High Sierra Front Country Fuel Break Maintenance and Expansion Project  
Statement of Work and Request for Proposals  
Sierra National Forest, California

Background and Statement of Work: The National Forest Foundation (NFF) and the US Forest Service are working together to create a more resilient Sierra National Forest through targeted efforts. The NFF is seeking proposals for the High Sierra Front Country Fuel Break Maintenance and Expansion project that will complete roughly 1,540 acres of Wildland Urban Interface (WUI). The project will include machine felling / piling and machine mastication (Item 1) for fuel break maintenance and expansion and hand cut hand pile (Item 2) around the community of Shaver Lake, California. The work will be completed entirely in the Sierra National Forest adjacent to and south of the community of Shaver Lake, California, as outlined in the attached Appendix C – Maps.

- This Request for Proposals will accept bids for one or both work Items.
- A Pre-bid tour will be scheduled for 9:00am on August 2, 2023, at Vista (“Lookout”) Point to meet with Forest Service and National Forest Foundation Staff.
  Directions: Off HWY-168 on the right, ~.5 miles before reaching Cressman’s General Store. Coordinates: 119.3659725 W, 37.0605687 N, [link to map]
- **Attendance of the pre-bid tour is mandatory for bids to be considered.**
- Camping is not allowed at the project site.

Information Requested

If interested in this project, please provide a bid for the above statement of work by providing approach, work experience, and cost for each individual service item you bid on. Due to the variety of operational needs listed in Appendix E – Schedule of Items and Specifications to meet desired conditions, please clearly define your operational approach and provide a list of equipment required to accomplish statement of work items. Please include your capacity for this project and efficiency in mechanical fuel break maintenance and expansion and/or hand thinning and piling in the past, if any. Please provide bids for one, or both service items.

This is a request for proposals only and bids furnished are not offers. This request does not commit the National Forest Foundation to pay any costs incurred in the preparation of submission of the proposal or to contract for supplies or services.
General Specifications

(a) Description of Work – This Request for Proposals is for restoration services related to mechanical fuel break maintenance and expansion, hand thinning and piling, prescribed pile burning, including the following:

**Item 1:**
1.1 Machine felling / piling
1.2 Machine mastication

**Item 2:**
2.1 Hand cut / hand pile

The full Scope of Work can be found in APPENDIX E – Schedule of Items and Specifications. Each work item is broken out into its own section with further detail pertaining to desired conditions.

The Contractor shall identify which efforts and materials they can supply in terms of materials, labor, equipment, supplies, supervision, quality control, and incidentals required to complete the work described. The Contractor shall perform all work in a safe and conscientious manner.

(b) Project Location – The project is located in the Sierra National Forest, High Sierra Ranger District, Shaver Lake, California and totals approximately 1,540 acres of work. The High Sierra Ranger District office is located at 29688 Auberry Road, Prather, CA. The Project includes multiple units, specifically, the Beal, Shaver Springs, Upper Sycamore and Vincent units that can be found in Appendix C - Maps. These units are located directly southeast of Tollhouse Road, south of Cressman Road and along Peterson Road. From the High Sierra District Office in Prather, CA, travel East on HWY 168 to the Western intersection of Auberry Rd and HWY 168 and the intersection of Tollhouse Rd and HWY 168. Turn right onto Tollhouse Road (roughly 12 miles from the District Office). The nearest section of work is within ½ mile. APPENDIX C – General Project Maps include the project area on which treatments will occur and their specified units. The elevation of the project area is approximately 3,000-4,500 feet.

(c) Work Schedule – Work will commence as early as project and soil conditions allow in 2023 and run year-round (weather permitting) until December 2025. Anticipate delays each summer and fall for Project Activity Level (PAL) days where limited work is allowed. Snow cover and/or wet ground may prevent hand or equipment work during the winter months (November – May) depending on precipitation amount. Some areas may be worked during the winter months. Breaks in operations may be needed and requested by the government.

All work must be completed by December 31, 2025.

Pricing Schedule

The contractor shall price work according to the schedule below. Contractors can bid on one, multiple, or all service items listed:

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Unit of Measure</th>
<th>Quantity</th>
<th>Unit Price $</th>
<th>Total Cost $</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Machine Felling / Piling, Machine Mastication</td>
<td>Acres</td>
<td>1322</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Hand Cut / Hand Pile</td>
<td>Acres</td>
<td>218</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Other Project Requirements and Specifications

(a) **Utilities** – In many locations there will be limited or no sanitation, water, electrical or housing services available. The Contractor shall make its own arrangements for temporary facilities if needed. The NFF Representative will assist the contractor in identifying a camping area near the project site if spiking is the desired option.

(b) **Specifications** – Project work shall be accomplished in accordance with following:

- APPENDIX A – Definitions
- APPENDIX C – General Project Maps (C.1 – C.7)
- APPENDIX E – Schedule of Items and Specifications
- APPENDIX E.2 – Best Management Practices
- APPENDIX G – Guidelines for Operations
- APPENDIX H – Fire Plan

Contractor Qualifications

(a) **References** – Please provide three references.

(b) **Past Experience** – Please provide a brief explanation of previous work experience with land management agencies.

Insurance Requirements

Upon selection of the winning bid, the chosen contractor will be asked to affirm that it has and shall maintain State minimum workers’ compensation insurance coverage for its employees, if any. The selected contractor shall also maintain broad form general liability, property damage, and automotive liability insurance in the minimum amount of $1,000,000 for bodily injury, death, or damage to property of any person and $2,000,000 for bodily injury, death, or damage to property of more than one person. The Contractor shall name NFF an Additional Named Insured and provide NFF with documentation evidencing such coverages.

Prohibited Telecommunications Services and Equipment

The Contractor is responsible for compliance with the prohibition on certain telecommunications and video surveillance services or equipment identified in 2 CFR 200.216.

Performance Security

Chosen contractor shall post cash, a letter of credit, bond, or other financial security that is easily convertible into cash in a form acceptable to the NFF in its sole determination in the amount of 5% of the amount due to contractor, not to exceed $250,000 dollars, to assure completion of the work required under this Agreement and payment of all amounts lawfully due to all persons supplying or furnishing to the Contractor or Contractor’s subcontractors with labor, laborers, materials, rental machinery, tools or equipment used or to perform the work. As work is completed in integrated component parts, inspected, approved and, if applicable, conveyed to NFF, the Performance Security shall be released in a
proportional amount, unless a lesser amount of release is necessary to maintain 5% Performance Security.

**Bid Submission**
Submit bids via email to svaughan@nationalforests.org by **5pm on August 16, 2023**.

**Contractor Selection Process**
The NFF will use the Evaluation Factors below to review each submitted bid. Based on the outcomes of that selection process, the NFF will notify successful and unsuccessful bidders by August 31, 2023, and will prepare a separate contract document.

**Point of Contact**
For questions about the details of producing the bid, please contact:

Sara Vaughan  
California Program Manager, Southern Sierra National Forest Foundation  
530.919.8745  
svaughan@nationalforests.org

**Evaluation Factors and Relative Importance**

<table>
<thead>
<tr>
<th>Level 3 Criteria</th>
<th>Level 2 Criteria</th>
<th>Level 1 Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Price / cost</td>
<td>• Technical proposal / proposed approach to project</td>
<td>• Benefits to the local community</td>
</tr>
<tr>
<td>• Equipment and contractor capability</td>
<td>• Overall strategic benefits to meeting NFF goals and grant needs, requirements, and timelines</td>
<td>• Relationship to local community</td>
</tr>
<tr>
<td>• Timing of when contractor can begin and/or finish the project</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Past performance, references, and USFS feedback</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Equal Opportunity Provider**
In accordance with Federal law and U.S. Department of Agriculture policy, the National Forest Foundation is prohibited from discriminating on the basis of race, color, national origin, sex, age, religion, political beliefs, or disability.
APPENDIX A

Definitions

The High Sierra Front Country Fuel Break Maintenance & Expansion Project

*Aggregation* – A pocket of densely packed trees distinct from adjacent areas within a project unit. It is characteristic for trees within aggregations to have a higher percentage of *phenotypic defects* due to competition for resources in close proximity to others.

*Brush* – all woody shrub species such as manzanita, whitethorn, Deer brush, dwarf tanoak, silk tassel and Ribes. For the purposes of this contract bear clover, snowberry, prostrate manzanita and squaw carpet are not considered brush.

*Conifer* - A cone-bearing tree with needles or leaf scales (e.g., pine, fir, cedar).

*Co-dominant Tree* - A tree with the crown forming the general level of the crown cover and receiving full light from above, but comparatively little from the sides.

*GTM* – Government Technical Monitor

*Crop Tree (Leave Tree)* - Any crop tree without excessive damage, which has a live crown ratio of greater than 30%. The top will not be dead, broken, or forked.

*Damaged tree* – Any crop tree with one or more of the following injuries:

1. Any true fir that has any bark cut or removed to the cambium regardless of the amount.
2. Any other tree species that has bark cut or removed to the cambium from more than 25% of the circumference of the bole
3. Any tree that has a broken, forked, or dead top
4. Any tree that has had 25% or more of the live limbs or branches broken or removed by any operation
5. Defects, which include sweeps in the bole and crooked boles

*DBH* - Diameter at breast height; the diameter of a tree measured at a point 4-1/2 feet above the ground on the uphill side of the tree.

*Diseased Trees* – Any tree greater than two feet tall with a diameter less than ten inches at DBH with one or more of the following diseases:

1. *Mistletoe:* Trees with one or more visible infections on any part of the live crown or stem.
2. *Gall Rust:* Trees with one or more visible cankers on the bole or multiple cankers on the limbs in the green crown.
3. *Chlorosis:* Trees with off color foliage, weak root system and otherwise exhibiting a general unhealthy appearance.
4. *Damage:* Tree that exhibits insect infestation, severe mechanical, animal, or other
5. **White Pine Blister Rust**: On sugar pine, stem / branch cankers, yellow to red flagging of branches and tops.

**Dying Tree** – 50% or more of the foliage-bearing crown is recently dead and/or 75% or more of the circumference of the lower bole is girdled by wildlife.

**Excess Tree** - A tree that is left but should have been cut to meet standards.

**Foliage** – Tree/plant leaves.

**Forked Trees** – Trees with one or more forks in the live crown or with old dead or broken-out tops within 13 feet of the ground.

**Girdled** – A cut through the tree bark or branch all the way around.

**Hang-up Tree** – A cut tree suspended above the ground by a leave tree.

**Hardwood** – A tree with broad leaves rather than needles (e.g., oak, madrone, big leaf maple, elderberry, dogwood, etc.)

**Insect Infested Tree** – A tree pitching sap from the bark in multiple spots on the bole, frass in cracks of bark or at base of tree, dead or fading top.

**Limited Operating Period (LOP)** – This indicates there is a limited period in which operations may NOT occur for a particular work unit. This period is variable based on the species being protected. See the Schedule of Treatments for the definition of each LOP.

