent slopes.	Well drained	25.1	0.2%
131	Yallani family-Sheld family, moderately deep association, 35 to 70 percent slopes.	Well drained	52.2	0.5%
MkDtc	McCarthy sandy loam, 10 to 30 percent slopes	Well drained	42.3	0.4%
RtFtc	Rockland	Excessively drained	0.4	0.0%
WrE2t	Windy rocky sandy loam, moderately deep, 10 to 50 perce nt slopes , eroded	Well drained	1.0	0.0%
WsDtc	Windy stony sandy loam, 10 to 30 percent slopes	Well drained	95.1	0.8%
WsEtc	Windy stony sandy loam, 30 to 50 percent slopes	Well drained	152.2	1.3%
Subtotals for Soil Survey Area			**2,627.7**	**22.9%**
Totals for Area of Interest			**11,476.3**	**100.0%**

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
CgD	Cohasset stony loam, 10 to 30 percent slopes	Well drained	429.0	3.7%
CgE	Cohasset stony loam, 10 to 50 percent slopes, MLRA 22B	Well drained	41.6	0.4%
CkF	Colluvial land, volcanic rocks	Excessively drained	73.8	0.6%
IrE	Iron Mountain rocky sandy loam, 30 to 50 percent slopes	Somewhat excessively drained	62.2	0.5%
IrF	Iron Mountain rocky sandy loam, 50 to 65 percent slopes	Somewhat excessively drained	14.7	0.1%
MkD	McCarthy sandy loam, 10 to 30 percent slopes	Well drained	564.2	4.9%
MkE	McCarthy sandy loam, 30 to 50 percent slopes	Well drained	766.3	6.7%
MmF	McCarthy stony sandy loam, 50 to 65 percent slopes	Well drained	44.3	0.4%
RtF	Rockland	Excessively drained	195.2	1.7%
WgD	Windy gravelly sandy loam, 10 to 30 percent slopes	Well drained	27.9	0.2%
WgE	Windy gravelly sandy loam, 30 to 50 percent slopes	Well drained	468.0	4.1%
WnF	Windy rocky sandy loam, 50 to 65 percent slopes	Well drained	132.8	1.2%
WrE2	Windy rocky sandy loam, moderately deep, 10 to 50 percent slopes, eroded	Well drained	365.5	3.2%
WsD	Windy stony sandy loam, 10 to 30 percent slopes	Well drained	1,090.1	9.5%
WsE	Windy stony sandy loam, 30 to 50 percent slopes	Well drained	4,359.4	38.0%
WsF	Windy stony sandy loam, 50 to 65 percent slopes	Well drained	213.5	1.9%
Subtotals for Soil Survey Area			**8,848.5**	**77.1%**
Totals for Area of Interest			**11,476.3**	**100.0%**

Description

"Drainage class (natural)" refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized-excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained, and very poorly drained. These classes are defined in the "Soil Survey Manual."

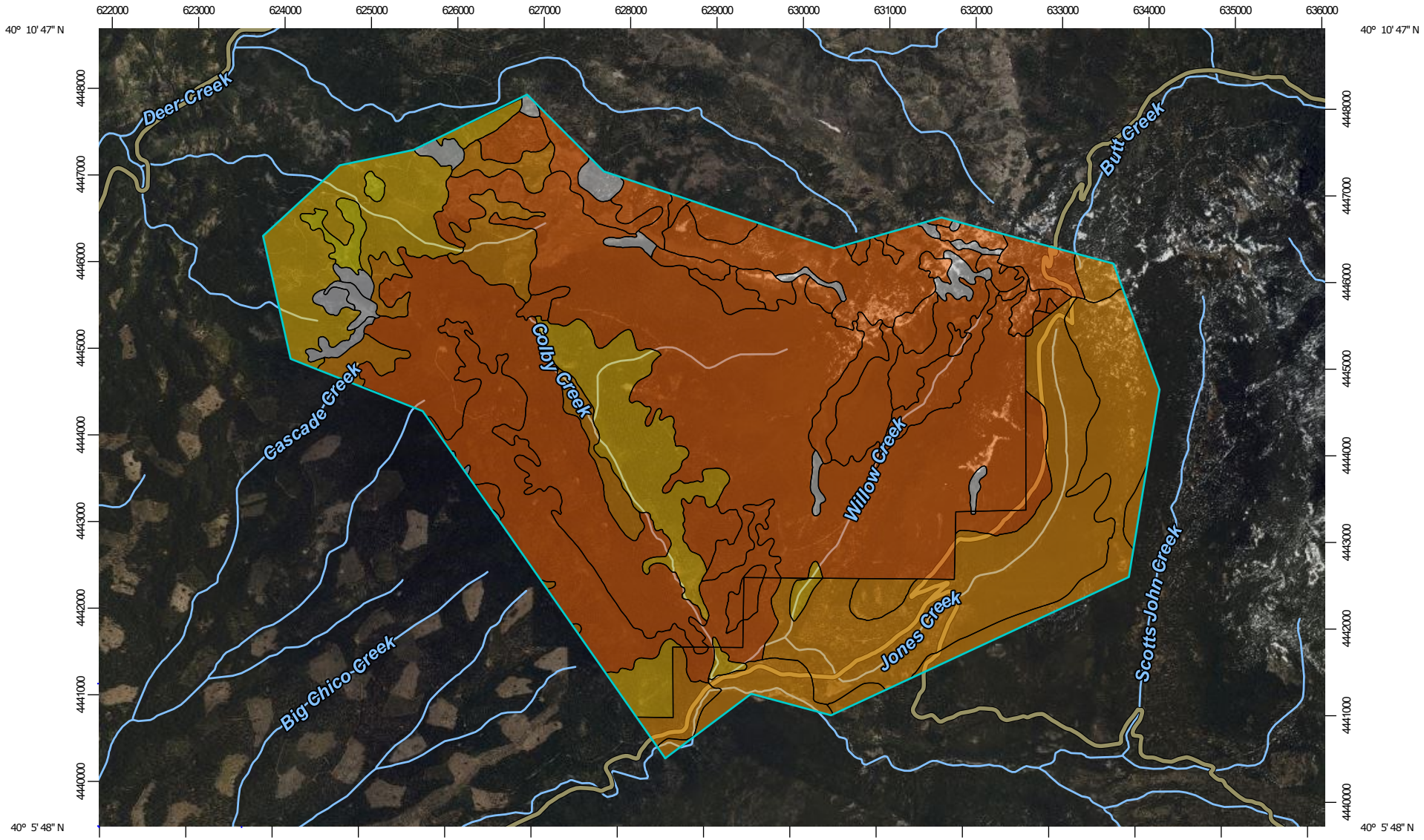
Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

K Factor, Whole Soil—Lassen National Forest, California, Parts of Lassen, Plumas, Butte, Shasta, and Siskiyou Counties; and Tehama County, California
(Colby Meadows Trail Project)



MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

.02
.05
.10
.15
.17
.20
.24
.28
.32
.37
.43
.49
.55
.64
Not rated or not available

Soil Rating Lines

.02
.05
.10
.15
.17
.20
.24
.28
.32
.37
.43
.49
.55
.64
Not rated or not available

Soil Rating Points

.02
.05
.10
.15
.17
.20
.24
.28
.32
.37
.43
.49
.55
.64
Not rated or not available

Water Features

Streams and Canals

Transportation

Rails
Interstate Highways
US Routes
Major Roads
Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at scales ranging from 1:20,000 to 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Lassen National Forest, California, Parts of Lassen, Plumas, Butte, Shasta, and Siskiyou Counties
Survey Area Data: Version 14, Sep 8, 2021

Soil Survey Area: Tehama County, California
Survey Area Data: Version 15, Sep 6, 2021

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Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 8, 2019—Jun 21, 2019

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K Factor, Whole Soil

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
84	Sheld family, moderately deep-Lithic Xerumbrepts association, 0 to 35 percent slopes.	.10	653.6	5.7%
85	Sheld family, moderately deep-Lithic Xerumbrepts association, 35 to 70 percent slopes.	.10	156.1	1.4%
86	Sheld family-Sheld family, moderately deep complex, 0 to 35 percent slopes.	.10	1,253.4	10.9%
92	Sheld family, moderately deep-Sheld family-Rock Outcrop complex, 35 to 70 percent slopes.	.05	97.8	0.9%
119	Washougal-Skalan families association, 15 to 35 percent slopes.	.10	98.3	0.9%
129	Yallani-Sheld families complex, 35 to 50 percent slopes.	.10	25.1	0.2%
131	Yallani family-Sheld family, moderately deep association, 35 to 70 percent slopes.	.10	52.2	0.5%
MkDtc	McCarthy sandy loam, 10 to 30 percent slopes	.15	42.3	0.4%
RtFtc	Rockland		0.4	0.0%
WrE2t	Windy rocky sandy loam, moderately deep, 10 to 50 perce nt slopes , eroded	.05	1.0	0.0%
WsDtc	Windy stony sandy loam, 10 to 30 percent slopes	.05	95.1	0.8%
WsEtc	Windy stony sandy loam, 30 to 50 percent slopes	.05	152.2	1.3%
Subtotals for Soil Survey Area			**2,627.7**	**22.9%**
Totals for Area of Interest			**11,476.3**	**100.0%**

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
CgD	Cohasset stony loam, 10 to 30 percent slopes	.10	429.0	3.7%
CgE	Cohasset stony loam, 10 to 50 percent slopes, MLRA 22B		41.6	0.4%
CkF	Colluvial land, volcanic rocks		73.8	0.6%
IrE	Iron Mountain rocky sandy loam, 30 to 50 percent slopes	.17	62.2	0.5%
IrF	Iron Mountain rocky sandy loam, 50 to 65 percent slopes	.17	14.7	0.1%
MkD	McCarthy sandy loam, 10 to 30 percent slopes	.15	564.2	4.9%
MkE	McCarthy sandy loam, 30 to 50 percent slopes	.15	766.3	6.7%
MmF	McCarthy stony sandy loam, 50 to 65 percent slopes	.10	44.3	0.4%
RtF	Rockland		195.2	1.7%
WgD	Windy gravelly sandy loam, 10 to 30 percent slopes	.05	27.9	0.2%
WgE	Windy gravelly sandy loam, 30 to 50 percent slopes	.05	468.0	4.1%
WnF	Windy rocky sandy loam, 50 to 65 percent slopes	.05	132.8	1.2%
WrE2	Windy rocky sandy loam, moderately deep, 10 to 50 percent slopes, eroded	.05	365.5	3.2%
WsD	Windy stony sandy loam, 10 to 30 percent slopes	.05	1,090.1	9.5%
WsE	Windy stony sandy loam, 30 to 50 percent slopes	.05	4,359.4	38.0%
WsF	Windy stony sandy loam, 50 to 65 percent slopes	.05	213.5	1.9%
Subtotals for Soil Survey Area			**8,848.5**	**77.1%**
Totals for Area of Interest			**11,476.3**	**100.0%**

Description

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity (Ksat). Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

"Erosion factor Kw (whole soil)" indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Factor K does not apply to organic horizons and is not reported for those layers.

Rating Options

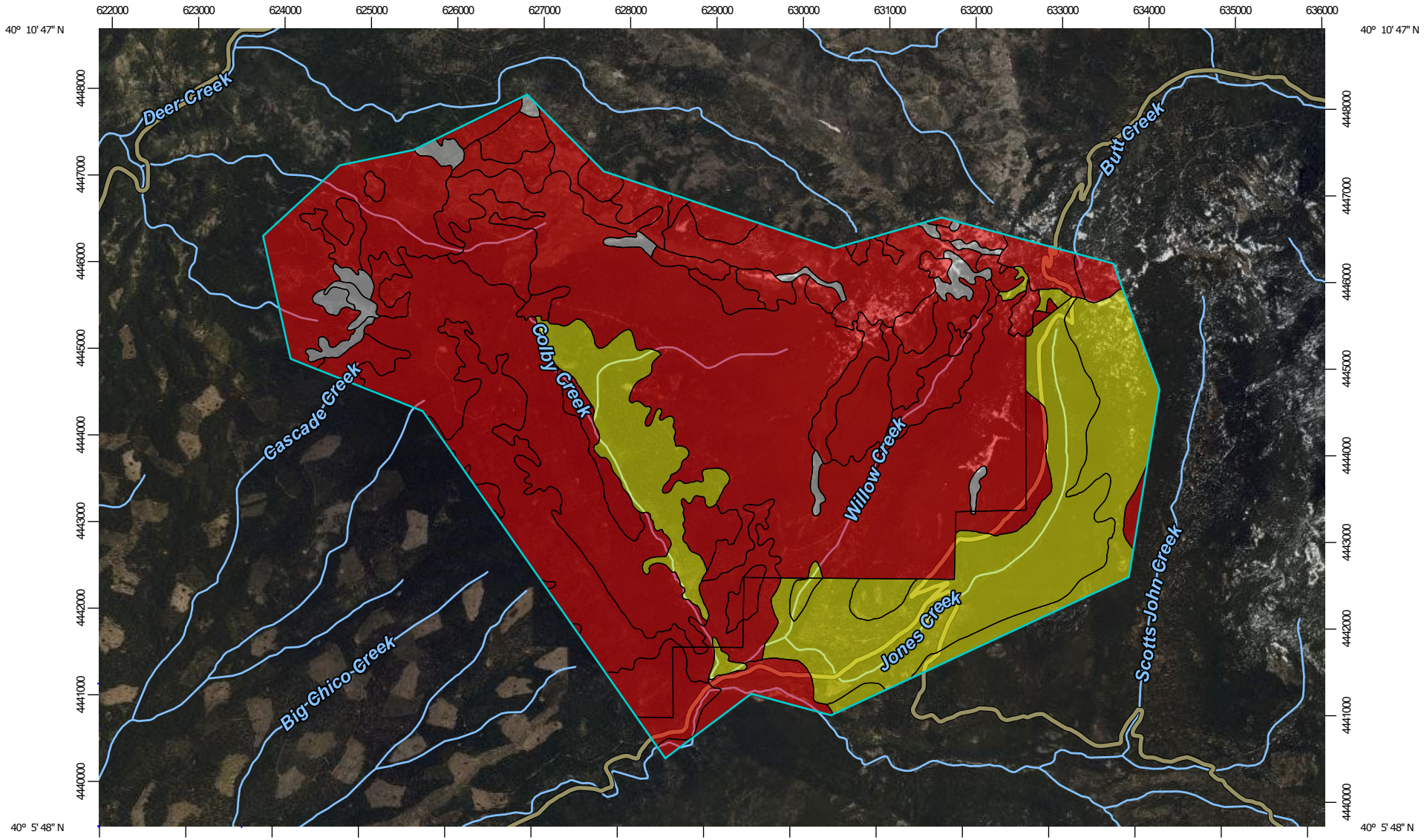
Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Layer Options (Horizon Aggregation Method): Surface Layer (Not applicable)

Paths and Trails—Lassen National Forest, California, Parts of Lassen, Plumas, Butte, Shasta, and Siskiyou Counties; and Tehama County, California
(Colby Meadows Trail Project)



Map Scale: 1:64,900 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 500 1000 2000 3000

Feet
0 3000 6000 12000 18000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- Very limited
- Somewhat limited
- Not limited
- Not rated or not available

Soil Rating Lines
- Very limited
- Somewhat limited
- Not limited
- Not rated or not available

Soil Rating Points
- Very limited
- Somewhat limited
- Not limited
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at scales ranging from 1:20,000 to 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Lassen National Forest, California, Parts of Lassen, Plumas, Butte, Shasta, and Siskiyou Counties
Survey Area Data: Version 14, Sep 8, 2021

Soil Survey Area: Tehama County, California
Survey Area Data: Version 15, Sep 6, 2021

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 8, 2019—Jun 21, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Paths and Trails

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
84	Sheld family, moderately deep-Lithic Xerumbrepts association, 0 to 35 percent slopes.	Somewhat limited	Sheld, moderately deep (60%)	Slope (0.18)	653.6	5.7%
			Lithic Xerumbrepts (20%)	Slope (0.18)		
85	Sheld family, moderately deep-Lithic Xerumbrepts association, 35 to 70 percent slopes.	Very limited	Sheld, moderately deep (55%)	Slope (1.00)	156.1	1.4%
			Lithic Xerumbrepts (25%)	Slope (1.00)		
86	Sheld family-Sheld family, moderately deep complex, 0 to 35 percent slopes.	Somewhat limited	Sheld (60%)	Slope (0.18)	1,253.4	10.9%
				Large stones content (0.03)		
			Sheld, moderately deep (20%)	Slope (0.18)		
92	Sheld family, moderately deep-Sheld family-Rock Outcrop complex, 35 to 70 percent slopes.	Very limited	Sheld, moderately deep, glacial (50%)	Slope (1.00)	97.8	0.9%
			Sheld, glacial (20%)	Slope (1.00)		
119	Washougal-Skalan families association, 15 to 35 percent slopes.	Very limited	Washougal (50%)	Slope (1.00)	98.3	0.9%
				Dusty (0.00)		
			Skalan (35%)	Slope (1.00)		
				Dusty (0.01)		
129	Yallani-Sheld families complex, 35 to 50 percent slopes.	Very limited	Yallani (50%)	Slope (1.00)	25.1	0.2%
				Too sandy (0.01)		
			Sheld (30%)	Slope (1.00)		
				Large stones content (0.03)		
131	Yallani family-Sheld family, moderately deep association, 35 to 70	Very limited	Yallani (45%)	Slope (1.00)	52.2	0.5%
				Too sandy (0.01)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
	percent slopes.		Sheld, moderately deep (35%)	Slope (1.00)		
MkDtc	McCarthy sandy loam, 10 to 30 percent slopes	Somewhat limited	McCarthy (85%)	Slope (0.50)	42.3	0.4%
				Dusty (0.00)		
RtFtc	Rockland	Not rated	Rock land (100%)		0.4	0.0%
WrE2t	Windy rocky sandy loam, moderately deep, 10 to 50 perce nt slopes , eroded	Very limited	Windy (70%)	Large stones content (1.00)	1.0	0.0%
				Slope (1.00)		
WsDtc	Windy stony sandy loam, 10 to 30 percent slopes	Very limited	Windy (85%)	Large stones content (1.00)	95.1	0.8%
				Slope (0.50)		
WsEtc	Windy stony sandy loam, 30 to 50 percent slopes	Very limited	Windy (85%)	Slope (1.00)	152.2	1.3%
				Large stones content (1.00)		
Subtotals for Soil Survey Area					**2,627.7**	**22.9%**
Totals for Area of Interest					**11,476.3**	**100.0%**

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
CgD	Cohasset stony loam, 10 to 30 percent slopes	Very limited	Cohasset (85%)	Large stones content (1.00)	429.0	3.7%
				Slope (0.50)		
				Dusty (0.04)		
CgE	Cohasset stony loam, 10 to 50 percent slopes, MLRA 22B	Very limited	Cohasset (85%)	Large stones content (1.00)	41.6	0.4%
				Slope (1.00)		
				Dusty (0.02)		
CkF	Colluvial land, volcanic rocks	Not rated	Colluvial land (85%)		73.8	0.6%
			Toomes (3%)			
			Iron Mountain (3%)			
			Supan (3%)			
			Windy (3%)			
			McCarthy (3%)			

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
IrE	Iron Mountain rocky sandy loam, 30 to 50 percent slopes	Very limited	Iron Mountain (75%)	Slope (1.00) Dusty (0.00)	62.2	0.5%
IrF	Iron Mountain rocky sandy loam, 50 to 65 percent slopes	Very limited	Iron Mountain (75%)	Slope (1.00) Dusty (0.00)	14.7	0.1%
MkD	McCarthy sandy loam, 10 to 30 percent slopes	Somewhat limited	McCarthy (85%)	Slope (0.50) Dusty (0.00)	564.2	4.9%
MkE	McCarthy sandy loam, 30 to 50 percent slopes	Very limited	McCarthy (85%)	Slope (1.00) Dusty (0.00)	766.3	6.7%
MmF	McCarthy stony sandy loam, 50 to 65 percent slopes	Very limited	McCarthy (85%)	Large stones content (1.00) Slope (1.00) Dusty (0.00)	44.3	0.4%
RtF	Rockland	Not rated	Rock land (100%)		195.2	1.7%
WgD	Windy gravelly sandy loam, 10 to 30 percent slopes	Somewhat limited	Windy (85%)	Slope (0.50)	27.9	0.2%
WgE	Windy gravelly sandy loam, 30 to 50 percent slopes	Very limited	Windy (85%)	Slope (1.00)	468.0	4.1%
WnF	Windy rocky sandy loam, 50 to 65 percent slopes	Very limited	Windy (70%)	Large stones content (1.00) Slope (1.00)	132.8	1.2%
WrE2	Windy rocky sandy loam, moderately deep, 10 to 50 percent slopes, eroded	Very limited	Windy (70%)	Large stones content (1.00) Slope (1.00)	365.5	3.2%
WsD	Windy stony sandy loam, 10 to 30 percent slopes	Very limited	Windy (85%)	Large stones content (1.00) Slope (0.50)	1,090.1	9.5%
WsE	Windy stony sandy loam, 30 to 50 percent slopes	Very limited	Windy (85%)	Slope (1.00) Large stones content (1.00)	4,359.4	38.0%
WsF	Windy stony sandy loam, 50 to 65 percent slopes	Very limited	Windy (85%)	Slope (1.00) Large stones content (1.00)	213.5	1.9%
Subtotals for Soil Survey Area					**8,848.5**	**77.1%**

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
Totals for Area of Interest					**11,476.3**	**100.0%**

Rating	Acres in AOI	Percent of AOI
Very limited	8,665.3	75.5%
Somewhat limited	2,541.4	22.1%
Null or Not Rated	269.5	2.3%
Totals for Area of Interest	**11,476.3**	**100.0%**

Description

Paths and trails for hiking and horseback riding should require little or no slope modification through cutting and filling.