**Live Crown Ratio** – The percentage of the live limbs in relation to the total tree height.

**NNIP’s - Non-native invasive plants (Noxious Weeds)** - For the purpose of this contract, the following list refers to species on the Sierra National Forest Invasive Plant List, last updated 08/25/2022, namely:

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Aegilops Triuncialis</em></td>
<td>Barb goatgrass</td>
</tr>
<tr>
<td><em>Aegilops cylindrica</em></td>
<td>Jointed goatgrass</td>
</tr>
<tr>
<td><em>Ailanthus altissima</em></td>
<td>Tree of heaven</td>
</tr>
<tr>
<td><em>Arundo donax</em></td>
<td>Giant reed</td>
</tr>
<tr>
<td><em>Brassica tournefortii</em></td>
<td>Saharan mustard</td>
</tr>
<tr>
<td><em>Bromus tectorum</em></td>
<td>Cheatgrass</td>
</tr>
<tr>
<td><em>Carduus acanthoides ssp.</em></td>
<td>Plumeless thistle</td>
</tr>
<tr>
<td><em>Carduus pycnocephalus ssp.</em></td>
<td>Italian thistle</td>
</tr>
<tr>
<td><em>Cenchrus longispinus</em></td>
<td>Mat sandbur</td>
</tr>
<tr>
<td><em>Centaurea calcitrapa</em></td>
<td>Purple star-thistle</td>
</tr>
<tr>
<td>Common Name</td>
<td>Scientific Name</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>Diffuse knapweed</td>
<td>Centaurea diffusa</td>
</tr>
<tr>
<td>Iberian star thistle</td>
<td>Centaurea iberica</td>
</tr>
<tr>
<td>Tacolote</td>
<td>Centaurea melitensis</td>
</tr>
<tr>
<td>Yellow star-thistle</td>
<td>Centaurea solstitialis</td>
</tr>
<tr>
<td>Spotted knapweed</td>
<td>Centaurea stoebbe ssp. micranthos</td>
</tr>
<tr>
<td>Rush skeletonweed</td>
<td>Chondrilla juncea</td>
</tr>
<tr>
<td>Canada thistle</td>
<td>Cirsium arvense</td>
</tr>
<tr>
<td>Bull thistle</td>
<td>Cirsium vulgare</td>
</tr>
<tr>
<td>Poison-hemlock</td>
<td>Conium maculatum</td>
</tr>
<tr>
<td>Scotch broom</td>
<td>Cytisus scoparius</td>
</tr>
<tr>
<td>Foxglove</td>
<td>Digitalis purpurea</td>
</tr>
<tr>
<td>Common teasel</td>
<td>Dipsacus fullonum</td>
</tr>
<tr>
<td>Stinkwort</td>
<td>Dittricha graveolens</td>
</tr>
<tr>
<td>Medusahead</td>
<td>Elymus caput-medusae</td>
</tr>
<tr>
<td>Sweet fennel</td>
<td>Foeniculum vulgare</td>
</tr>
<tr>
<td>Oblong spurge</td>
<td>Euphorbia oblongata</td>
</tr>
<tr>
<td>French Broom</td>
<td>Genista monspessulana</td>
</tr>
<tr>
<td>English ivy</td>
<td>Hedera helix</td>
</tr>
<tr>
<td>Common velvet grass</td>
<td>Holcus lanatus</td>
</tr>
<tr>
<td>Klamath-weed, common St. John’s swort</td>
<td>Hypericium perforatum ssp. perforatum</td>
</tr>
<tr>
<td>Yellow-flag iris</td>
<td>Iris pseudacorus</td>
</tr>
<tr>
<td>Dyer’s woad</td>
<td>Isatis tintoria</td>
</tr>
<tr>
<td>Hairy whitetop</td>
<td>Lepidium appelianum</td>
</tr>
<tr>
<td>Lens-podded hoary cress</td>
<td>Lepidium chalepensis</td>
</tr>
<tr>
<td>Perennial pepperweed</td>
<td>Lepidium latifolium</td>
</tr>
<tr>
<td>Oxeye daisy</td>
<td>Leucanthemum Vulgare</td>
</tr>
<tr>
<td>Corn gromwell</td>
<td>Lithospermum arvense</td>
</tr>
<tr>
<td>Purple loosetrife</td>
<td>Lythrum salicaria</td>
</tr>
<tr>
<td>American pokeweed</td>
<td>Phytolacca americana var. americana</td>
</tr>
<tr>
<td>Sulfur cinquefoil</td>
<td>Potentilla recta</td>
</tr>
<tr>
<td>Russian knapweed</td>
<td>Raphonticum rapens</td>
</tr>
<tr>
<td>Himalayan blackberry</td>
<td>Rubus armeniacus</td>
</tr>
<tr>
<td>Cut-leaf blackberry</td>
<td>Rubus laciniatus</td>
</tr>
<tr>
<td>Milk Thistle</td>
<td>Silybum marianum</td>
</tr>
<tr>
<td>Spanish broom</td>
<td>Spartium Junceum</td>
</tr>
<tr>
<td>Smilograss</td>
<td>Stipa miliaeae ssp. miliaeae</td>
</tr>
<tr>
<td>North Africa grass</td>
<td>Ventenata dubia</td>
</tr>
<tr>
<td>Wooly mullein</td>
<td>Verbascum thapsus</td>
</tr>
</tbody>
</table>
**Phenotypic Defects** - Referring to inherited defects or deficiencies caused by local environmental conditions. Examples: Trees with flat top shapes having under 4 inches of leader growth (measure of previous year), forked or multiple tops, twisting in the limbs bole and trees with sweeping, leaning or drooping forms.

**Riparian Conservation Area (RCA - Outer)** – Areas primarily adjacent to streams, ponds, and springs protected by limiting treatments in some situations. RCA’s are as follows:
- Perennial streams = 300 feet each side of channel
- Seasonal (Intermittent and Perennial) = 150 feet each side of channel
- Streams in Inner Gorge = Top of inner gorge
- Special Aquatic Features (meadows, lakes, and springs) = 300 feet from edge of feature or riparian vegetation, whichever is greatest.

**RCA - Inner Riparian Buffer (No Treatment Area)** – Areas within RCA’s where work is restricted to no treatment. These buffers are as follows:
- Perennial streams = 100 feet each side of channel
- Intermittent streams = 50 feet each side of channel
- Ephemeral streams = 30 feet each side of channel; pruning and cutting are allowed but handpiles CANNOT be created within 30 feet of the channel. NO treatment is allowed within the scour zones and no cutting of vegetation providing bank stability.
- Special Aquatic features (meadows, lakes, and springs) = 100 feet from edge of feature or riparian vegetation, whichever is greatest.

**Scour Zone** – The zone where moving water runs off and removing any surface cover down to bare mineral soil.

**Slash** - All debris resulting from operations including stems, limbs and tops of trees, and brush.

**Suppressed Tree** - Any tree with less than 30% of its total height in live green crown or with less than 4 inches of current leader growth.

**Thinning** - The cutting of trees to meet the short-term desired condition.

**True fir** – This classification refers to the conifer species red fir & white fir.

**Triple Rinse** - The procedure for cleaning empty containers in preparation for disposal. The containers are to be rinsed and drained at the time of use. Empty herbicide containers are to be rinsed at least three times using the following rinsing technique. 1) Drain the container into the tank allowing the container to drain for thirty seconds after the container appears to be empty. 2) Add the correct amount of rinse (clean water). If the container is less than five gallons add an amount of rinse (water) equal to 1/4 of the containers volume. If the container is five gallons or more add 1/5 the volume. 3) Reseal the container and rotate the container end over end so that the rinse flows over every surface in the container. Empty into the tank, again leave the container draining over the tank for thirty seconds after the container appears to have been emptied. This procedure is to be repeated a minimum of three times.
**Wash Down** - Spraying the contaminated non target seedling and or vegetation to run-off with the wash down solution from a Solo Backpack Sprayer or equivalent, that is clean and free of chemical / pesticide residue.

**Wash Down Solution** - A .25 % R-11 solution used to rinse herbicide from plants that are not to be sprayed.

**Batch Tank** - A mixing tank with a constant agitator that can be moved and operated separately from the clean water tank; for example, mounted on a separate vehicle from the clean water tank or mounted on a trailer.

**Clean Water Tank** - A tank that contains water for mixing and washdown. It must be free of all pesticide residues.

**Herbicide** - The concentration before mixing occurs.

**Herbicide solution** - The mixture of herbicide concentrate, water, surfactant, and dye.

**Pay by the Gallon** - Partner bids on the price per gallon of glyphosate herbicide solution (With 8 pounds AI per 100 gallons of water) that is sprayed on Yellow Star Thistle populations scattered around the project area.

**Protective Shield** - A device used to protect non-target species that are greater than 2 feet in height, from herbicide application damage. Each applicator shall have access to a portable protective shield. The protective shield shall have a surface capable of protecting a minimum of 1/3 the circumference of the non-target plant. Protective shields with less than 8 sq. ft. surface area is unacceptable.

**Glyphosate Herbicide** - The concentrate before mixing occurs containing the active ingredient (A.I.) Glyphosate in the form of its isopropylamine salt. All products must be registered in the State of California for forestry use. The product shall not contain a surfactant. Examples are, some products contain 41% glyphosate and have 4 pounds of A.I. per gallon. Another product, Accord Concentrate contains 54.8 % glyphosate or 5.4 pounds of A.I. per gallon. 11. Spray to wet: Apply the herbicide solution until the foliage appears wet. Stop applying before the herbicide starts to run off the foliage.

**Spray to run-off** - Apply the herbicide solution until the herbicide starts to flow off the foliage.

**Spray to wet** - Apply the herbicide solution until the foliage appears wet. Stop applying before the herbicide starts to run off the foliage.

**Target Vegetation** - Vegetation to be sprayed with the herbicide solution.

**Non-Target Vegetation** - Vegetation that shall not be sprayed with the herbicide solution,
including but not limited to, blue elderberry, carpenteria, golden annual lupine, black oak, conifer seedling and leave tree.

**Leave Tree** - a dominant tree other than lodgepole pine or gray pine that is noticeably taller, more vigorous, having a fuller crown, and bearing fewer signs of physical damage or disease than adjacent trees. Leave trees can include planted and natural seedlings.

**Excess Trees** - A tree or trees that lies within the dominant leave tree spacing requirements.
High Sierra Front Country Fuel Break
Vincent Unit 1

Coordinate System: NAD 1983 UTM Zone 11N

Machine Pile/ Masticate 705.7-Acres
Hand Cut/ Hand Pile 108.4-Acres

California State Parks, Esri, HERE, Garmin, FAO, NOAA, USGS, Bureau of Land Management, EPA, NPS, Copyright © 2013 National Geographic Society; i-cubed
Coordinate System: NAD 1983 UTM Zone 11N

High Sierra Front Country Fuel Break
Upper Sycamore

Machine Pile/ Masticate 248.6-Acres
Hand Cut/ Hand Pile- 50.1-Acres

California State Parks, Esri, HERE, Garmin, FAO, NOAA, USGS, Bureau of Land Management, EPA, NPS, Copyright© 2013 National Geographic Society, i-cubed
High Sierra Front Country Fuel Break
Beal Unit 3

California State Parks, Esri, HERE, Garmin, FAO, NOAA, USGS, Bureau of Land Management, EPA, NPS, Copyright© 2013 National Geographic Society, i-cubed

Coordinate System: NAD 1983 UTM Zone 11N

2023
High Sierra Front Country Fuel Break
Beal Unit 4
High Sierra Front Country Fuel Break
Shaver Springs

Machine Pile/ Masticate 312.9-Acres
Hand Cut/ Hand Pile 54.9-Acres
APPENDIX E
SCHEDULE OF SERVICE ITEMS
AND
SPECIFICATIONS

The High Sierra Front Country Fuel Break
Maintenance & Expansion Project

Project Location & Description

Location: This Project is located on the High Sierra Ranger District of the Sierra National Forest, Shaver Lake, California. The High Sierra Ranger District office is located at 29688 Auberry Road, Prather CA. The Project includes multiple units, specifically, the Beal series 2-4, Shaver Springs, Upper Sycamore and Vincent 1 units that can be found in Appendix C – Maps (C.2 - C.7). These units are located directly southeast of Tollhouse Road, south of Cressman Road and along Peterson Road. From the High Sierra District Office in Prather, CA, travel East on HWY 168 to the Western intersection of Auberry Rd and HWY 168 and the intersection of Tollhouse Rd and HWY 168. Turn right onto Tollhouse Road (roughly 12 miles from the District Office). Refer to Appendix C.1 – Proposal Overview Map, for distances of work segment areas, and subsequent Appendix C.2 - C.7 for detailed maps of each unit.