The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, depth to a water table, ponding, flooding, slope, and texture of the surface layer.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Somewhat limited" indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

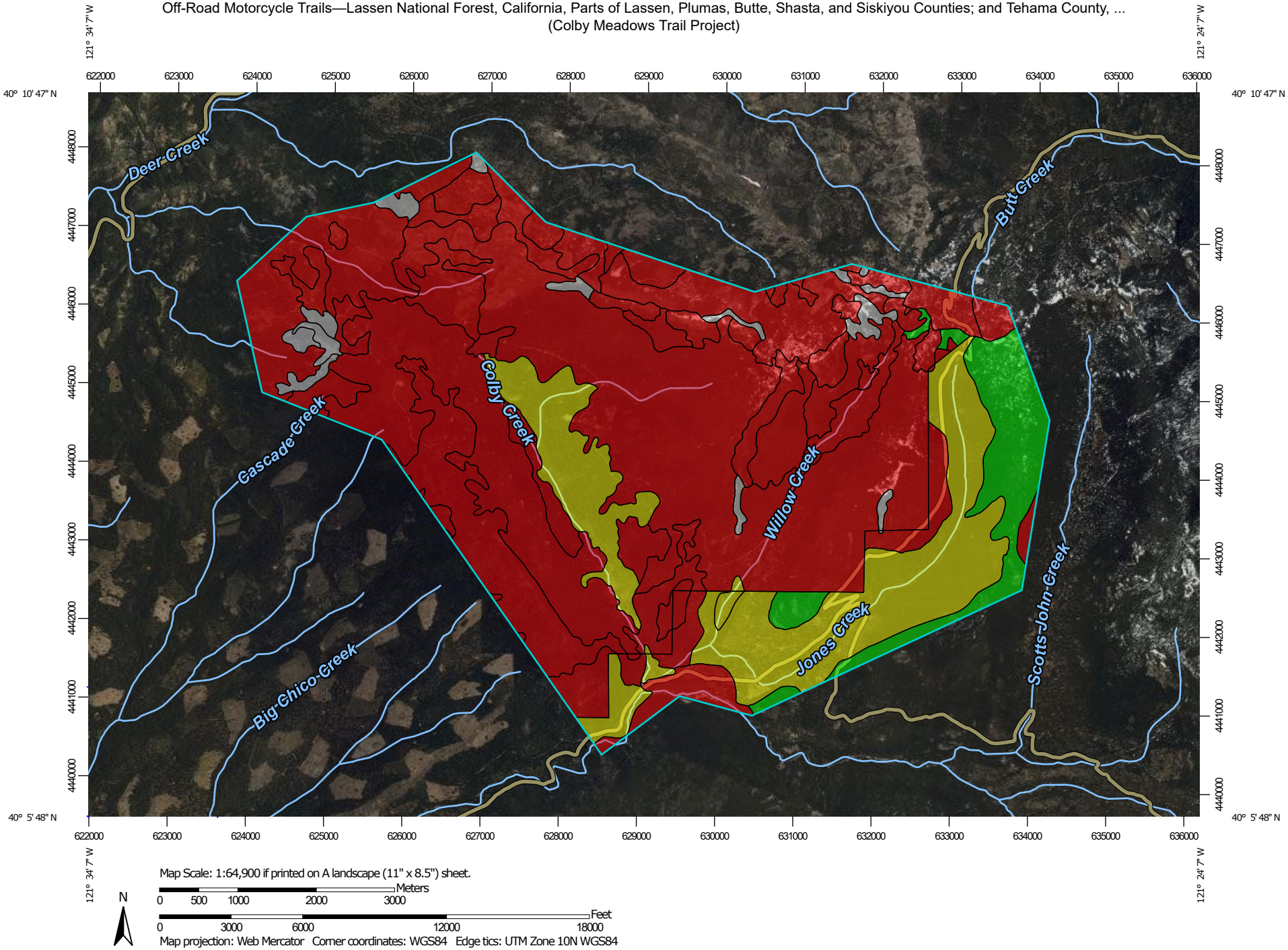
Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the equivalent report from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher


121° 34' 7" W
121° 24' 7" W
40° 10' 47" N
40° 5' 48" N
622000
623000
624000
625000
626000
627000
628000
629000
630000
631000
632000
633000
634000
635000
636000
4448000
4447000
4446000
4445000
4444000
4443000
4442000
4441000
4440000
Deer Creek
Butt Creek
Colby Creek
Cascade Creek
Willow Creek
Jones Creek
Scotts John Creek
Big Chico Creek
Map Scale: 1:64,900 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0 500 1000 2000 3000
Feet
0 3000 6000 12000 18000
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- Very limited
- Somewhat limited
- Not limited
- Not rated or not available

Soil Rating Lines
- Very limited
- Somewhat limited
- Not limited
- Not rated or not available

Soil Rating Points
- Very limited
- Somewhat limited
- Not limited
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at scales ranging from 1:20,000 to 1:24,000.

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Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

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Survey Area Data: Version 14, Sep 8, 2021

Soil Survey Area: Tehama County, California
Survey Area Data: Version 15, Sep 6, 2021

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Date(s) aerial images were photographed: Jun 8, 2019—Jun 21, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Off-Road Motorcycle Trails

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
84	Sheld family, moderately deep-Lithic Xerumbrepts association, 0 to 35 percent slopes.	Not limited	Sheld, moderately deep (60%)		653.6	5.7%
			Lithic Xerumbrepts (20%)			
85	Sheld family, moderately deep-Lithic Xerumbrepts association, 35 to 70 percent slopes.	Very limited	Sheld, moderately deep (55%)	Slope (1.00)	156.1	1.4%
			Lithic Xerumbrepts (25%)	Slope (1.00)		
86	Sheld family-Sheld family, moderately deep complex, 0 to 35 percent slopes.	Somewhat limited	Sheld (60%)	Large stones content (0.03)	1,253.4	10.9%
92	Sheld family, moderately deep-Sheld family-Rock Outcrop complex, 35 to 70 percent slopes.	Very limited	Sheld, moderately deep, glacial (50%)	Slope (1.00)	97.8	0.9%
			Sheld, glacial (20%)	Slope (1.00)		
119	Washougal-Skalan families association, 15 to 35 percent slopes.	Somewhat limited	Washougal (50%)	Dusty (0.00)	98.3	0.9%
			Skalan (35%)	Dusty (0.01)		
129	Yallani-Sheld families complex, 35 to 50 percent slopes.	Very limited	Yallani (50%)	Slope (1.00)	25.1	0.2%
				Too sandy (0.01)		
			Sheld (30%)	Slope (1.00)		
				Large stones content (0.03)		
131	Yallani family-Sheld family, moderately deep association, 35 to 70	Very limited	Yallani (45%)	Slope (1.00)	52.2	0.5%
				Too sandy (0.01)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
	percent slopes.		Sheld, moderately deep (35%)	Slope (1.00)		
MkDtc	McCarthy sandy loam, 10 to 30 percent slopes	Somewhat limited	McCarthy (85%)	Dusty (0.00)	42.3	0.4%
RtFtc	Rockland	Not rated	Rock land (100%)		0.4	0.0%
WrE2t	Windy rocky sandy loam, moderately deep, 10 to 50 perce nt slopes , eroded	Very limited	Windy (70%)	Large stones content (1.00) Slope (0.22)	1.0	0.0%
WsDtc	Windy stony sandy loam, 10 to 30 percent slopes	Very limited	Windy (85%)	Large stones content (1.00)	95.1	0.8%
WsEtc	Windy stony sandy loam, 30 to 50 percent slopes	Very limited	Windy (85%)	Slope (1.00) Large stones content (1.00)	152.2	1.3%
Subtotals for Soil Survey Area					**2,627.7**	**22.9%**
Totals for Area of Interest					**11,476.3**	**100.0%**

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
CgD	Cohasset stony loam, 10 to 30 percent slopes	Very limited	Cohasset (85%)	Large stones content (1.00) Dusty (0.04)	429.0	3.7%
CgE	Cohasset stony loam, 10 to 50 percent slopes, MLRA 22B	Very limited	Cohasset (85%)	Large stones content (1.00) Slope (0.04) Dusty (0.02)	41.6	0.4%
CkF	Colluvial land, volcanic rocks	Not rated	Colluvial land (85%)		73.8	0.6%
			Toomes (3%)			
			Iron Mountain (3%)			
			Supan (3%)			
			Windy (3%)			
			McCarthy (3%)			
IrE	Iron Mountain rocky sandy	Very limited	Iron Mountain (75%)	Slope (1.00)	62.2	0.5%

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
	loam, 30 to 50 percent slopes			Dusty (0.00)		
IrF	Iron Mountain rocky sandy loam, 50 to 65 percent slopes	Very limited	Iron Mountain (75%)	Slope (1.00) Dusty (0.00)	14.7	0.1%
MkD	McCarthy sandy loam, 10 to 30 percent slopes	Somewhat limited	McCarthy (85%)	Dusty (0.00)	564.2	4.9%
MkE	McCarthy sandy loam, 30 to 50 percent slopes	Very limited	McCarthy (85%)	Slope (1.00) Dusty (0.00)	766.3	6.7%
MmF	McCarthy stony sandy loam, 50 to 65 percent slopes	Very limited	McCarthy (85%)	Large stones content (1.00) Slope (1.00) Dusty (0.00)	44.3	0.4%
RtF	Rockland	Not rated	Rock land (100%)		195.2	1.7%
WgD	Windy gravelly sandy loam, 10 to 30 percent slopes	Not limited	Windy (85%)		27.9	0.2%
WgE	Windy gravelly sandy loam, 30 to 50 percent slopes	Very limited	Windy (85%)	Slope (1.00)	468.0	4.1%
WnF	Windy rocky sandy loam, 50 to 65 percent slopes	Very limited	Windy (70%)	Large stones content (1.00) Slope (1.00)	132.8	1.2%
WrE2	Windy rocky sandy loam, moderately deep, 10 to 50 percent slopes, eroded	Very limited	Windy (70%)	Large stones content (1.00) Slope (0.22)	365.5	3.2%
WsD	Windy stony sandy loam, 10 to 30 percent slopes	Very limited	Windy (85%)	Large stones content (1.00)	1,090.1	9.5%
WsE	Windy stony sandy loam, 30 to 50 percent slopes	Very limited	Windy (85%)	Slope (1.00) Large stones content (1.00)	4,359.4	38.0%
WsF	Windy stony sandy loam, 50 to 65 percent slopes	Very limited	Windy (85%)	Slope (1.00) Large stones content (1.00)	213.5	1.9%
Subtotals for Soil Survey Area					**8,848.5**	**77.1%**
Totals for Area of Interest					**11,476.3**	**100.0%**

Rating	Acres in AOI	Percent of AOI
Very limited	8,567.0	74.6%
Somewhat limited	1,958.2	17.1%
Not limited	681.5	5.9%
Null or Not Rated	269.5	2.3%
Totals for Area of Interest	**11,476.3**	**100.0%**

Description

Off-road motorcycle trails are intended primarily for recreational use. They require little or no site preparation. They are not covered with surfacing material or vegetation. Considerable compaction of the soil material is likely.

The ratings are based on the soil properties that influence erodibility, trafficability, dustiness, and the ease of revegetation. These properties are stoniness, slope, depth to a water table, ponding, flooding, and texture of the surface layer.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Somewhat limited" indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the equivalent report from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Rating Options

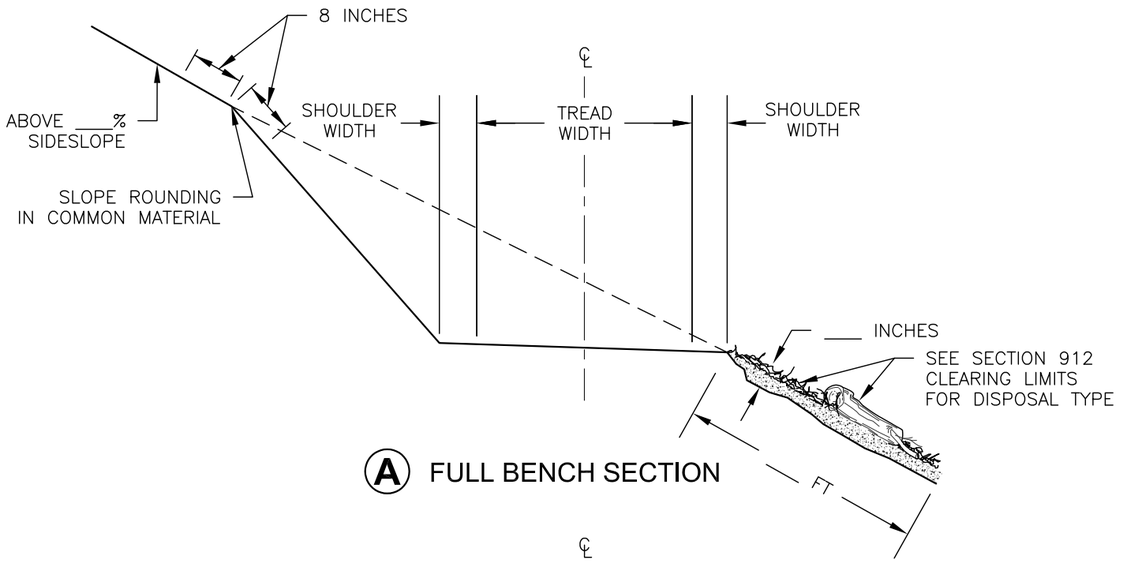
Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