Description: The High Sierra Front Country Fuels Break Maintenance and Expansion project will complete roughly 1540 acres of Wildland Urban Interface (WUI) fuels reduction and fuel break maintenance operations near Shaver Lake, California. The work will be completed entirely on Forest Service land adjacent to the community of Shaver Lake.

SCHEDULE OF SERVICE ITEMS:

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Description</th>
<th>Unit of Measure</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Machine Felling / piling, Machine Mastication</td>
<td>Acres</td>
<td>1322</td>
</tr>
<tr>
<td>02</td>
<td>Hand Cut / Hand Pile</td>
<td>Acres</td>
<td>218</td>
</tr>
<tr>
<td>TOTAL</td>
<td>Mandatory Items</td>
<td></td>
<td>1540</td>
</tr>
</tbody>
</table>
ACRES PER UNIT BREAKDOWN:

<table>
<thead>
<tr>
<th>Unit</th>
<th>Machine Masticate/Pile Acres Per Unit (Item 1)</th>
<th>Hand Cut/Hand Pile Acres Per Unit (Item 2)</th>
<th>Total Acres Per Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beal Unit 2</td>
<td>36.2</td>
<td>2.5</td>
<td>38.7</td>
</tr>
<tr>
<td>Beal unit 3</td>
<td>15.2</td>
<td>1.8</td>
<td>17</td>
</tr>
<tr>
<td>Beal unit 4</td>
<td>3.4</td>
<td>0.3</td>
<td>3.7</td>
</tr>
<tr>
<td>Shaver Springs</td>
<td>312.9</td>
<td>54.9</td>
<td>367.8</td>
</tr>
<tr>
<td>Upper Sycamore</td>
<td>248.6</td>
<td>50.1</td>
<td>298.7</td>
</tr>
<tr>
<td>Vincent Unit 1</td>
<td>705.7</td>
<td>108.4</td>
<td>814.1</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>1322.0</strong></td>
<td><strong>218.0</strong></td>
<td><strong>1540.0</strong></td>
</tr>
</tbody>
</table>

UNIT TIME REQUIREMENTS:

- Completion of these units is limited by the contract time.

SPECIFICATIONS OF SERVICE ITEMS

I. General Project Specifications (For All Items)

1. Dead trees meeting specifications shall all be felled as part of the unit treatment. If there are live trees, then they are to be spaced 30 feet by 30 feet using the following priorities to select the crop tree. A tree shall be considered dead if it has less than 20% live crown.

2. Live trees greater than 20 in diameter at breast height (DBH) are not to be cut regardless of spacing.

3. Dead trees will need to be cut with a machine. In some instances, they may be partially rotted enough that they can be pushed over during the piling, but this must be possible without uprooting them and causing a large soil disturbance. Broken stems taller than 12” in height from the uphill side will need to be cut to meet stump height specification.

4. Felled trees shall be bucked into lengths that can be piled without damaging any residual standing trees and which facilitate making a burnable pile (average 12 feet but shorter to 8 feet may be required where surviving trees require working in tighter spaces).

5. Where live trees exist, the contractor shall thin them to the specification listed below if they are less than 20-inch DBH excluding all conifers and Black Oaks greater than 4 inched DBH.

6. Leave trees shall be selected using the following requirements during treatments:
a. Live, healthy conifers shall not be removed regardless of size.
b. Black Oaks greater than 4 inches DBH shall not be removed.
c. California Buckeyes and Western Redbuds greater than 20 inches in diameter shall be left to spacing.
d. Leave trees shall be selected based on the following priority order-Ponderosa Pine, Black Oak, other Oak species, California Buckeye, Western Redbud.
e. Leave Trees: Leave trees shall generally be the tallest, most vigorous, healthy, largest crown, and straightest stems that are free of damage due to insects, diseases, physical or mechanical causes. The Contractor shall select leave trees based on the following priorities:
   i. Healthy undamaged trees at the required spacing intervals.
   ii. Crown class - must be either vigorous dominant or co-dominant.
   iii. Crown ratio - 30% or more of the total height must be live crown.
   iv. Vigor - healthy and vigorous in appearance. Terminal growth must be equal to or greater than that of competitors.

7. All project created stumps, including those of shrubs, shall be less than 6-8 inches high as measured from the uphill side. Scattered stump heights up to no more than 12 inches from any natural obstacles such as rocks or downed logs will be tolerated on up to 10% of the area. All unobstructed stumps shall be severed below the lowest live limbs or stems of trees and brush.

8. Where appropriate and if the opportunity arises creating or protecting potential fisher rest sites is required.
   a. Fisher rest site (Preserving Pacific Fisher habitat): Fisher rest sites will be flagged with neon green or orange tape and avoided. When possible, provide hiding cover and retain the structure underneath the canopy of mature Black Oaks and Incense Cedar trees 30-inch DBH and larger by not treating trees and brush vegetation growing within the canopy. If possible, take advantage of existing visible cavities on 2 to 3 mature Black Oaks per acre. Where no visible cavity is present, select a mature Black Oak with a full dominant crown to reach the 2 to 3 oak per acre requirement. Do not disturb live trees or dead trees that are leaning (like a ladder) against a mature Black Oak or an incense cedar 30-inch DBH or larger.

9. Preventing damage to protected resources and improvements during felling operations is imperative. Trees shall be felled into a location that facilitates follow-up treatments. This includes not felling into streamside management or other controlled areas, areas too steep for future work, across roads or into meadows. Any trees hung up during falling must be dealt with and put on the ground. Effort shall be made to fall in such a manner that the fallen trees are not felled on top of one another.
10. Fireline shall be constructed around the perimeter of each unit. If two units are directly bordering one another, the outermost perimeter shall be used for the fire line. Preference is to use existing features and natural barriers where appropriate, for example established roads and large outcroppings. Contractor must work with the contract administrator to resolve any disputes or confusion regarding the fire line location.

If there are live trees to be saved the fire line should avoid damaging these trees. Crop trees are not to be damaged during fire line construction. The fire line should follow as closely as possible to the provided GPS shape file of the units, and it shall be cleared to mineral soil. Water bars are to be constructed as needed and completed before rain events. If controlled areas or other areas to be protected are in the way of the fireline the contractor shall work with the contract administrator to locate the line. When possible, roads and other natural barriers may be incorporated with the fire line. The work in a unit will not be considered completed until the fire line is constructed.

11. In areas with Carpenteria, the Contractor shall avoid and not cut 20ft around the plant.

12. In the designated hand-thinning only areas, trees are to be felled with chain saws.

13. Retain at least 3 downed logs/acre when available, 15 inches diameter or larger at midpoint, regardless of its state of decomposition. Large down woody material shall not be disturbed or included in piles.

14. Retain at least 4 of the largest snags/acre when available, focusing on the interior of the unit.

15. 12” clearance from obstacles or retained features (e.g., rocks, private property fences/features).
II. ITEM 1: Machine Felling / Piling, Machine Mastication

In addition to all general specifications listed above in I, the following specifications apply:

A. Piling Specifications

1. The Contractor shall clear and pile ninety percent of all slash exceeding 24 inches in length and 3 inches in diameter and shall pile all dead and live vegetation as specified. Manzanita and other large brush shall be uprooted and crushed before being placed in a pile, this facilitates making a tightly compacted pile and creating small pieces that are left behind as ground cover, which is often lacking when piling brush. Slash and vegetation may be left in place where vegetation is so close to leave trees that the removal of the vegetation would cause damage to the leave trees. Leave trees and vegetation not specified to be treated shall be left undisturbed.

2. An excavator is the preferred equipment for piling, however equipment with a bucket and thumb or brush grapple is acceptable, to retain a 50% soil, duff and smaller fine material ground cover. This material should not be so much as to impede planting or be a fuels hazard. Materials which are less than 3 inches in diameter and less than 24 inches in length may be left to attain the ground cover requirements. If the slash cover exceeds 50%, the Contractor shall pile the smaller fuels to meet the slash piling requirements. If a grapple tool is used the same cover requirements apply.

3. On occasion there might be longer lengths of slash and debris. If this occurs, the Contractor shall cut the slash into lengths that allow piling without injuring the residual crop trees, and the burning of the pile without damaging residual vegetation. The contractor must not damage the standing trees when moving this material. In areas where there are no standing live trees that could be damaged longer material may be piled. In these areas fewer and larger piles facilitate burning.

4. Piles or any portion thereof shall be located in openings at least 15 feet from the nearest leave trees, drainages, Control Areas (CA), or unit boundaries, and 30 feet from snags. There may be areas where pile placement is difficult because of the remaining crop trees. The contractor may have to push the material to a suitable pile location. A suitable location is one where the pile may be burned without damaging the crop trees or other protected vegetation. The size of the pile shall be adjusted to the size of the opening and the size of the surrounding trees. If the opening is large the pile may be large, if the opening is small the pile size must be adjusted. The size of the surrounding trees also is a consideration for the pile size. If the trees are large and the limbs are farther from the ground the pile may be a
little larger but if the surrounding trees are smaller with the crown near the pile
the pile must be smaller. More space is required above (uphill) the pile than
below. The piles should be worked from all sides.

5. Piles shall be compact and be as free of soil as possible. Piles that are not a
minimum of 90 percent soil free shall be reworked. If, in the judgment of the
contract administrator, the piles contain excessive soil, the piles shall be broken
apart, re-piled, and the soil dispersed over the area. To create a more compact
pile, push large logs piled parallel in the base of the pile and continue to push
additional slash on top. The length of the pile shall be approximately equal to its
width, and the height shall be at least half of its diameter. Materials overhanging
the pile’s edge that are greater than 6 feet (2 m) in length, shall be cut off and
materials placed into piles. When building piles with log like material care should
be taken to build the pile so the logs will not roll down the hill both during the
pile construction and as much as possible during burning.

6. All materials partially pushed over, hung up, left in an unsafe position, shall be
either reworked with the tractor or felled by hand.

7. Soil disturbance caused by the Contractor’s operations which may cause erosion
shall be cross raked on the contour.

8. Existing water bars shall be left intact. The Contractor shall avoid water bars or
lift the implement blades prior to driving over them. The Contractor shall restore,
at no additional cost, water bars in skid trails, fire lines, spur roads, roadblocks,
and other items affected by his/her operations. Erosion work must be completed
in a timely manner. This means that the erosion structures must be maintained and
in working condition when a weather event is predicted regardless of progress of
the other work.