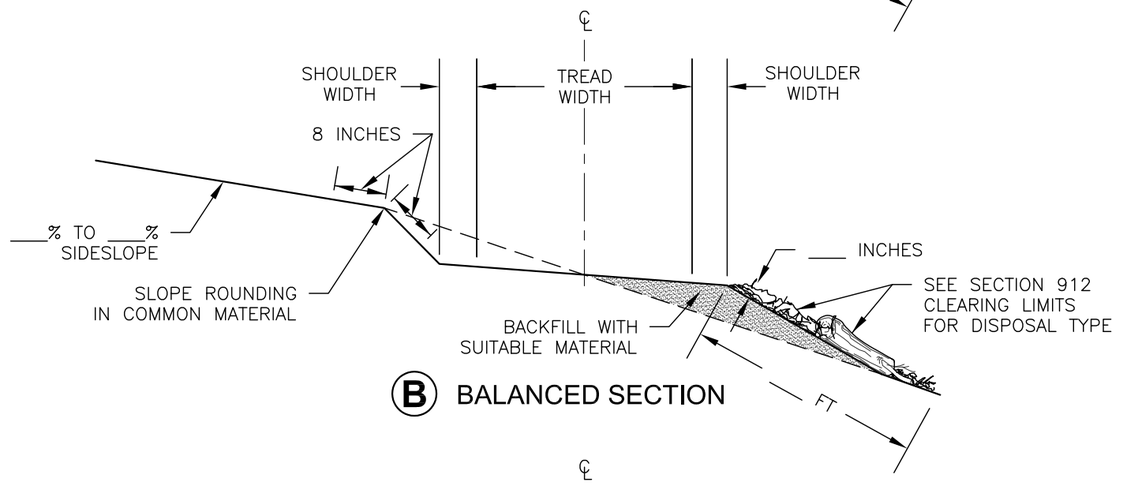
Tie-break Rule: Higher

Trail Construction Typicals

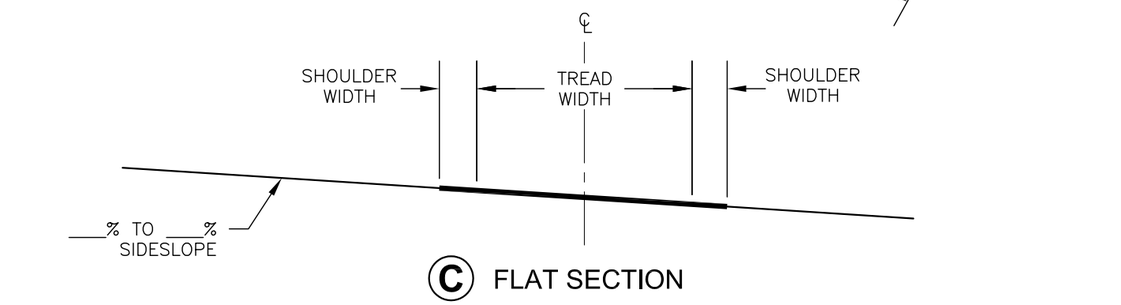
TYPICAL TRAIL CROSS SECTIONS



A FULL BENCH SECTION



B BALANCED SECTION



C FLAT SECTION

TYPICAL TRAIL TREAD AND SHOULDER WIDTH

TYPICAL ID	SECTION TYPE	TREAD FINISH	TREAD WIDTH	SHOULDER WIDTH		COMMENTS
				UPHILL	DOWNHILL	
TSF–1		T				

TREAD CROSS SLOPE

TYPICAL ID	OUTSLOPE	INSLOPE	CROWNED SECTION	COMMENTS
	%	%	%	

SLOPE AND TRAILBED FINISH

TREAD FINISH	ROOTS	LOOSE ROCK	EMBEDDED ROCK	COMMENTS
T1				
T2				
T3				
T4				
T5				
T6				

TRAILBED AND SLOPE FINISH

SLOPE FINISH

REMOVE ROOTS THAT PROTRUDE FROM THE BACKSLOPE WITH DIAMETERS GREATER THAN SHOWN IN THE SLOPE AND TRAILBED FINISH TABLE.

TRAILBED FINISH

REMOVE LOOSE ROCK ON THE TRAILBED WITH A DIMENSION GREATER THAN SHOWN IN THE SLOPE AND TRAILBED FINISH TABLE.

REMOVE OR REDUCE EMBEDDED ROCK THAT PROTRUDES MORE THAN THE DIMENSIONS SHOWN IN THE SLOPE AND TRAILBED FINISH TABLE.

NOTES:

1. SLASH CONSISTS OF LOGS, LIMBS, BRUSH, AND ROCKS PLACED RANDOMLY IN A WAY TO CATCH SEDIMENT MOVEMENT.
2. LIMB ALL TREES AND SHRUBS AND TAMP SLASH INTO GROUND SO THAT 80% OF SLASH IS IN CONTACT WITH THE GROUND.

U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE

STANDARD TRAIL PLAN

PROJECT NAME & LOCATION

DRAWING NAME
TYPICAL CROSS SECTION & SLOPE FINISH

SECTION
911 - TREAD AND PRISM

TYPICAL ID
TSF/TCS

REVISION DATE
XX/XX/XX

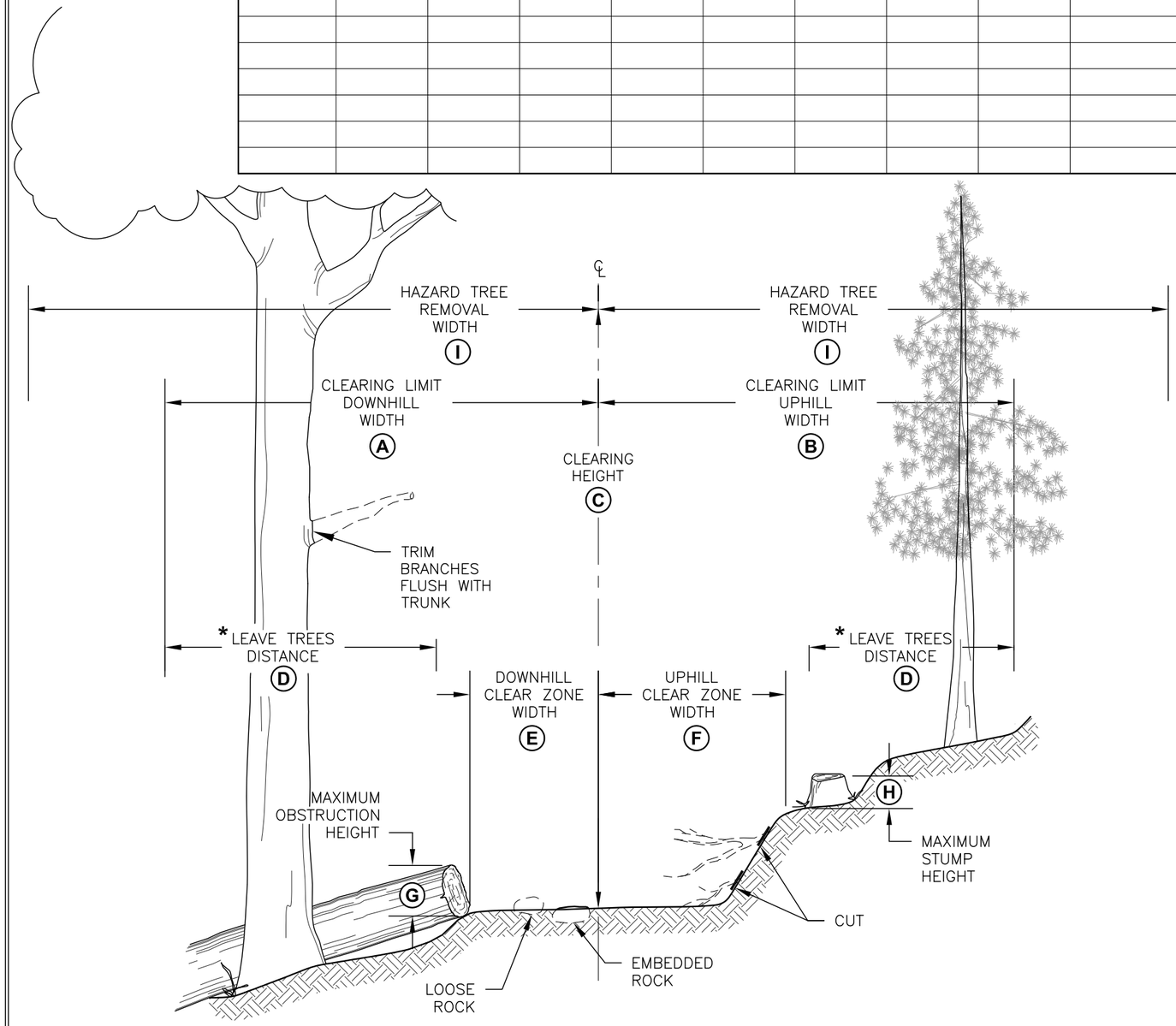
NO SCALE

DRAWING NO.
STD_911-01

SHEET
OF

CLEARING LIMITS - TREES AND LOGS

		CLEARING LIMITS			* LEAVE TREES		CLEAR ZONE			STUMPS	HAZARD TREE		
TYPICAL ID	CLEARING METHOD	DOWNHILL WIDTH (A)	UPHILL WIDTH (B)	CLEARING HEIGHT (C)	DISTANCE (FEET) (D)	DIAMETER (INCHES)	DOWNHILL WIDTH (E)	UPHILL WIDTH (F)	MAXIMUM OBSTRUCTION HEIGHT (G)	MAXIMUM HEIGHT (H)	REMOVAL WIDTH (I)	DISPOSAL METHOD	COMMENTS
CLT–1	C											D	



CLEARING METHOD

CLEARING TYPE	CLEARING METHOD	COMMENTS
C1	NEW CONSTRUCTION	TREES, PRUNING, & BRUSH
C2	CLEARING LIMIT RESTORATION	TREES, PRUNING, LOGS, BRUSH & MAINTENANCE
C3	TRAIL OPENING	LOGGING OUT, LOOSE ROCK & DRAINAGE CLEARING
C4	HAZARD TREE REMOVAL	ALONG TRAIL CORRIDOR
C5	HAZARD TREE REMOVAL	INDIVIDUAL (AS MARKED)
C6	LOOSE ROCK & ROOT REMOVAL	
C7		

LEAVE TREES: LEAVE TREES SHOULD BE LIVE, SOUND & UNDAMAGED WITH UNCOMPROMISED ROOT SYSTEMS.

HAZARD TREES: HAZARD TREES ARE TREES THAT ARE STANDING OR LEANING DEAD TREES LARGER THAN 8 INCHES IN DIAMETER AND GREATER THAN 90 FEET IN HEIGHT.

DISPOSAL METHOD

DISPOSAL TYPE	DISPOSAL METHOD	COMMENTS
D1	LOP AND SCATTER OUTSIDE TRAILWAY	
D2	LOP AND SCATTER ON FILL SLOPE	
D3	PILE AND BURN	
D4	CHIP	
D5	HAUL TO DISPOSAL SITE	
D6		

U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
STANDARD TRAIL PLAN

PROJECT NAME & LOCATION

DRAWING NAME
CLEARING LIMITS-TREES AND LOGS

SECTION
912 - CLEARING LIMITS

TYPICAL ID
CLT

REVISION DATE
XX/XX/XX

NO SCALE

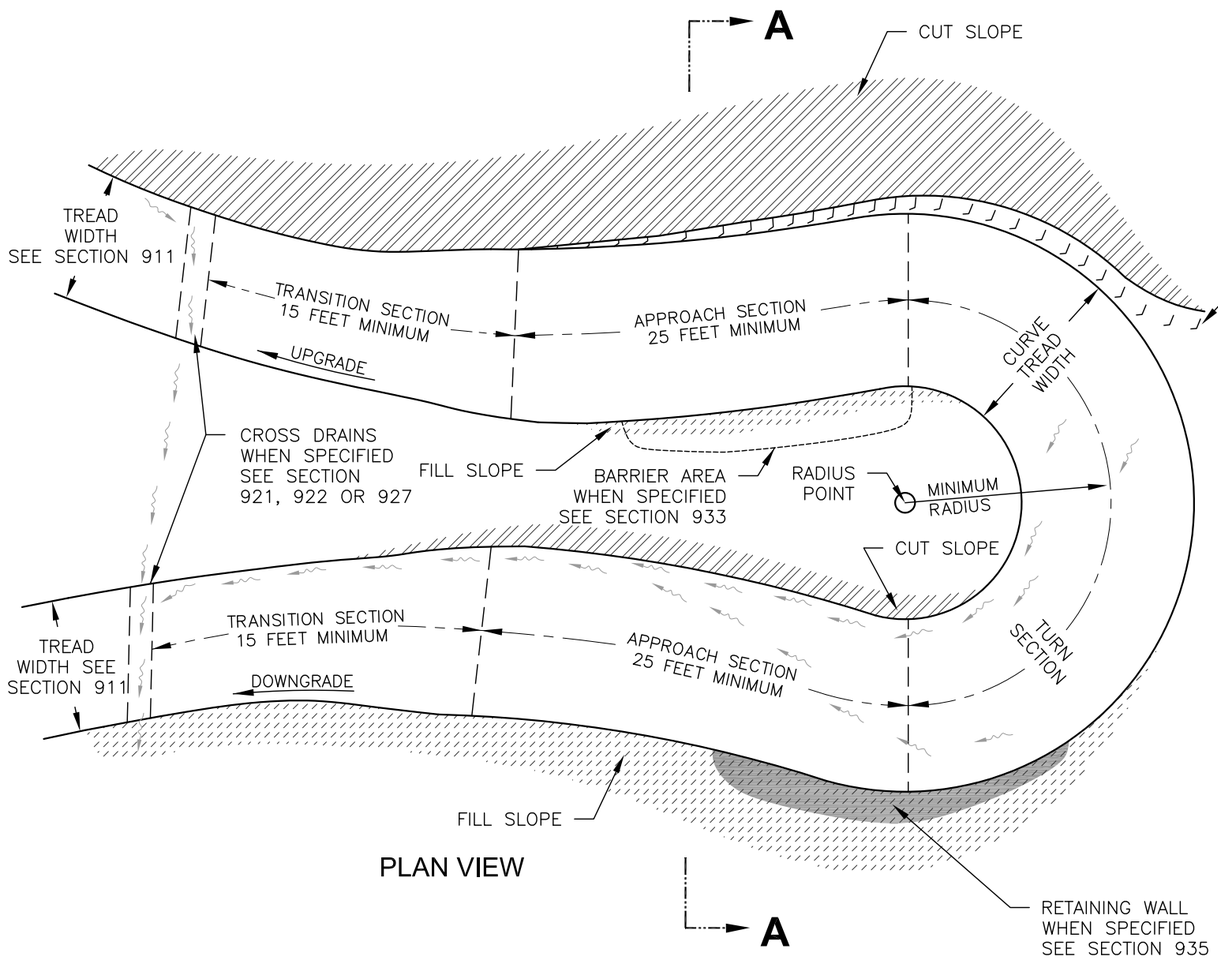
DRAWING NO.
STD_912-01

SHEET
OF

TYPE 1 RADIUS SWITCHBACK SECTIONS

TYPICAL ID	MINIMUM RADIUS	CURVE TREAD WIDTH	BARRIER TYPE	RETAININ WALL TYPE	CROSS DRAINS	COMMENTS
SW1–1						

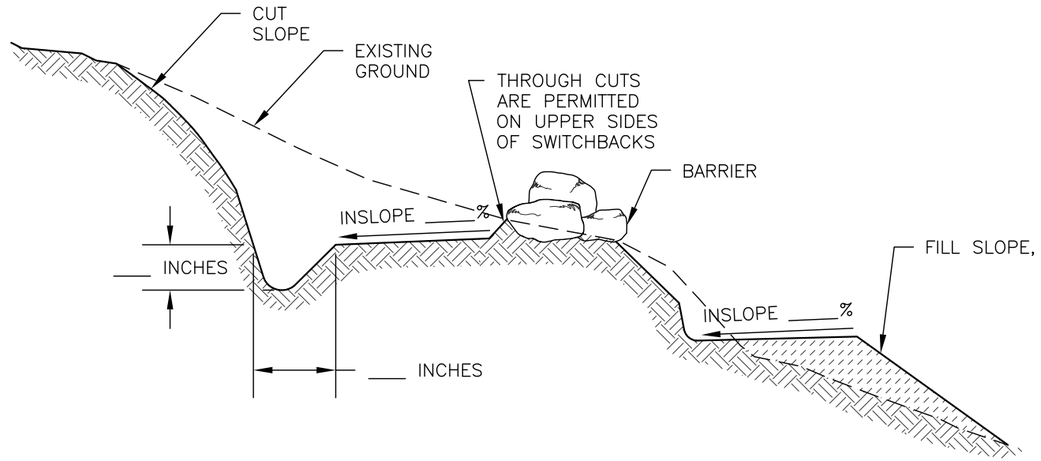
N/A WHEN NOT APPLICABLE



PLAN VIEW

NOTES:

1. CONSTRUCT CONSTANT GRADE THROUGH BOTH APPROACH SECTIONS AND TURN SECTION.
2. RADIUS POINT AND CENTERLINE OF SWITCHBACK AS STAKED ON THE GROUND.



SECTION **A-A**

U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE

STANDARD TRAIL PLAN

PROJECT NAME & LOCATION

DRAWING NAME **TYPE 1 RADIUS SWITCHBACK**

SECTION **931 - SWITCHBACKS**

TYPICAL ID **SW1**

REVISION DATE **XX/XX/XX**

NO SCALE

DRAWING NO. **STD_931-10-01**

SHEET ___ OF ___



KOOTENAY ADAPTIVE SPORT ASSOCIATION

ADAPTIVE TRAIL STANDARDS - 2020

ATTACHMENT K

KOOTENAY ADAPTIVE SPORT ASSOCIATION

409 Broadway St W
Nakusp, BC
V0G 1R0

☎ 250-265-3868
info@kootenayadaptive.com

ACKNOWLEDGMENTS

KASA MANDATE: To promote physical literacy and elevate the human spirit through facilitated learning experiences in a barrier free environment. To advocate and educate in support of adaptive sport and recreation by providing resources, organizing events and programs, and building a safe and inclusive community.

The Kootenay Adaptive Sport Association would like to thank the following organizations and individuals for their contributions to the assembly of these Adaptive Trail Standards:

KOOTENAY ADAPTIVE SPORT ASSOCIATION

Janis Neufeld - Senior Project Manager
Mike Riediger - Executive Director
Kimberly Joines - 2020 Accessibility Supervisor
Wynn Holmberg - 2020 Accessibility Coordinator

ADAPTIVE RIDERS

Kimberly Joines - Athlete
Tara Llanes - Tara Llanes Industries , Athlete
Ethan Krueger - Athlete

LARCH LANDSCAPE ARCHITECTURE

Jason Jones - Landscape Architect, Trail Designer

STARR TRAIL SOLUTIONS

Brady Starr - Trail Designer, Trail Builder

TRAIL HOLISTICS

Mark Wood - Trail Designer

LIFETIME OUTDOORS

Jeff Cook - Trail Designer, Trail Builder

Tara Llanes - Tara Llanes Industries - Athlete
Kimberly Joines - Athlete
Ethan Krueger - Athlete

LARCH LA DSCA E ARCHITECT RE

Jason Jones - La il Designer

TARR TRAIL S L TI S

Brady Starr - Trail

TRAIL H LISTICS

Mark Wood - Trail Designer

LI FTIME TDI RS

Jeff Cook - Trail Designer, Trail Builder

This program is funded by the Government of Canada and the Province of British Columbia.

ADAPTIVE MOUNTAIN BIKES AND DIFFERENTIATING FACTORS

Adaptive Mountain Bikes (aMTB): Adaptive Mountain bikes are three and four wheeled cycles that provide a broad range of riders who may not otherwise ride a standard mountain bike due to physical, intellectual, neurological and sensory abilities. The Kootenay Adaptive Sport Association (KASA) has developed a comprehensive set of trail standards to assist in the planning, design, and construction of safe and fun adaptive mountain bike trails based on the following:

- *Adaptive mountain bikes accelerate slower, decelerate faster, are wider, longer and heavier than two wheeled bikes;*
- *Some models require the rider to take their hand(s) off the handlebars in order to pedal with the hand cranks. As such, a aMTB rider cannot easily pedal while navigating a turn, and requires appropriate (trail specific) entry speed to corners, berms and features to allow enough momentum to carry the bike through;*
- *Sight lines for adaptive riders are approximately 1.0m (3 ft) above the tread surface. This requires consideration in trail sections of significant undulation, high vegetation, intersections, etc..; and*
- *Adaptive mountain bikes are primarily 3-wheeled in nature, and prone to tipping when off-camber at low speeds. aMTB riders will be strapped into their equipment, so any tipping of the bike will also tip the rider, which can be dangerous.*

Hazards + Ride Arounds: The most pressing consequence for aMTB is tipping over in areas of exposure, which could result in aMTB (and rider) rolling down an embankment. This also is applicable to raised, off-camber features. It is recommended to provide a less consequential fall zone below any such feature and aMTB tread width ride arounds for any feature requiring a specific skill set or momentum to clear (i.e. gap jumps, non-rollable jumps with large lips), narrow wooden stunts, or off-camber raised features.

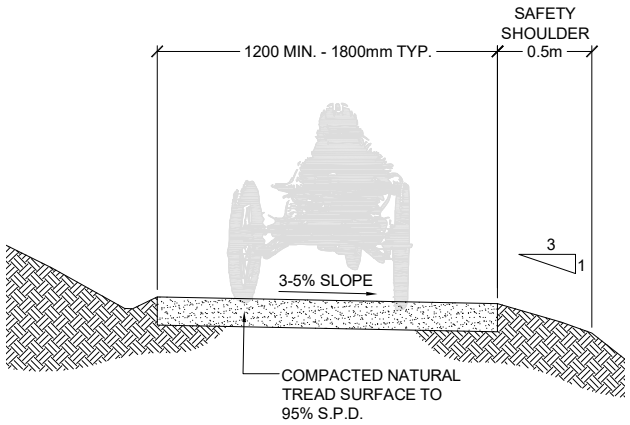


Figure 1 – Typical aMTB Trail Section

RECOMMENDED TRAIL WIDTH

The majority of aMTB equipment require a minimum 1.0m (40") width for chokes, pinches and a minimum 1.2m (48") tread width required for general riding performance. **Figure 1** and **Figure 2** indicate general aMTB trail width recommendations based on difficulty rating. Refer to **Appendix A**: Trail Difficulty Rating System.