9. Grapple piling shall adhere to the same specifications as stated for tractor piles. In
addition, in an effort to minimize ground disturbance the contractor shall try to
operate in a fashion that maximizes the use of the boom and minimizes the
amount of area the machine actually tracks over. The operator shall work the pile
from all sides. This will help prevent fire from creeping out of the pile when
burned. The pile shall not be connected with areas of un-piled material (example:
non-work areas, areas with only small ground cover, snag patches streamside
zones).

10. Where machine/grapple piling is not allowable, hand piling shall be performed. In
areas of hand piling, all felled material below 15” DBH shall be bucked into
lengths and piled. Felled material between 15” DBH and 20” DBH shall be
bucked into lengths (average 12 feet but shorter to 8 feet may be required where
surviving trees require working in tighter spaces) and retained. If any bucked live
material is below 15” DBH on average, it shall be incorporated into piles.

11. Piles shall be piled in a “Beehive/dome” shape.
B. **Mastication Specifications**

*In addition to all general specifications listed above in I, the following specifications apply:*

1. The spacing of leave trees will generally be 30 x 30 feet.

2. Remove all target trees where they exist under the canopy/within the drip line of the larger conifer trees 24-inch DBH or greater.

3. All project created stumps, including those of shrubs, shall be less than 6-8 inches high as measured from the uphill side. Scattered stump heights up to no more than 12 inches from any natural obstacles such as rocks or downed logs will be tolerated on up to 10% of the area. All unobstructed stumps shall be severed below the lowest live limbs or stems of trees and brush.

4. Masticate brush (greater than 12 inches in height and greater than 1 inch in diameter) within canopy drip line of residual/leave trees and to break up areas of continuous brush coverage.

5. Boom mounted equipment will be allowed to reach in and treat portions of identified exclusion zones when/where identified by the Registered Professional Forester.

6. 8” maximum height/depth of masticated material.

7. Maximum piece size 18” x 4”.

8. 12” clearance from obstacles or retained features (e.g., rocks, private property fences/features).

9. Slash and vegetation may be left in place where removal would result in damage to the bark, bole, or roots of leave trees.

10. Minimize turning of equipment to protect duff layer. Berms created from equipment movements that are greater than 8” in height of soil (not litter/duff) must be dispersed or brushed over to even out the surface.

11. Effort should be made to direct masticated vegetation within unit boundaries for prescribed treatment (especially along hwy./roads, Control Areas/unique features, and private property.)
III. ITEM 2: Hand Cut / Hand Pile

In addition to all general specifications listed above in I, the following specifications apply:

A. Hand Cut

1. Description:
The primary purpose of this is to reduce the hazard and fuel loading created by the large number of dead trees in the project area of the High Sierra R.D. It is the goal of the project to reduce the fire danger created by the large volume of fuel. The felling of all the dead trees and cutting of brush within the designated hand cut / hand pile polygons surrounding the streams along with removal, will reduce the fuels accumulated in these drainages. The stream types and their associated hand cut / hand pile buffer zones are as follows: perennial streams have a buffer of 75 feet, intermittent streams have a buffer of 50 feet, and ephemeral streams have a buffer of 25 feet.

The created slash, any existing slash and brush already onsite must then be treated to reduce the fire hazard. All material must be pulled 25 feet away from the stream course and piled for burning. Live trees (conifers and hardwoods) are to be protected and not damaged by the contractor’s activities. The contractor must use hand treatments. Proposals must meet the specifications found in this document. This should be considered when preparing the bid for falling.

B. Piling Specifications

1. The Contractor shall clear and pile ninety percent of all slash exceeding 24 inches in length and 3 inches in diameter and shall pile all dead and live vegetation as specified. Manzanita and other large brush shall be uprooted and crushed before being placed in a pile, this facilitates making a tightly compacted pile and creating small pieces that are left behind as ground cover, which is often lacking when piling brush. Slash and vegetation may be left in place where vegetation is so close to leave trees that the removal of the vegetation would cause damage to the leave trees. Leave trees and vegetation not specified to be treated shall be left undisturbed.

2. Hand piling shall be performed. All felled material below 15” DBH shall be bucked into lengths and piled. Felled material between 15” DBH and 20” DBH shall be bucked into lengths (average 12 feet but shorter to 8 feet may be required where surviving trees require working in tighter spaces) and retained.
If any bucked live material is below 15” DBH on average, it shall be incorporated into piles. All woody brush vegetation should be cut and piled as well.

3. Hand piling is the preferred method for piling. This material should not be so much as to impede planting or be a fuels hazard. Materials which are less than 3 inches in diameter and less than 24 inches in length may be left to attain the ground cover requirements. If the slash cover exceeds 50%, the Contractor shall pile the smaller fuels to meet the slash piling requirements.

4. On occasion there might be longer lengths of slash and debris. If this occurs, the Contractor shall cut the slash into lengths that allow piling without injuring the residual crop trees, and the burning of the pile without damaging residual vegetation. The contractor must not damage the standing trees when moving this material. In areas where there are no standing live trees that could be damaged longer material may be piled. In these areas fewer and larger piles facilitate burning.

5. Piles or any portion thereof shall be located in openings at least 15 feet from the nearest leave trees, drainages, Control Areas (CA), or unit boundaries, and 30 feet from snags. There may be areas where pile placement is difficult because of the remaining crop trees. The contractor may have to push the material to a suitable pile location. A suitable location is one where the pile may be burned without damaging the crop trees or other protected vegetation. The size of the pile shall be adjusted to the size of the opening and the size of the surrounding trees. If the opening is large the pile may be large, if the opening is small the pile size must be adjusted. The size of the surrounding trees also is a consideration for the pile size. If the trees are large and the limbs are farther from the ground the pile may be a little larger but if the surrounding trees are smaller with the crown near the pile the pile must be smaller. More space is required above (uphill) the pile than below. The piles should be worked from all sides.

6. Piles shall be compact and be as free of soil as possible. Piles that are not a minimum of 90 percent soil free shall be reworked. If, in the judgment of the contract administrator, the piles contain excessive soil, the piles shall be broken apart, re-piled, and the soil dispersed over the area. To create a more compact pile, push large logs piled parallel in the base of the pile and continue to push additional slash on top. The length of the pile shall be approximately equal to its width, and the height shall be at least half of its diameter. Materials overhanging the pile’s edge that are greater than 6 feet (2 m) in length, shall be cut off and materials placed into piles. When building piles with log like material care should be taken to build the pile so the logs will not roll down the hill both during the pile construction and as much as possible during burning.
7. Soil disturbance caused by the Contractor’s operations which may cause erosion shall be cross raked on the contour.

8. Existing water bars shall be left intact. The Contractor shall restore, at no additional cost, water bars in skid trails, fire lines, spur roads, roadblocks, and other items affected by his/her operations. Erosion work must be completed in a timely manner. This means that the erosion structures must be maintained and in working condition when a weather event is predicted regardless of progress of the other work.

9. Piles shall be piled in a “Beehive/dome” shape.

10. In areas with Carpenteria, the Contractor shall avoid and not cut 20ft around the plant.

*Photo of Flowering Carpenteria californicus.

IV. Restrictions on Work (All Items)

Work may be performed at any time during the period of the Agreement, except as outlined here. Nothing in this part shall be construed to take away any of the Government's rights under the Suspension of Work Clause (52.242-14). Restrictions are as follows:

A. In accordance with the fire plan.

B. When the Agreement Officer (or designated representative) determines that adverse weather has made access too dangerous or that continued vehicular travel would cause unacceptable road damage.

C. When the Agreement Officer (or designated representative) determines that continued operation may be injurious to leave trees.

D. If any Sierra Nevada yellow-legged frog is found at any time during implementation of this Project, cease operations in the vicinity of the frog, vacate the immediate area and leave the frog alone. If possible, take a photograph of the frog as follows: top looking down, and side view. No activity will occur in that area until such time as the frog has vacated the area on its own volition. With the exception of a U. S. Fish and Wildlife
Service approved biologist, do not handle Sierra Nevada yellow-legged frogs. Report the occurrence as soon as possible to the GTM or Designated Representative. Project activities would be halted and USFWS would be contacted to start consultation as required by law.

V. Public Safety (All Items)

The Contractor shall provide for public safety when operating equipment within 200 feet of open roadways and designated trails by posting cautionary signs warning of hazardous work ahead. Warning signs (at least two, one for each direction) shall be posted on roads. These shall be located 200’ from the intersection of the road and unit boundary at each edge of the unit. Signs shall be posted whenever working to alert oncoming traffic of the safety hazards associated with the operation. Trails must also be signed unless administratively closed by the Government. Signs shall include phrases similar to “Caution, tree falling stay back 200 feet” and be no less than 3 feet X 3 feet in size. Lettering shall be at least 6 inches in height.

A. Accessibility
   Most areas are accessible with a 2-wheel drive vehicle after snowmelt. The Government assumes no liability to perform special road maintenance to keep roads open to the project area.

B. Maps
   Maps showing the general vicinity and/or specific work areas are included in Appendix C. Maps are general in nature and are not to be considered as definitively identifying locations.

   Any prospective Contractor desiring an explanation or interpretation of the solicitation, drawings, specifications, etc., must request it in writing from the party responsible for the agreement soon enough to allow a reply to reach all prospective partners before the solicitation closing date. Oral explanations or instructions given before award of the agreement will not be binding.

C. Public Information Plan
   A Plan will be developed prior to project implementation as a joint effort between the NFF and USFS. The intent of shared public information would be to inform interested parties and residents regarding trail or road closures, the foreseeable schedule for project implementation.

D. Flagging Identification
   a. Boundary: Red and Black Striped flagging
   b. Cultural Sites: Blue & Black Striped and White
   c. Riparian Buffers: Blue & White polka dots
   d. Botany (Sensitive Plants): Orange & White with the letters, “ESA”
   e. Botany (Noxious Weed): Orange with the words, “Noxious Weeds”
VI. Inspection and Acceptance Procedures (All Items)

A. Inspection Procedures

The Contractor will be required to submit self-inspection forms to be reviewed and subsampled prior to payment or acceptance of work. Plot centers will be marked with flagging so that plot centers can be relocated for spot checking purposes. Government representatives and NFF may inspect all or none of the inspection plot locations to verify accuracy. Inspection forms must be submitted to government representatives in a timely manner and should allow up to 10 days for review prior to acceptance of work. Each plot center will have the plot number, unit number, date and inspectors’ initials written on the flagging. A plot inspection form will be used to record the findings and will be submitted to the government. Inspection forms will record the following information on each plot:

1. The number of trees left uncut
   If any trees are left uncut per specifications, the plot fails. Up to 5 trees (250 TPA) less than 3 feet in height will be allowable and will not result in a failed inspection plot.

2. The treatment of cut material
   If there are any more than 5 pieces measuring at least 1 inch in diameter on the large end and equal to or greater than 3 feet in length left un-piled per the specification, the plot will fail.

3. The nearest hand pile
   The nearest hand pile to the plot center will also be inspected (even if it is out of the plot). The hand pile must meet all specifications, or the hand pile inspection fails.

4. Any vegetation cut per specification
   Trees, shrubs, and other plants to be left untreated will be charged under liquidated damages.