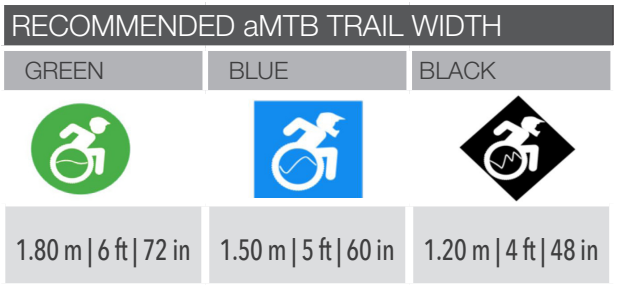


Figure 2 – Recommended aMTB Trail Width

CAMBER

Traversing off-camber terrain can be difficult on aMTB. The following guidelines pertain to off-camber trail construction:

- *Bench cut trail should be firm and compacted to full trail tread width with out-sloping at minimal angle as required for drainage (3-5% slope, 1.25-2.85 degrees). Less out-sloping is preferred;*
- *Confirm there will be adequate speed to carry aMTB through off-camber trail section exceeding 8% slope (5 degrees) *Momentum reduces tipping hazard;*
- *Eliminate off-camber or one-sided TTF/obstacles exceeding 12% Slope (8 degree camber angle), or provide full aMTB tread width ride-around*
  (Refer to **Figure 3** *and* **Appendix A: aMTB Trail Difficulty Rating System** *- Obstacles to match spec to trail difficulty); and*
- *Gradually transition off-camber trail features (returning to minimum cross slope), to allow pedal stroke before onset of next feature or trail section.*

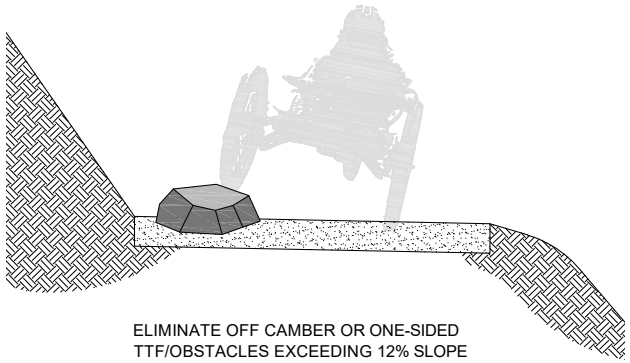


Figure 3 – Off-Camber Hazard

CORNERS | BANKS | BERMS

Speed:

- *If entry speed is too slow in relation to the bank gradient, the rider will be drawn into the drainage/low point of berm, and risk tipping inward;*
- *Corners need to accommodate the physical aspects of the aMTB bike (rolling resistance, weight) throughout the radius to ensure acceleration through the corner; centrifugal force maintains the aMTB's position on the bank; and*
- *aMTB cannot easily be pedaled mid turn; berm exit needs to be lower than the entry (Refer to* **Figure 4***).*

Radius:

- *The ideal radius range for aMTB corners is 6-7.5m (20-25 ft) as berm size and trail speed increases, tighter radii can be achieved; and*
- *Any radius less than 4.6m (15ft) will require higher level of rider ability, and/or result in 2-point turns (Refer to* **Figure 4***).*

Shape:

- *A linear banked berm shape is preferred over "Concave" or "Scooped" berm design. Linear berms present less risk of tipping. Applicable to full width/large berms. Ensure that aMTB is able to achieve support on all wheels throughout the banked turn;*
- *The bank height and angle need to accommodate the ride speed, increasing with the rider's momentum throughout the radius of the corner, to a maximum slope of 60% slope (30 degree slope angle); and*
- *Due to the limited riding dynamics and turn radius of aMTB equipment, flat and outsloping corners should be avoided when possible during ascending and descending. Banked corners allow physics to help the aMTB complete the turn faster when descending. Small berms and extra material on the outside of climbing turns (even to partial thread width) can help aMTB achieve tighter turning radius, reducing the need for 2-point turns on switchbacks (Refer to* **Figure 5***).*

Grade Reversals:

- *Drainage Deflection - Any grade reversal at the entry/exit points of a berm must be symmetrical within the trail tread (uniformly span the entire trail width at the same height) and set back far enough that the rider has adequate time to "set up" when entering/exiting the berm; and*
- *Grade reversals should not slow the aMTB rider enough to necessitate additional pedaling before exiting the corner.*

Rollers:

- *Roller spacing and height to be determined onsite based on anticipated rider speed. aMTB are longer than standard bikes, requiring longer spacing of rollers to ensure rear wheel and front wheels of the bike are not being forced in opposing directions simultaneously;*
- *Ensure rollers are gradual rather than abrupt, in profile;and*
- *Use cascading rollers to ensure rider can obtain momentum to carry over the flat and uphill portion of roller without pedaling (Refer to* **Figure 6***).*

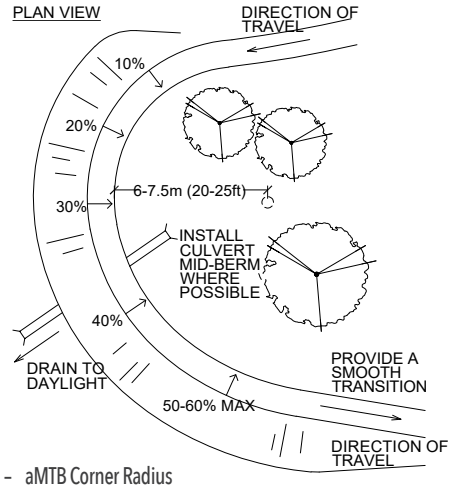


Figure 4 – aMTB Corner Radius

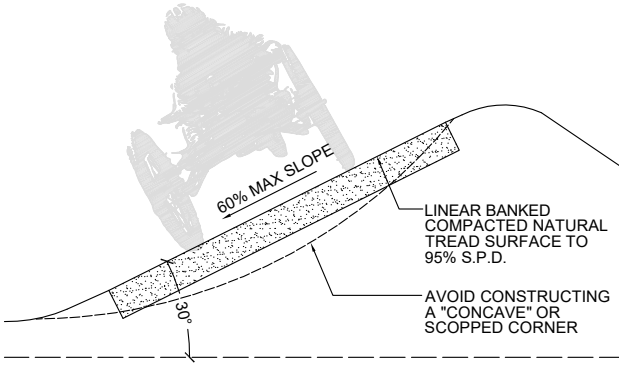


Figure 5 – aMTB Berm

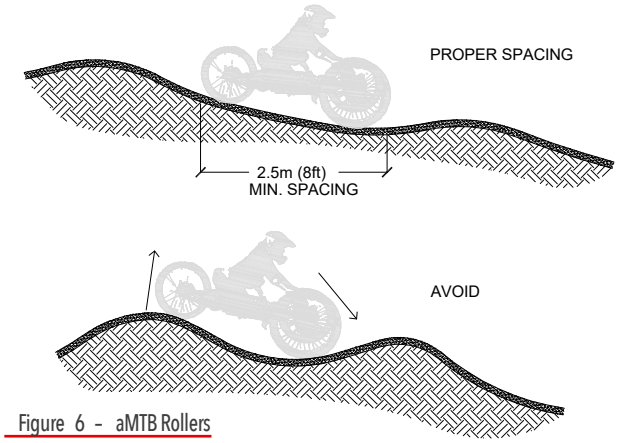


Figure 6 – aMTB Rollers

APPENDIX A - ADAPTIVE MOUNTAIN BIKING (AMTB) TRAIL DIFFICULTY RATING SYSTEM

	aMTB WHITE	aMTB GREEN	aMTB GREEN SQUARE	aMTB BLUE	aMTB BLACK	aMTB DBL BLK	aMTB DBL. BLK
							
TRAIL WIDTH: (ave/min)	1.8m+ (72"+)	1.8m/1.5m (72"/60")	1.7m/1.4m (66"/54")	1.5m/1.2/ (60"/48"+)	1.2m/1m (48"/40")	1.1m/0.98 m (44"/38.5")	<0.98m (<38.5")
TREAD SURFACE:	hardened or surfaced	firm and stable	mostly stable some variability	mostly stable some variability	widely variable	widely variable and unpredictable	widely variable and unpredictable
OBSTACLES (TTF):	no obstacles	obstacles full width 2" or less / no asymmetrical tread areas	obstacles full width 5" or less / partial width 2" or less	obstacles full width 8" or less / partial width 3" or less	obstacles full width 12" or less / partial width 6" or less	obstacles full width 12" or less / partial width 10" or less / assistance recommended	impassable obstacles / assistance required
UNAVOIDABLE BRIDGES: (wider if not straight)	1.8m+ (72"+)	1.5m+ (60"+)	1.5m+ (60"+)	1.4m+ (54"+)	1.2m+ (48"+)	1m+ (40"+)	<0.98m (<38.5") possible
MAX TRAIL GRADE:	10% (6 deg)	15% (8.5 deg)	20%+ (11 deg)	20%+ (11 deg)	20%+ (11 deg)	25%+ (14 deg)	25%+ (14 deg)
CAMBER: TURNS, BERM & TTF	level	only enough to drain	Some off camber possible: max 36.5% (20 deg)	Some off camber possible: max 36.5% (20 deg)	Some off camber likley: max 58% (30 deg)	Off camber certain: 58%+ possible (>30 deg)	Off camber certain: 58%+ possible (>30 deg)
CAMBER: TRAIL STRAIGHTAWAYS	level	only enough to drain	max outslope 5-8% (3-5 deg)	max outslope 5-8% (3-5 deg)	max outslope 8-14% (5-8 deg)	max outslope 8-14 % (5-8 deg)	14%+ (> 8 deg) outsloping possible
MIN FLAT CORNER RADIUS:	7.5m (24.5 ft)	6m (20 ft)	6m (20 ft)	6m (20 ft)	6m (20 ft)	4.5m (15 ft)	4m (13 ft)
MIN BERM CORNER RADUS:	n/a	n/a	6m (20 ft)	4.5m (15 ft)	4.5m (15 ft)	<4m (13 ft)	< 3m (10 ft)
EXPOSURE:	no exposure	no exposure	no exposure	minimal exposure	exposure likely	exposure likely	exposure likely
RECOMMENDED EQUIPMENT: *Riders may choose to take equiment on trails falling outside of recommended trail difficulty at their own risk, but in this case support rider always recommended. !							

RECOMMENDED EQUIPMENT / CATEGORY DESCRIPTIONS (LEGEND)

WHEELCHAIR:
- Manual wheelchair (with or without front wheel attachment)
- Powerchair
- Scooter
- Any other mobility related device



CROSS-COUNTRY (RECUMBENT / COMBINED CRANK & STEERING):
- **One wheel in the front** and two in the back
- Front wheel drive
- Seating – recumbent type seating with legs straight ahead
- Full or no suspension depending on brand



ALL-MOUNTAIN (RECUMBENT / COMBINED CRANK & STEERING):
- **Two wheels in the front** and one wheel in the back
- Rear wheel drive
- Seating – recumbent type seating with legs straight ahead
- Full suspension or rear suspension only depending on brand



ALL-MOUNTAIN (KNEELING / HANDLEBARS W/ SEPARATE CRANK):
- Two wheels in the front and one wheel in the back
- Rear wheel drive
- Seating – kneeling with cranks below you and handlebar above
- Full suspension or rear suspension only depending on brand



BOWHEAD ALL ELECTRIC
- Two wheels in the front and one wheel in the back
- Articulating front end
- Full electric with hand twist throttle; no crank; Rear wheel drive
- Seating – recumbent type seating with legs straight ahead
- Full Suspension



Trail Class Matrix (FSH 2353, Section 14.2, Exhibit 01)

Trail Classes are general categories reflecting trail development scale, arranged along a continuum. The Trail Class identified for a National Forest System (NFS) trail prescribes its development scale, representing its intended design and management standards.[1] Local deviations from any Trail Class descriptor may be established based on trail-specific conditions, topography, or other factors, provided that the deviations do not undermine the general intent of the applicable Trail Class.