5. Mastication
   Masticated material greater than 18 inches in length and 4 inches in diameter is allowable up to 1,000 pieces per acre (20 pieces per 1/50th acre plot). Where this threshold is exceeded or concentrations of debris occur, the Partner shall rework the area until acceptable conditions are achieved.

6. Sample Size
   A series of 1/50th acre plots (16.7-foot plot radius) per every 5 acres, with a minimum of three plots per unit, will be sampled by a fixed series of plots evenly distributed over the entire treatment area. The plot size will be a fixed radius measured in horizontal distance.

   On each plot the designated inspectors will record the plot number, whether the
plot is satisfactory or unsatisfactory and the reason if unsatisfactory. Each plot will be examined to record findings on items “1” through “10” listed below. To be considered satisfactory these items must meet the following criteria:

B. Performance Measures

Each of these gets a rating of 1 with a total of 10 possible points.

1. General Project Specifications (Items 1 & 2)
   a. Selection of cut trees (size of cut tree stumps)
   b. Proximity and diameter of leave trees
   c. Stumps of trees and brush
   d. Riparian buffer compliance
   e. No damage to residual trees
   f. Any treated material that falls outside of the unit boundary needs to be removed and piled.

2. Piling (Items 1 & 2)
   a. Placement/location of pile
   b. Dimension and structure of pile
   c. Plastic utilization/placement
   d. Length of material in piles

3. Mastication (Item 1)
   a. Selection of cut trees (size of cut tree stumps)
   b. Size of masticated material
   c. Proximity and diameter of leave trees
   d. Stumps of trees and brush
   e. Riparian buffer compliance
   f. No damage to residual trees
   g. Any treated material that falls outside of the unit boundary needs to be removed and hand piled.

C. Acceptance

Work on this Agreement will be deemed acceptable when a score of 90% or more is achieved. For a score of 80% or more but less than 90%, 2% of the unit price pay will be deducted for that unit for each percentage point below 90%. If the inspection score is less than 80% then there is no pay. The unit may be reworked ONCE and then re-inspected. This re-inspection score will be the final result for payment on that unit, (see re-inspection after rework below).

D. Government Inspections

Government inspections are for the purpose of satisfying the Government that the services are acceptable and do not relieve the Contractor of the responsibility for maintaining quality control.
The Agreement Officer's Representative or designated inspector will conduct all inspections. The Contractor (or designated representative) is encouraged to be present to observe inspections. Summary results will be made available on request.

1. **Compliance Inspections**
   Visual compliance inspections will be made on a periodic basis. Such inspections are not final and do not constitute acceptance by the Government.

2. **Final Inspections**
   Final (formal) inspections for payment will be made on completed sub-items only. The Partner shall request final inspections in writing and give the Forest Service at least two working days advanced notice. Inspection forms will be provided to the Forest Service at the time of final inspection request. Inspections will be completed within ten working days after the notice is received. If the work is not ready for inspection at the time specified by the Contractor, the cost associated with the inspection attempt may be charged to the Contractor.

3. **Disputed Inspection**
   The Contractor may request re-inspection without rework if the results are unacceptable. Re-inspection must be requested in writing within 48 hours after receiving written notice of the inspection results. Re-inspection will be accomplished within five working days after receipt of the Contractor's written request.

   The same sampling and inspection procedures will be used, but new samples will be taken. The inspection pattern will be shifted so that new samples will not overlap with previously inspected samples. Results will be rounded to the nearest whole percent.

   If re-inspection results are within five percentage points of the first inspection, the original inspection result will be used in determining acceptability and payment. If re-inspection results are greater than five percentage points above or below the first inspection, the re-inspection results will be used.

   If the re-inspection results are within five percentage points of the first inspection, the Partner shall pay the actual costs of the re-inspection.

4. **Re-inspection after Rework**
   Where rework after a failed inspection may improve the inspection results, the Contractor may rework the area and request (in writing) a second inspection. The Government will charge the Contractor the cost of this additional inspection. Re-inspection will be accomplished within five working days after the notice is received. The results of the second inspection will be final, and no further rework will be permitted. Areas not ready for re-inspection at the time specified by the Contractor will not be re-inspected, and the results of the first inspection will be final.
DESIGN CRITERIA COMMON TO ACTION
ALTERNATIVES

Design criteria have been developed as part of the proposed action to protect species and their habitats within the proposed project. These criteria have been designed to meet legal requirements, management direction and policies. The action alternatives would adhere to the standards and guidelines of the Sierra Land and Resource Management Plan. Best management practices would be undertaken to avoid, minimize, or reduce the effects of management activities and ensure that a cumulative watershed impact would not occur. The Wildland Fire Policy has outlines a strategy that incorporates ecological processes to ensure that forest programs and activities support land and resource management plans and incorporates public health and environmental quality considerations.

Air Conformity Determination

The most effective means of controlling wildfire emissions is to prevent the occurrence of wildfires. A frequently used technique for reducing wildfire occurrence is "prescribed" or "hazard reduction" burning. This type of managed burn involves combustion of dead-and-down woody debris, forest Litter, and some underbrush to prevent fuel buildup under controlled conditions, thus reducing the danger of a wildfire. Specific techniques to reduce fire emissions include the following:

Employ commonly used reduction techniques such as burning units after harvest before new live fuels appear; burning in the springtime prior to "green-up;" burning when 1,000-hour fuels (woody debris larger than 3 inches in diameter) moistures are high; and burning when the duff is wet (after fall precipitation, or during winter and spring).

Employ avoidance techniques such as burning on cloudy days when the plume and residual smoke cannot be seen; burning during periods of atmospheric instability for better smoke dispersal; and burning during periods of low visitor use.

Employ techniques to optimize flaming combustion, including burning piled fuels rather than broadcast burning; reducing the amount of soil in piles; and employing rapid ignition to create a high intensity fire.

Ensure that all activities conform to the State Implementation Plan (SIP).

Conduct a full conformity analysis, as required by the Clean Air Act and the SIP to assess whether the proposed action produces less than de minimis emissions.

Aquatic Ecosystems

In addition to following LRMP (USDA-FS 2001) and ROD (USDA-FS 2004) Standard and Guidelines outlined in Section III of this document, Project Design Criteria for activities within occupied and suitable habitat were assigned for aquatic species and habitat protection during project work.
To achieve the “may affect, but is not likely to lead to federal listing or loss of viability” determination for the Western pond turtle and Foothill yellow-legged frog, and a “may affect, not likely to adversely affect” determination for the California red-legged frog, the following project design measures will need to be implemented:

**Jose Basin Road:**

- Limited operation period within 300 feet of Italian Creek (Western pond turtle (WPT)):
  - June 15th – October 15th
- Hand piles will be located at a minimum of 300 ft from Italian Creek crossing.
- For all other channels, hand piles will be located at a minimum of:
  - Perennial: 100 feet from streambanks.
  - Seasonal: 50 feet from streambanks.
- If WPT individuals are located in the project area during implementation, gently move them into a safe place nearby (ie: stream channel) in the direction they were traveling. Notify the District Aquatic Biologist of any sightings.
- No storage of fuels and other toxic materials within RCAs and CARs except at designated administrative sites and sites covered by a Special Use Authorization.
- No refueling of chainsaws or other equipment within RCAs and CARs unless there are no other alternatives (that location must first be approved by the District Hydrologist). Ensure that spill plans are reviewed and up-to-date. (S/G #99)
- Slash / brush piles within 100 feet of the edge of riparian vegetation shall not be burned during from first fall rain or October 15th until June 15th unless site is reviewed by Aquatic biologist for potential Western pond turtle breeding habitat.
- Slash / brush piles shall be ignited using a pattern that allows animals to escape the fire. For example, light the pile at one end or leave an area unignited that serves as an escape route.
- Do not cut riparian vegetation at stream channel crossings.

**Powerhouse Road Brushing, P-line:**

- Hand piles will be located at a minimum of 100 ft from perennial streambanks and 50 feet from seasonal streambanks.
- If Western pond turtle individuals are located in the project area during implementation, gently move them into a safe place nearby (ie: stream channel) in the direction they were traveling. Notify the District Aquatic Biologist of any sightings.
- No storage of fuels and other toxic materials within RCAs and CARs except at designated administrative sites and sites covered by a Special Use Authorization.
- No refueling of chainsaws or other equipment within RCAs and CARs unless there are no other alternatives (that location must first be approved by the District Hydrologist). Ensure that spill plans are reviewed and up-to-date. (S/G #99)
- Slash / brush piles within 100 feet of the edge of riparian vegetation shall not be burned during from first fall rain or October 15th until June 15th unless site is reviewed by Aquatic biologist for potential Western pond turtle breeding habitat.
- Slash / brush piles shall be ignited using a pattern that allows animals to escape the fire. For example, light the pile at one end or leave an area unignited that serves as an escape route.
Do not cut riparian vegetation at stream channel crossings.

**Powerhouse:**
- None

**Beal:**

1. **California red-legged frog:**
   - **Unit 2:** Limiting operating period from June 16th to September 30th. From October 1st to June 15th no activity can occur within the California red-legged frog protection zone or within riparian conservation areas (See Map: Appendix C Aquatics Specialist Report)
   - **Unit 2:** No mechanical treatments year round within 300 feet of identified CRLF suitable habitat (See Map: Appendix CAquatic Specialist Report).
   - **Unit 2:** Daily visual surveys for California red-legged frogs (CRLF) under and around all vehicles and/or machinery before such equipment is moved. Visual surveys shall also be performed if project activities occur outside of suitable habitat during the limited operating period (between October 15 and March 31, or first rain). If California red-legged frogs are found, personnel shall avoid injuring, harassing, or harming individual frogs. Cease operations at the site and contact the Forest Service to report sighting. Only permitted Forest Service employees may remove California red-legged frogs from the activity area.
   - **Unit 1,2 and 13** = No herbicide spraying within 500 feet of ponds (See Maps: Appendix D Aquatics Specialist Report)

2. **Herbicides:** The following management direction for all herbicide treatments will be incorporated for all other areas not associated with CRLF potential suitable breeding habitat:

<table>
<thead>
<tr>
<th>Stream Class</th>
<th>Flag and protect 100 feet + 3 feet for each percent slope of the stream bank in excess of 30 percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stream Class II</td>
<td>Flag and protect 75 feet + 3 feet for each percent slope of the stream bank in excess of 30 percent</td>
</tr>
<tr>
<td>Stream Class III</td>
<td>Flag and protect 50 feet + 3 feet for each percent slope of the stream bank in excess of 30 percent</td>
</tr>
<tr>
<td>Stream Class IV</td>
<td>Flag and protect 5 feet of both sides if channel is dry. If water is flowing in the channel a 25-foot buffer should be used</td>
</tr>
<tr>
<td>Stream Class V</td>
<td>No special protection other than provide no additional sediment in the system due to soil disturbance</td>
</tr>
</tbody>
</table>

- Limit spraying to times when rain events are not in the near future to allow for maximum absorption into soils.
- In addition to the above direction for herbicide treatments, no application will be conducted when wind speeds are greater than three miles per hour within 300 feet of Class I or II streams below 5,000 feet elevation. This is based on informal consultation with the USFWS (1999).

3. If Western pond turtle (WPT) individuals are located in the project area during implementation, gently move them into a safe place nearby (ie: stream channel) in the direction they were traveling. Notify the District Aquatic Biologist of any sightings.

4. No storage of fuels and other toxic materials within RCAs and CARs except at designated administrative sites and sites covered by a Special Use Authorization.

5. No refueling of chainsaws or other equipment within RCAs and CARs unless there are no other alternatives (that location must first be approved by the District Hydrologist). Ensure that spill plans are reviewed and up-to-date. (S/G #99)

6. Slash / brush piles within 100 feet of the edge of riparian vegetation shall not be burned during
from first fall rain or October 15 until June 15\textsuperscript{th} unless site is reviewed by Aquatic biologist for potential Western pond turtle breeding habitat.

7. Slash / brush piles shall be ignited using a pattern that allows animals to escape the fire. For example, light the pile at one end or leave an area unignited that serves as an escape route.

8. Do not cut riparian vegetation unless approved by the District Fish/Aquatic biologist.

9. If stream drafting is necessary:
   a. Drafting sites will be approved by the District Hydrologist or Aquatic Biologist prior to use.
   b. Drafting sites shall be visually surveyed for frogs and their eggs before drafting begins.
   c. Use a screened intake device and pumps with low entry velocity and suction strainers with screen less than 2mm (1/8 in) in size to minimize removal of aquatic species, including juvenile fish, amphibian egg masses and tadpoles, from aquatic habitats. (ROD S/G #110)
   d. The suction strainer shall be inserted close to the substrate in the deepest water available and placed in a canvas bucket to avoid substrate and aquatic species disturbance.
   e. Allow no drafting unless immediate downstream discharge from drafting site is maintained at 1.5 cfs or greater. (LRMP S/G #43; BMP 2-21)
   f. Permit water drafting to remove no more than 50% of any stream’s ambient discharge that is over 1.5 cfs. (LRMP S/G #43; BMP 2-21)


\textbf{Burrough Mountain:}

1. No storage of fuels and other toxic materials within RCAs and CARs except at designated administrative sites and sites covered by a Special Use Authorization.

2. No refueling of chainsaws or other equipment within RCAs and CARs unless there are no other alternatives (that location must first be approved by the District Hydrologist). Ensure that spill plans are reviewed and up-to-date. (S/G #99)

3. Do not cut riparian vegetation unless approved by the District Fish/Aquatic biologist.

4. Slash / brush piles within 100 feet of the edge of riparian vegetation shall not be burned during from first fall rain or October 15 until June 15\textsuperscript{th} unless site is reviewed by Aquatic biologist for potential Western pond turtle breeding habitat.

5. Slash / brush piles shall be ignited using a pattern that allows animals to escape the fire. For example, light the pile at one end or leave an area unignited that serves as an escape route.

6. If Western pond turtle individuals are located in the project area during implementation, gently move them into a safe place outside of project boundaries nearby in the direction they were traveling. Notify the District Aquatic Biologist of any sightings.

7. If stream drafting is necessary:
   a. Drafting sites will be approved by the District Hydrologist or Aquatic Biologist prior to use.
   b. Drafting sites shall be visually surveyed for frogs and their eggs before drafting begins.
   c. Use a screened intake device and pumps with low entry velocity and suction strainers with screen less than 2mm (1/8 in) in size to minimize removal of aquatic species, including juvenile fish, amphibian egg masses and tadpoles, from aquatic habitats. (ROD S/G #110)
   d. The suction strainer shall be inserted close to the substrate in the deepest water available and placed in a canvas bucket to avoid substrate and aquatic species disturbance.
   e. Allow no drafting unless immediate downstream discharge from drafting site is maintained at 1.5 cfs or greater. (LRMP S/G #43; BMP 2-21)
f. Permit water drafting to remove no more than 50% of any stream’s ambient discharge that is over 1.5 cfs. (LRMP S/G #43; BMP 2-21)


9. **Herbicides:** The following management direction for all herbicide treatments will be incorporated:

<table>
<thead>
<tr>
<th>Stream Class</th>
<th>Protection Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stream Class I</td>
<td>Flag and protect 100 feet + 3 feet for each percent slope of the stream bank in excess of 30 percent</td>
</tr>
<tr>
<td>Stream Class II</td>
<td>Flag and protect 75 feet + 3 feet for each percent slope of the stream bank in excess of 30 percent</td>
</tr>
<tr>
<td>Stream Class III</td>
<td>Flag and protect 50 feet + 3 feet for each percent slope of the stream bank in excess of 30 percent</td>
</tr>
<tr>
<td>Stream Class IV</td>
<td>Flag and protect 5 feet of both sides if channel is dry. If water is flowing in the channel a 25-foot buffer should be used</td>
</tr>
<tr>
<td>Stream Class V</td>
<td>No special protection other than provide no additional sediment in the system due to soil disturbance</td>
</tr>
</tbody>
</table>

- Limit spraying to times when rain events are not in the near future to allow for maximum absorption into soils.
- In addition to the above direction for herbicide treatments, no application will be conducted when wind speeds are greater than three miles per hour within 300 feet of Class I or II streams below 5,000 feet elevation. This is based on informal consultation with the USFWS (1999).

**Lerona:**
- None

**Shaver Springs:**

1. For Dozer treatment:  Limited operation period within 300 feet of perennial stream channel (Western pond turtle (WPT)):
   - June 15th – October 15th

2. Follow Streamside Management Zones (SMZs) restrictions and guidelines outlined in the Hydrologist report (Gott 2010).

3. Follow all Best Management Practices outlined in the Hydrologist report (Gott 2010) for dozer pile activities related to soil disturbance.

4. No storage of fuels and other toxic materials within RCAs and CARs except at designated administrative sites and sites covered by a Special Use Authorization (S/G 99).

5. No refueling of chainsaws or other equipment within RCAs and CARs unless there are no other alternatives (that location must first be approved by the District Hydrologist). Ensure that spill plans are reviewed and up-to-date. (S/G #99)

6. Do not cut riparian vegetation unless approved by the District Fish/Aquatic biologist.

7. Slash / brush piles will be located at a minimum of 100 ft from perennial streambanks and 50 feet from all seasonal flowing streams, including dry stream channels.

8. Slash / brush piles within 100 feet of the edge of riparian vegetation shall not be burned during from first fall rain or October 15 until June 15th unless site is reviewed by Aquatic biologist for potential Western pond turtle breeding habitat.

9. Slash / brush piles shall be ignited using a pattern that allows animals to escape the fire. For
example, light the pile at one end or leave an area unignited that serves as an escape route.

10. If WPT are located in the project area during implementation, gently move them into a safe place nearby (ie: stream) in the direction they were traveling. Notify the District Aquatic Biologist of any sightings.

11. If stream drafting is necessary:
   a. Drafting sites will be approved by the District Hydrologist prior to use.
   b. Drafting sites shall be visually surveyed for frogs and their eggs before drafting begins.
   c. Use a screened intake device and pumps with low entry velocity and suction strainers with screen less than 2mm (1/8 in) in size to minimize removal of aquatic species, including juvenile fish, amphibian egg masses and tadpoles, from aquatic habitats. (ROD S/G #110)
   d. The suction strainer shall be inserted close to the substrate in the deepest water available and placed in a canvas bucket to avoid substrate and aquatic species disturbance.
   e. Allow no drafting unless immediate downstream discharge from drafting site is maintained at 1.5 cfs or greater. (LRMP S/G #43; BMP 2-21)
   f. Permit water drafting to remove no more than 50% of any stream’s ambient discharge that is over 1.5 cfs. (LRMP S/G #43; BMP 2-21)

   g. Upper Sycamore:
      1. For Dozer treatment: Limited operation period within 300 feet of perennial stream channel (Western pond turtle (WPT)):
         a. June 15th – October 15th
      2. Follow Streamside Management Zones (SMZs) restrictions and guidelines outlined in the Hydrologist report (Gott 2010).
      3. Follow all Best Management Practices outlined in the Hydrologist report (Gott 2010) for dozer pile activities related to soil disturbance.
      4. No storage of fuels and other toxic materials within RCAs and CARs except at designated administrative sites and sites covered by a Special Use Authorization (S/G 99).
      5. No refueling of chainsaws or other equipment within RCAs and CARs unless there are no other alternatives (that location must first be approved by the District Hydrologist). Ensure that spill plans are reviewed and up-to-date. (S/G #99)
      6. Do not cut riparian vegetation unless approved by the District Fish/Aquatic biologist.
      7. Slash / brush piles will be located at a minimum of 100 ft from perennial streambanks and 50 feet from all seasonal flowing streams, including dry stream channels.
      8. Slash / brush piles within 100 feet of the edge of riparian vegetation shall not be burned during from first fall rain or October 15 until June 15th unless site is reviewed by Aquatic biologist for potential Western pond turtle breeding habitat.
      9. Slash / brush piles shall be ignited using a pattern that allows animals to escape the fire. For example, light the pile at one end or leave an area unignited that serves as an escape route.
      10. If WPT are located in the project area during implementation, gently move them into a safe place nearby (ie: stream) in the direction they were traveling. Notify the District Aquatic Biologist of any sightings.
      11. If stream drafting is necessary:
          h. Drafting sites will be approved by the District Hydrologist prior to use.
Drafting sites shall be visually surveyed for frogs and their eggs before drafting begins.

j. Use a screened intake device and pumps with low entry velocity and suction strainers with screen less than 2mm (1/8 in) in size to minimize removal of aquatic species, including juvenile fish, amphibian egg masses and tadpoles, from aquatic habitats. (ROD S/G #110)

k. The suction strainer shall be inserted close to the substrate in the deepest water available and placed in a canvas bucket to avoid substrate and aquatic species disturbance.

l. Allow no drafting unless immediate downstream discharge from drafting site is maintained at 1.5 cfs or greater. (LRMP S/G #43; BMP 2-21)

m. Permit water drafting to remove no more than 50% of any stream’s ambient discharge that is over 1.5 cfs. (LRMP S/G #43; BMP 2-21)

Vincent:

1. Follow Streamside Management Zones (SMZs) restrictions and guidelines outlined in the Hydrologist report (Gott 2010).


3. No storage of fuels and other toxic materials within RCAs and CARs except at designated administrative sites and sites covered by a Special Use Authorization (S/G 99).

4. No refueling of chainsaws or other equipment within RCAs and CARs unless there are no other alternatives (that location must first be approved by the District Hydrologist). Ensure that spill plans are reviewed and up-to-date. (S/G #99)

5. Do not cut riparian vegetation unless approved by the District Fish/Aquatic biologist.

6. If Western pond turtle individuals are located in the project area during implementation, gently move them into a safe place outside of project boundaries nearby in the direction they were traveling. Notify the District Aquatic Biologist of any sightings.

7. **Herbicides:** The following management direction for all herbicide treatments will be incorporated:

<table>
<thead>
<tr>
<th>Stream Class</th>
<th>Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Flag and protect 100 feet + 3 feet for each percent slope of the stream bank in excess of 30 percent</td>
</tr>
<tr>
<td>II</td>
<td>Flag and protect 75 feet + 3 feet for each percent slope of the stream bank in excess of 30 percent</td>
</tr>
<tr>
<td>III</td>
<td>Flag and protect 50 feet + 3 feet for each percent slope of the stream bank in excess of 30 percent</td>
</tr>
<tr>
<td>IV</td>
<td>Flag and protect 5 feet of both sides if channel is dry. If water is flowing in the channel a 25-foot buffer should be used</td>
</tr>
<tr>
<td>V</td>
<td>No special protection other than provide no additional sediment in the system due to soil disturbance</td>
</tr>
</tbody>
</table>

- Limit spraying to times when rain events are not in the near future to allow for maximum absorption into soils.
- In addition to the above direction for herbicide treatments, no application will be conducted when wind speeds are greater than three miles per hour within 300 feet of Class I or II streams below 5,000 feet elevation. This is based on informal consultation with the USFWS (1999).