Identify the appropriate Trail Class for each National Forest System trail or trail segment based on the management intent in the applicable land management plan, travel management direction, trail-specific decisions, and other related direction. Apply the Trail Class that most closely matches the management intent for the trail or trail segment, which may or may not reflect the current condition of the trail.

Trail Attributes	Trail Class 1 Minimally Developed	Trail Class 2 Moderately Developed	Trail Class 3 Developed	Trail Class 4 Highly Developed	Trail Class 5 Fully Developed
Tread & Traffic Flow	• Tread intermittent and often indistinct • May require route finding • Single lane with no allowances constructed for passing • Predominantly native materials	• Tread continuous and discernible, but narrow and rough • Single lane with minor allowances constructed for passing • Typically native materials	• Tread continuous and obvious • Single lane, with allowances constructed for passing where required by traffic volumes in areas with no reasonable passing opportunities available • Native or imported materials	• Tread wide and relatively smooth with few irregularities • Single lane, with allowances constructed for passing where required by traffic volumes in areas with no reasonable passing opportunities available • Double lane where traffic volumes are high and passing is frequent • Native or imported materials • May be hardened	• Tread wide, firm, stable, and generally uniform • Single lane, with frequent turnouts where traffic volumes are low to moderate • Double lane where traffic volumes are moderate to high • Commonly hardened with asphalt or other imported material
Obstacles	• Obstacles common, naturally occurring, often substantial and intended to provide increased challenge • Narrow passages; brush, steep grades, rocks and logs present	• Obstacles may be common, substantial, and intended to provide increased challenge • Blockages cleared to define route and protect resources • Vegetation may encroach into trailway	• Obstacles may be common, but not substantial or intended to provide challenge • Vegetation cleared outside of trailway	• Obstacles infrequent and insubstantial • Vegetation cleared outside of trailway	• Obstacles not present • Grades typically < 8%

Trail Attributes	Trail Class 1 Minimally Developed	Trail Class 2 Moderately Developed	Trail Class 3 Developed	Trail Class 4 Highly Developed	Trail Class 5 Fully Developed
Constructed Features & Trail Elements	• Structures minimal to non-existent • Drainage typically accomplished without structures • Natural fords • Typically no bridges	• Structures of limited size, scale, and quantity; typically constructed of native materials • Structures adequate to protect trail infrastructure and resources • Natural fords • Bridges as needed for resource protection and appropriate access	• Structures may be common and substantial; constructed of imported or native materials • Natural or constructed fords • Bridges as needed for resource protection and appropriate access	• Structures frequent and substantial; typically constructed of imported materials • Constructed or natural fords • Bridges as needed for resource protection and user convenience • Trailside amenities may be present	• Structures frequent or continuous; typically constructed of imported materials • May include bridges, boardwalks, curbs, handrails, trailside amenities, and similar features
Signs[2]	• Route identification signing limited to junctions • Route markers present when trail location is not evident • Regulatory and resource protection signing infrequent • Destination signing, unless required, generally not present • Information and interpretive signing generally not present	• Route identification signing limited to junctions • Route markers present when trail location is not evident • Regulatory and resource protection signing infrequent • Destination signing typically infrequent outside of wilderness; generally not present in wilderness • Information and interpretive signing not common	• Route identification signing at junctions and as needed for user reassurance • Route markers as needed for user reassurance • Regulatory and resource protection signing may be common • Destination signing likely outside of wilderness; generally not present in wilderness • Information and interpretive signs may be present outside of wilderness	• Route identification signing at junctions and as needed for user reassurance • Route markers as needed for user reassurance • Regulatory and resource protection signing common • Destination signing common outside of wilderness; generally not present in wilderness • Information and interpretive signs may be common outside of wilderness • Accessibility information likely displayed at trailhead	• Route identification signing at junctions and for user reassurance • Route markers as needed for user reassurance • Regulatory and resource protection signing common • Destination signing common • Information and interpretive signs common • Accessibility information likely displayed at trailhead
Typical Recreation Environs & Experience[3]	• Natural, unmodified • ROS: Typically Primitive to Roaded Natural • WROS: Typically Primitive to Semi-Primitive	• Natural, essentially unmodified • ROS: Typically Primitive to Roaded Natural • WROS: Typically Primitive to Semi-Primitive	• Natural, primarily unmodified • ROS: Typically Primitive to Roaded Natural • WROS: Typically Semi-Primitive to Transition	• May be modified • ROS: Typically Semi-Primitive to Rural • WROS: Typically Portal or Transition	• May be highly modified • Commonly associated with visitor centers or high-use recreation sites • ROS: Typically Roaded Natural to Urban • Generally not present in wilderness

[1] For National Quality Standards for Trails, Potential Appropriateness of Trail Classes for Managed Uses, Design Parameters, and other related guidance, refer to FSM 2353, FSH 2309.18, and other applicable agency references.

[2] For standards and guidelines for the use of signs and posters along trails, refer to the Sign and Poster Guidelines for the Forest Service (EM-7100-15).

[3] The Trail Class Matrix shows the combinations of Trail Class and Recreation Opportunity Spectrum (ROS) or Wilderness Recreation Opportunity Spectrum (WROS) settings that commonly occur, although trails in all Trail Classes may and do occur in all settings. For guidance on the application of the ROS and WROS, refer to FSM 2310 and 2353 and FSH 2309.18.

Design Parameters (FSH 2309.18, Section 23.13, Exhibit 01)

Design Parameters are technical guidelines for the survey, design, construction, maintenance, and assessment of National Forest System trails, based on their Designed Use and Trail Class and consistent with their management intent[1]. Local deviations from any Design Parameter may be established based on trail-specific conditions, topography, or other factors, provided that the deviations are consistent with the general intent of the applicable Trail Class.

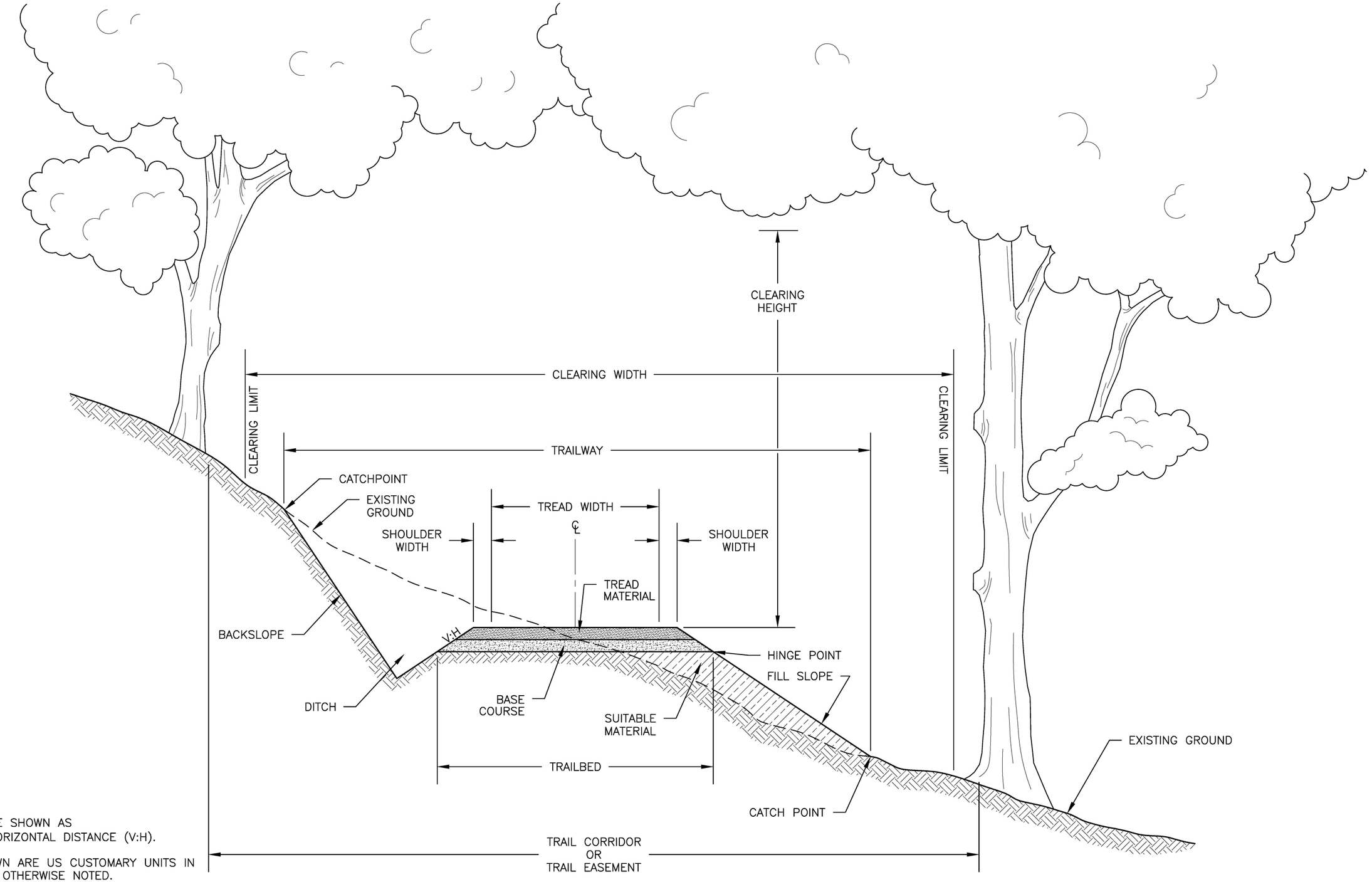
Designed Use **BICYCLE**		**Trail Class 1**	**Trail Class 2**	**Trail Class 3**	**Trail Class 4**	**Trail Class 5**
Design Tread Width	**Single Lane**	6” – 12”	12” – 24”	18” – 36”	24” – 48”	36” – 60”
	Double Lane	36” – 48”	36” – 48”	36” – 48”	48” – 84”	72” – 120”
	Structures (Minimum Width)	18”	18”	36”	48”	60”
Design Surface[2]	**Type**	Native, ungraded May be continuously rough Sections of soft or unstable tread on grades < 5% may be common and continuous	Native, with limited grading May be continuously rough Sections of soft or unstable tread on grades < 5% may be common	Native, with some on-site borrow or imported material where needed for stabilization and occasional grading Intermittently rough Sections of soft or unstable tread on grades < 5% may be present, but not common	Native, with improved sections of borrow or imported materials and routine grading Stable, with minor roughness	Likely imported material and routine grading Uniform, firm, and stable
	Protrusions	≤ 24” Likely common and continuous	≤ 6” May be common and continuous	≤ 3” May be common, but not continuous	≤ 3” Uncommon and not continuous	No protrusions
	Obstacles (Maximum Height)	24”	12”	10”	8”	No obstacles
Design Grade [2]	**Target Grade**	5% – 20%	5% – 12%	3% – 10%	2% – 8%	2% – 5%
	Short Pitch Maximum	30% 50% on downhill segments only	25% 35% on downhill segments only	15%	10%	8%
	Maximum Pitch Density	20% – 30% of trail	10% – 30% of trail	10% – 20% of trail	5% – 10% of trail	0% – 5% of trail

10/16/2008

Designed Use BICYCLE		Trail Class 1	Trail Class 2	Trail Class 3	Trail Class 4	Trail Class 5
Design Cross Slope	**Target Cross Slope**	5% – 10%	5% – 8%	3% – 8%	3% – 5%	2% – 3%
	Maximum Cross Slope	10%	10%	8%	5%	5%
Design Clearing	**Height**	6’	6’ – 8’	8’	8’ - 9’	8’ - 9’
	Width	24” – 36” Some vegetation may encroach into clearing area	36” – 48” Some light vegetation may encroach into clearing area	60” – 72”	72” – 96”	72” – 96”
	Shoulder Clearance	0’ – 12”	6” – 12”	6” – 12”	6” – 18”	12” – 18”
Design Turn	**Radius**	2’ – 3’	3’ – 6’	4’ – 8’	8’ – 10’	8’ - 12’

[1] For definitions of Design Parameter attributes (e.g., Design Tread Width and Short Pitch Maximum) see FSH 2309.18, section 05.