Additional aquatic species protection measures may be required if newly listed or unknown populations or suitable habitat for aquatic species are found, or if project activities change due to unseen circumstances.
Botany and Noxious Weeds

1. Before spraying glyphosate (Accord®) for brush or noxious weed control in fuelbreak areas, please consult with a Sierra National Forest botanist in order to maximize effectiveness of treatments and to allow the botanist time to review the planned spray area to flag areas with known or potential for Forest Service Sensitive plant species.

2. Please clean heavy equipment before use in fuelbreak maintenance or construction to prevent the spread of noxious weed propagules. Additionally, if working in areas with known infestations (i.e. yellow starthistle), equipment is strongly recommended to be cleaned before being brought on elsewhere on the Sierra NF. Suitable areas for cleaning will be identified in advance of equipment use in conjunction with other resource specialists.

3. In order to protect rock outcrop species (primarily orange annual lupine) and their associated habitat, avoid driving equipment on, piling brush or cutting lines through rock outcrops and adjacent gravel pans. Consult with a Forest Service botanist before doing any activities that may result in rock outcrops being impacted by equipment or personnel in the aforementioned manner.

4. Consult with Forest Service botanist before grading or dozing fuelbreak roads, especially Beal fuelbreak (Rd 10S307), to allow time to flag Carpenteria californica and other species of concern if they may be impacted by road maintenance.

5. Report any new occurrences of noxious weeds in the project areas to a Forest Service botanist immediately; local species of concern include: yellow starthistle, medusahead, Italian thistle, brooms, and bull thistle.

Cultural Resources

This project will comply with the stipulations of the First Amended Regional Programmatic Agreement Among the USDA Forest Service, Pacific Southwest Region, California State Historic Preservation Officer, and Advisory Council on Historic Preservation Regarding the Process for Compliance with Section 106 of the National Historic Preservation Act for Undertakings on the National Forests of the Pacific Southwest Region (Regional PA), dated 2001, or successor PAs. This project meets Stipulation III.D.(3)., Undertakings Where Management Measures Are Necessary for the Protection of Historic Properties.

Archaeological Resources: The nature and scope of this project are such that the potential effects to archaeological properties can be reasonably predicted, and appropriate protection measures derived from the Regional PA (Attachment B, and the Regional PA’s Interim Protocol for Non-Intensive Inventory Strategies for Hazardous Fuels and Vegetation Reduction Projects) will be implemented to ensure the values of heritage resources are not affected:

Ground-Disturbing Treatments: Ground disturbance can result in alteration of characteristics that could affect the National Register of Historic Places (NRHP) eligibility of archaeological resources. The cultural resources identified within or adjacent to each of the fuelbreak APEs will be excluded from activities that could result in ground disturbance within their boundaries, in accordance with the Standard Protection Measures of the Regional PA (Attachment B, I.A., B.). Typical implementation of the Standard Protection Measures is the practice of “flag-and-avoid”. 
Prior to any fuelbreak work, the District Archaeologist will be contacted to collaborate on identifying and marking those cultural resources for avoidance during implementation.

**Non-ground Disturbing Treatments:** Certain proposed treatment methods are not ground-disturbing in nature, but may have the potential to adversely affect the NRHP eligibility of cultural resources in ways other than by ground disturbance:

- **Hand cutting and piling of brush:** The following Standard Protection Measures from the Interim Protocol will be implemented for this treatment:
  - V.B.3. Vegetation may be removed and fire lines or breaks may be constructed within sites using hand tools, so long as ground disturbance is minimized, and features are avoided, as specified by the District Archaeologist.
  - V.B.8. Vegetation to be burned shall not be piled within the boundaries of historic properties unless the location (e.g. a previously disturbed area) has been specifically approved by the District Archaeologist.
  - V.B.9. Mechanically treated (crushed/cut) brush or downed woody material may be removed from historic properties by hand, through the use of off-site equipment, or by rubber-tired equipment approved by the District Archaeologist. Ground disturbance shall be minimized to the extent practicable during such removals.

Other treatments will be considered on a case-by-case basis based on the sites potentially at risk.

- **Prescribed burning:** The prehistoric archaeological sites are not “at-risk” for prescribed burning. For these cultural resources, the following Standard Protection Measures from the Interim Protocol may be implemented for this treatment on a case-by-case basis as needed, upon consultation with the District Archaeologist prior to implementation:
  - V.B.1. Fire crews may monitor sites to provide protection as needed.
  - V.B.3. Vegetation may be removed and fire lines or breaks may be constructed within sites using hand tools, so long as ground disturbance is minimized, and features are avoided, as specified by the District Archaeologist.

Certain sites may be “at-risk” for use of prescribed fire. The standard resource protection measures of the Interim Protocol will be applied only to those properties defined as “at-risk” (e.g. sites with constituents that could be damaged or destroyed by fire; typically, historic-era sites with wood, glass and other materials potentially affected by fire). For these cultural resources, the following Standard Protection Measures from the Interim Protocol will be implemented for this treatment:

- V.B.2. Fire lines or breaks may be constructed off sites to protect at risk historic properties.
- V.B.4. Fire shelter fabric or other protective materials or equipment (e.g. sprinkler systems) may be utilized to protect at risk historic properties.
- V.B.5. Fire retardant foam and other wetting agents may be utilized to protect at risk historic properties and in the construction and use of fire lines.
- V.B.6. Surface fuels (e.g. stumps or partially buried logs) on at risk historic properties may be covered with dirt, fire shelter fabric, foam or other wetting agents, or other protective materials to prevent fire from burning into subsurface components and to reduce the duration of heating underneath or near heavy fuels.
Other proposed treatments do not have the potential to adversely affect the characteristics that may contribute to the NRHP eligibility of archaeological resources, and are exempt from further consideration under the Regional PA as a class of undertaking.

- Application of herbicide: The use of herbicides will generally not affect any of the characteristics or components of archaeological sites that are relevant to their National Register eligibility. In the majority of cases, the archaeological sites in the APE are associated with large rock outcroppings, where the need for vegetation control is minimal. In addition, chemical application is directed to target vegetation, not broadcast sprayed, also minimizing contact with archaeological features and materials. Chemical applications for brush control or noxious weed control will not affect historic properties where the application meets the intent of Regional PA Stipulation III.E., specifically Attachment A, II.E, application of pesticides that do not have the potential to affect access or use of resources by Native Americans. No archaeological resources are at risk of this proposed action.

- Mechanical mowing of brush along roads: mowing for brush control will not affect historic properties where the application meets the intent of Regional PA Stipulation III.E., specifically Attachment A, II.C, activities that do not involve ground or surface disturbance, and that do not have the potential to affect access or use of resources by Native Americans. No archaeological resources are at risk of this proposed action.

The following table summarizes the Regional PA management requirements by site:

<table>
<thead>
<tr>
<th>Fuelbreak / APE</th>
<th>Site FS No.</th>
<th>Site Type</th>
<th>Ground Disturbing Action</th>
<th>Prescribed Fire</th>
<th>Hand Clearing</th>
<th>Standard Protection Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beal</td>
<td>05155301105</td>
<td>P</td>
<td>Avoid</td>
<td>None</td>
<td>Protect</td>
<td>Avoid: Exclude site from treatment.</td>
</tr>
<tr>
<td></td>
<td>05155301106</td>
<td>P</td>
<td>Avoid</td>
<td>None</td>
<td>Protect</td>
<td>None: No protection measures required for this treatment. May implement the following Standard Protection Measures as needed: V.B.1. = Monitor sites for protection. V.B.3. = Minimize disturbance.</td>
</tr>
<tr>
<td></td>
<td>05155301107</td>
<td>P</td>
<td>Avoid</td>
<td>None</td>
<td>Protect</td>
<td></td>
</tr>
<tr>
<td></td>
<td>05155301337</td>
<td>H</td>
<td>Avoid</td>
<td>Protect</td>
<td>Protect</td>
<td></td>
</tr>
<tr>
<td></td>
<td>05155301339</td>
<td>P</td>
<td>Avoid</td>
<td>None</td>
<td>Protect</td>
<td></td>
</tr>
<tr>
<td></td>
<td>05155400250</td>
<td>P</td>
<td>Avoid</td>
<td>None</td>
<td>Protect</td>
<td></td>
</tr>
<tr>
<td></td>
<td>05155400251</td>
<td>P</td>
<td>Avoid</td>
<td>None</td>
<td>Protect</td>
<td></td>
</tr>
<tr>
<td></td>
<td>05155400763</td>
<td>H</td>
<td>Avoid</td>
<td>Protect</td>
<td>Protect</td>
<td></td>
</tr>
<tr>
<td></td>
<td>05155400895</td>
<td>H</td>
<td>Avoid</td>
<td>Protect</td>
<td>Protect</td>
<td></td>
</tr>
<tr>
<td>Burrough</td>
<td>05155400863</td>
<td>P</td>
<td>Avoid</td>
<td>None</td>
<td>Protect</td>
<td>Prescribed Fire Protect: Standard</td>
</tr>
<tr>
<td></td>
<td>05155301244</td>
<td>H/P</td>
<td>Avoid</td>
<td>Protect</td>
<td>Protect</td>
<td></td>
</tr>
<tr>
<td>Lerona</td>
<td>05155300334</td>
<td>P</td>
<td>Avoid</td>
<td>None</td>
<td>Protect</td>
<td></td>
</tr>
<tr>
<td></td>
<td>05155300336</td>
<td>P</td>
<td>Avoid</td>
<td>None</td>
<td>Protect</td>
<td></td>
</tr>
</tbody>
</table>
Non-Archaeological Cultural Resources: Traditional cultural properties, locations of contemporary Native American gathering, and other such cultural resources identified through consultation with Native American tribes and individuals will be managed per consultation. Any proposed use of chemical treatment should include advanced notification of the appropriate tribal organization and individuals who may use the area.

Herbicides

Glyphosate would not be applied within Streamside Management Zones (SMZs) of flowing streams to protect water quality but may be applied by hand within five feet of dry stream channels.

Plants of significance to Native Americans (such as deergrass, sourberry, redbud, elderberry, willow) would be carefully avoided when using glyphosate. Additional specific plants or areas may be protected from treatment through consultation with local Native Americans.

Elderberry shrubs below 3000 feet would be protected by having a 100-foot no herbicide buffer to protect potential habitat for valley elderberry longhorn beetle.

All applicable pesticide laws and label restrictions would be followed to ensure human health and safety (BMP 5.8 and 5.11).

The application of glyphosate would be stopped when wind speed exceeds five miles per hour or as soon as drift is visually observed (BMP 5.13) to avoid affecting non-target plants and aquatic habitats.

Signs would be installed at all areas treated with glyphosate, warning that herbicide had been applied and that products should not be gathered for food or medicine for 30 days to help assure no effects occur to human health and safety.
**Road Maintenance**

Roads needed for project activities should be brought to current engineering standards of alignment, drainage, and grade before use.