[2] The determination of trail-specific Design Grade, Design Surface, and other Design Parameters should be based upon soils, hydrological conditions, use levels, erosion potential, and other factors contributing to surface stability and overall sustainability of the trail.



NOTES:

ALL SLOPES ARE SHOWN AS VERTICAL–TO–HORIZONTAL DISTANCE (V:H).

ALL UNITS SHOWN ARE US CUSTOMARY UNITS IN INCHES UNLESS OTHERWISE NOTED.

U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE

STANDARD TRAIL PLAN

PROJECT NAME & LOCATION

DRAWING NAME
STANDARD TRAIL TERMS

SECTION
910 - TRAILWAY

TYPICAL ID
STT

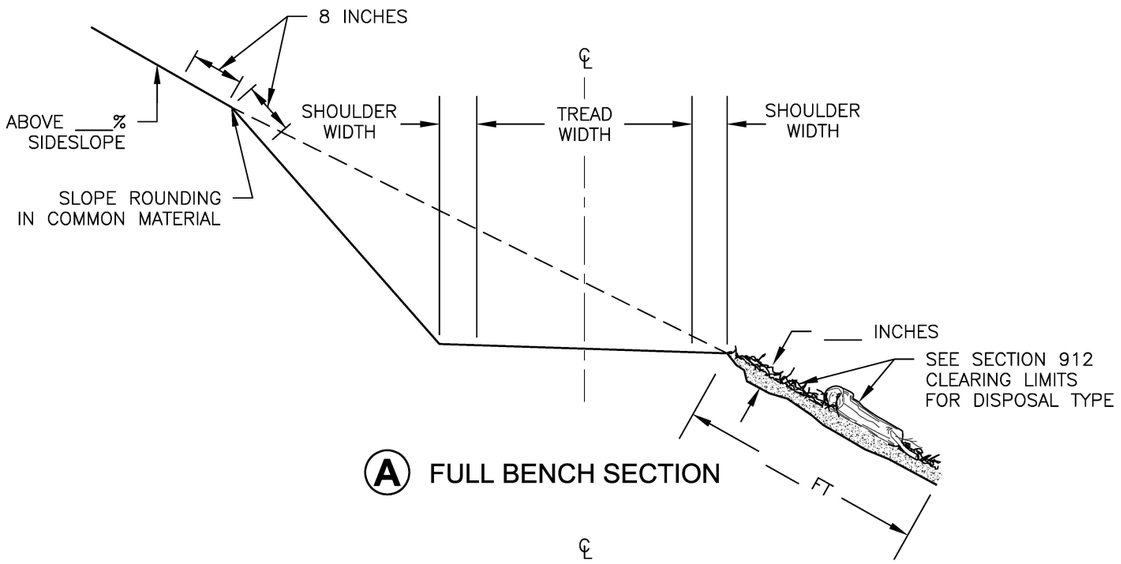
REVISION DATE
XX/XX/XX

NOT TO SCALE

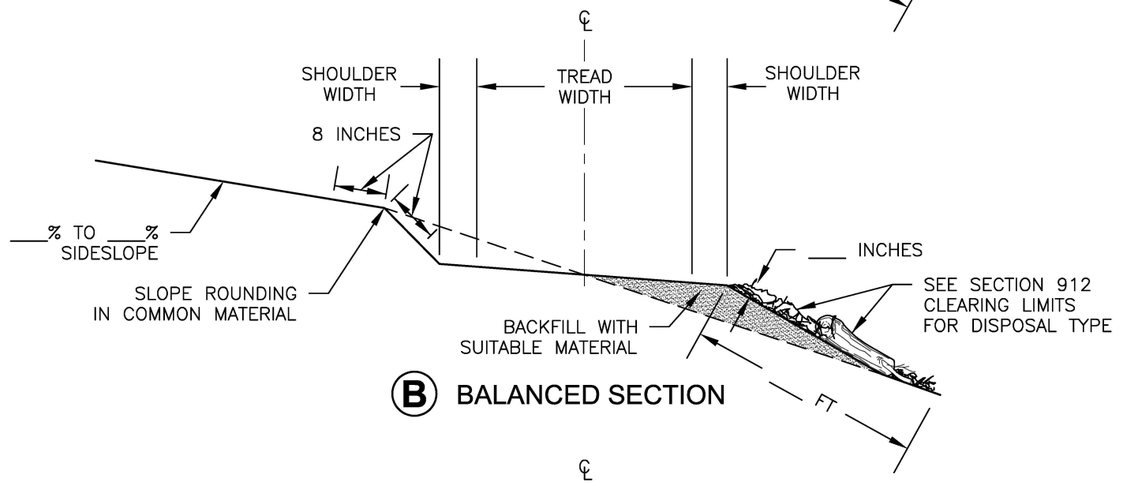
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STD_910-01

SHEET
OF

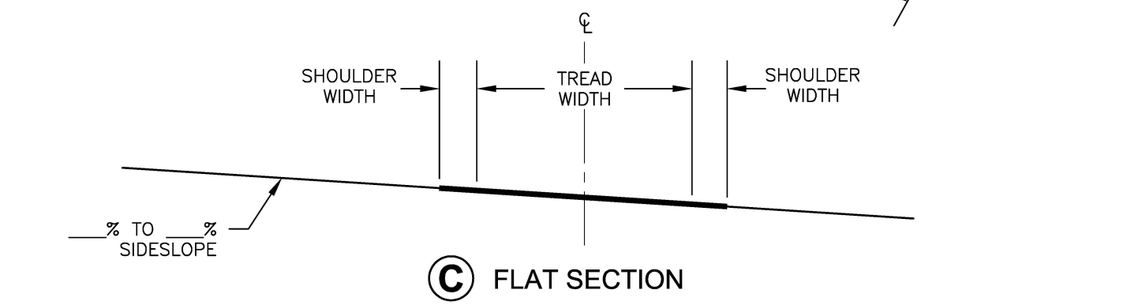
TYPICAL TRAIL CROSS SECTIONS



Ⓐ FULL BENCH SECTION



Ⓑ BALANCED SECTION



Ⓒ FLAT SECTION

TYPICAL TRAIL TREAD AND SHOULDER WIDTH

TYPICAL ID	SECTION TYPE	TREAD FINISH	TREAD WIDTH	SHOULDER WIDTH		COMMENTS
				UPHILL	DOWNHILL	
TSF–1		T				

TREAD CROSS SLOPE

TYPICAL ID	OUTSLOPE	INSLOPE	CROWNED SECTION	COMMENTS
	%	%	%	

SLOPE AND TRAILBED FINISH

TREAD FINISH	ROOTS	LOOSE ROCK	EMBEDDED ROCK	COMMENTS
T1				
T2				
T3				
T4				
T5				
T6				

TRAILBED AND SLOPE FINISH

SLOPE FINISH

REMOVE ROOTS THAT PROTRUDE FROM THE BACKSLOPE WITH DIAMETERS GREATER THAN SHOWN IN THE SLOPE AND TRAILBED FINISH TABLE.

TRAILBED FINISH

REMOVE LOOSE ROCK ON THE TRAILBED WITH A DIMENSION GREATER THAN SHOWN IN THE SLOPE AND TRAILBED FINISH TABLE.

REMOVE OR REDUCE EMBEDDED ROCK THAT PROTRUDES MORE THAN THE DIMENSIONS SHOWN IN THE SLOPE AND TRAILBED FINISH TABLE.

NOTES:

1. SLASH CONSISTS OF LOGS, LIMBS, BRUSH, AND ROCKS PLACED RANDOMLY IN A WAY TO CATCH SEDIMENT MOVEMENT.
2. LIMB ALL TREES AND SHRUBS AND TAMP SLASH INTO GROUND SO THAT 80% OF SLASH IS IN CONTACT WITH THE GROUND.

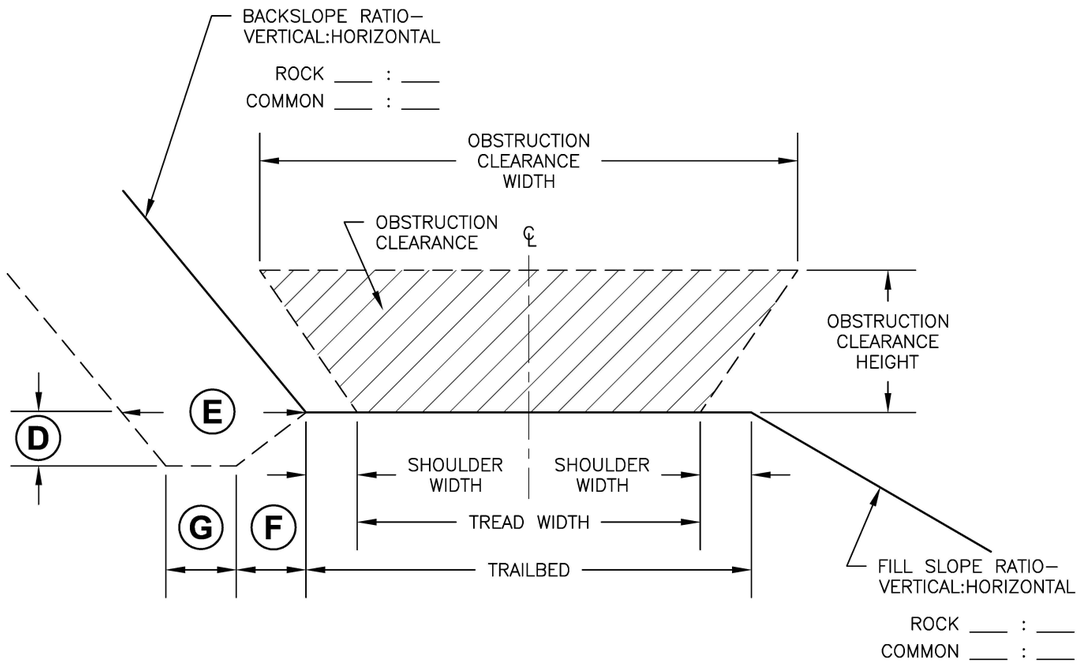
U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
STANDARD TRAIL PLAN

PROJECT NAME & LOCATION

DRAWING NAME
TYPICAL CROSS SECTION & SLOPE FINISH
SECTION
911 - TREAD AND PRISM
TYPICAL ID
TSF/TCS

REVISION DATE
XX/XX/XX
NO SCALE

DRAWING NO.
STD_911-01
SHEET
OF



TYPICAL DITCH AND OBSTRUCTION CLEARANCE SECTION

TYPICAL DITCH DIMENSIONS

TYPICAL ID	DITCH DIMENSIONS (INCHES)				COMMENTS
	(D)	(E)	(F)	(G)	
TDD–1					

OBSTRUCTION CLEARANCE TABLE

TYPICAL ID	OBSTRUCTION CLEARANCE		COMMENTS
	WIDTH	HEIGHT	
TOC–1			

U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE

STANDARD TRAIL PLAN

PROJECT NAME & LOCATION

DRAWING NAME **TYPICAL OBSTRUCTION CLEARANCE SECTION**

SECTION **911 - TREAD AND PRISM**

TYPICAL ID **TDD/TOC**

REVISION DATE **XX/XX/XX**

NO SCALE

DRAWING NO. **STD_911-02**

SHEET

OF