Rights-of-way acquisition should be completed before using any road through private lands.

Classified and unclassified roads not needed for management activities after the project should be identified for decommissioning.

Site specific recommendations for reconstruction of extraordinary maintenance will be provided prior to project approval.

Maintaining all roads used by project to established engineering standards.

Best Management Practices (BMP) developed for road maintenance activities shall be incorporated into the design of this proposed project.

Insure that road templates, including drainage ditches and culverts are kept free from slash: BMP 2-19 Disposal of Right-of-Way and Roadside Debris in Watershed Section.

Insure that existing drainage structures including culverts, dips, ditches and waterbars are kept open and functional: BMP 2-7 Control of Road Drainage in Watershed Section.

Road use should be restricted to dry weather conditions only: BMP 2-24 Traffic Control During Wet Periods in Watershed Section.

Any temporary road used for project activities should be blocked upon completion to discourage unauthorized OHV use.

**Watershed**

The following design features should be applied to the treatment design for the High Sierra Fuelbreaks Project in order to meet applicable direction for watershed resources contained in the Forest Plan, as amended (USDA FS 1991, USDA FS 2004), and to comply with other applicable laws including the Clean Water Act.

Table A-1 contains the Best Management Practices (BMPs) that apply to the project. The table identifies which treatments each BMP applies to, and provides information on the implementation of each BMP for this project.

Areas that are delineated for the protection of streams and riparian areas, including Riparian Conservation Areas (USDA FS 2004), Streamside Management Zones (USDA FS 1991), and Riparian Management Areas (USDA FS 1991), which are referenced in the BMPs, are described in Appendix 1a.

Direction for construction of waterbars on firelines is contained in the paper, The Five-D System for Effective Fireline Waterbars, by Michael Furniss, contained in Appendix 1b.
Table A-1. Best Management Practices to Apply to the High Sierra Fuelbreaks Project

<table>
<thead>
<tr>
<th>BMP Name, Objective, and Direction</th>
<th>Application to the HSRD Fuelbreaks Project</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BMP 1-4 Use of Sale Area or Project Maps for Designating Water Quality Protection Needs:</strong> To ensure recognition and protection of areas related to water quality protection.</td>
<td>Applies to Mastication, Brush Rake, and Tilling. Mechanical treatments will have a Project Map developed that shows the location of stream courses and the applicable SMZs and RMAs where the use of ground-based equipment is prohibited (see BMP 1-8).</td>
</tr>
<tr>
<td><strong>BMP 1-8 Streamside Management Zone Designation:</strong> To designate a zone along riparian areas, streams and wetlands that will minimize potential for adverse effects from adjacent management activities. Management activities within these zones are designed to improve riparian values.</td>
<td>Applies to Mastication, Brush Rake, and Tilling. Streamside management zones (SMZs) have been supplemented with RMAs (USDA Forest Service1989) and RCAs (USDA Forest Service 2004) as described in the Water Resources Report. The widths of these areas are displayed in Appendix 1a. Within SMZs and RMAs, the constraints defined in Sierra Supplement No. 1 (USDA Forest Service, 1989) apply. This includes no self-propelled ground based equipment, a minimum groundcover of 50%, and shade canopy may not be modified in a way that affects stream temperature. Modifications to these guidelines are possible where site-specific needs exist if the action is reviewed by a hydrologist or fisheries biologist.</td>
</tr>
</tbody>
</table>
| **BMP 1-17 Erosion Control on Skid Trails:** To protect water quality by minimizing erosion and sedimentation derived from skid trails. | Applies to Firelines. Cross ditches (water bars) will be installed on all firelines and constructed following the guidelines in The Five-D System for Effective Fireline Waterbars, by M. Furniss, attached as Appendix 1b. They will be spaced according to the guidelines below (from the Sierra LRMP), maintained in a functioning condition, and placed in locations where drainage would naturally occur when possible (i.e., swales).  

<table>
<thead>
<tr>
<th>Cross Drain Spacing</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>% Slope</td>
<td>Maximum Spacing</td>
</tr>
<tr>
<td>0 - 15</td>
<td>125 feet</td>
</tr>
<tr>
<td>15 - 35</td>
<td>45 feet</td>
</tr>
<tr>
<td>35 - 65</td>
<td>20 feet</td>
</tr>
<tr>
<td>BMP Name, Objective, and Direction</td>
<td>Application to the HSRD Fuelbreaks Project</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>------------------------------------------</td>
</tr>
</tbody>
</table>
| **BMP 1-19 Streamcourse and Aquatic Protection:** The objectives of this BMP are:  
  a. To conduct management actions within these areas in a manner that maintains or improves riparian and aquatic values.  
  b. To provide unobstructed passage of stormflows.  
  c. To control sediment and other pollutants entering streamcourses.  
  d. To restore the natural course of any stream as soon as practicable, where diversion of the stream has resulted from timber management activities. | Applies to Mastication, Brush Rake, and Tilling.  
  a. The location and method of equipment crossings on Class IV and V streams must be agreed to by the COR or Inspector prior to use.  
  b. Equipment crossings on Class I – III streams must be approved by the hydrologist or aquatic species biologist.  
  c. Damage to stream banks and channels will be repaired to the extent practicable.  
  d. All activity-generated debris will be removed from streamcourses, unless otherwise agreed to by the hydrologist, and in an agreed upon manner that will cause the least disturbance.  
  e. Water bars or other erosion control structures will be located so as to disperse concentrated flows and filter out suspended sediments prior to entry into streamcourses.  
  f. Material from fireline stream crossings will be removed and streambanks restored to the extent practicable.  
  g. Special slash treatment site preparation activities will be prescribed in sensitive areas to facilitate slash disposal without use of mechanized equipment.  
  h. Project-related bare soil areas (e.g. handlines) will be cross-ditched per BMP 1-17 requirements. |
| **BMP 1-22 Slash Treatment in Sensitive Areas:** To maintain or improve water quality by protecting sensitive areas from degradation which would likely result from using mechanized equipment for slash disposal. | Applies to all piling and chipping activities.  
  All burn piles made with mechanical equipment must be located outside of the SMZ.  
  Hand piles and chipped materials will be kept at least 20 feet away from all streams and outside of the floodplain, and at least 30 feet away from any meadow, spring, seep, or other sensitive riparian area. |
| **BMP 2-7 Control of Road Drainage:** To minimize the erosive effects of water concentrated on roads, to disperse runoff from road surfaces, to lessen sediment yield from roaded areas, and to minimize erosion of the road prism. | Applies to road maintenance performed in support of project activities.  
  Maintenance performed to allow access to fuelbreaks must include maintenance of road drainage structures (insloping, outsloping, rolling dips, etc). |
| **BMP 2-11 Control of Sidecast Material During Construction and Maintenance:** To minimize sediment production originating from sidecast material during road construction or maintenance. | Applies to road maintenance performed in support of project activities.  
  Sidecasting is not permitted within SMZs. Waste areas must be located where excess material can be deposited and stabilized. |
<table>
<thead>
<tr>
<th><strong>BMP Name, Objective, and Direction</strong></th>
<th><strong>Application to the HSRD Fuelbreaks Project</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BMP 2-12 Servicing and Refueling Equipment:</strong> To prevent pollutants such as fuels, lubricants, bitumens and other harmful materials from being discharged into or near rivers, streams and impoundments, or into natural or man-made channels.</td>
<td>Applies to all project activities utilizing motorized equipment, including chainsaws. Storage of hazardous materials (including fuel) and servicing and refueling of equipment (including chainsaws) will be conducted at pre-designated locations outside of RCAs and CARs. If fueling and/or storage of hazardous materials are needed within RCAs or CARs, those sites must be reviewed and approved by the District Hydrologist or Aquatic Biologist. Additional protection measures, such as containment devices, may be necessary. Note that the Powerhouse and Lerona Fuel Breaks, Powerhouse Road Brushing, and Jose Basin Road Brushing portions of this project are located within CARs, so servicing and refueling for these projects will be coordinated with the District Hydrologist or Aquatic Species Biologist.</td>
</tr>
<tr>
<td><strong>BMP 2-19 Disposal of Right-of-Way and Roadside Debris:</strong> To ensure that organic debris generated during road construction is kept out of streams so that channels and downstream facilities are not obstructed.</td>
<td>Applies to Firelines. If slash generated by fireline creation is disposed of within SMZs, it will be piled and burned or chipped (following BMP 1-22). Material may also be removed from the SMZ for disposal.</td>
</tr>
<tr>
<td><strong>BMP 2-21 Water Source Development Consistent with Water Quality Protection:</strong> To supply water for roads and fire protection while maintaining existing water quality.</td>
<td>If water-drafting is required, pumps with low entry velocity and suction strainers with screens less than 2 mm in size (1/8 in.) will be used. Water drafting will not occur in streams when the base discharge is less than 1.5 cfs, and will not draft more than 50% of the ambient discharge over 1.5 cfs. Drafting sites shall be approved by the District Hydrologist or Fisheries/Aquatic Species Biologist and located to minimize sediment and maintain riparian resources, channel condition, meadow integrity, and aquatic species viability and habitat. Approaches will be as near perpendicular to the stream as possible and will be gravel surfaced or otherwise stabilized.</td>
</tr>
<tr>
<td><strong>BMP 2-22 Maintenance of Roads:</strong> To maintain roads in a manner that provides for water quality protection by minimizing rutting, failures, sidecasting, and blockage of drainage facilities, all of which can cause erosion, sedimentation, and deteriorating watershed conditions.</td>
<td>Applies to road maintenance performed in support of project activities. Maintenance performed on roads needed for project activities will include bringing those roads to current engineering standards of alignment, drainage, and grade whenever possible. Roads will be inspected to determine what work, if any, is needed to keep dips, ditches, culverts, and other drainage facilities functional and the road stable.</td>
</tr>
<tr>
<td><strong>BMP 2-24 Traffic Control During Wet Periods:</strong> To reduce road surface disturbance and the rutting of roads, and to minimize sediment washing from disturbed road surfaces.</td>
<td>Applies to access for all project phases. Administrative access on roads closed for wet weather protection must not cause damage to the road. If wet weather access is needed on such roads, those roads should be priorities for upgrading to all-weather standards. If that is not possible, any resulting damage should be high priority for immediate repair.</td>
</tr>
<tr>
<td>BMP Name, Objective, and Direction</td>
<td>Application to the HSRD Fuelbreaks Project</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>-------------------------------------------</td>
</tr>
<tr>
<td><strong>BMP 5-1 Soil Disturbing Treatments on the Contour:</strong> To decrease sediment production and stream turbidity while mechanically treating slopes</td>
<td>Applies to Mastication, Brush Rake, and Tilling. Mechanical treatments will be conducted on the contour as much as possible, to preclude water from concentrating by decreasing the velocity of surface runoff and providing means for adequate infiltration.</td>
</tr>
<tr>
<td><strong>BMP 5-2 Slope Limitations for Mechanical Equipment Operation:</strong> To reduce gully and sheet erosion and associated sediment production by limiting tractor use.</td>
<td>Applies to Mastication, Brush Rake, and Tilling. Mechanical treatments will only be applied to slopes where erosion can be controlled. Generally, slopes over 35% will not receive mechanical treatments, though mastication can occur on slopes up to 45% due to the resulting groundcover providing effective reduction of surface runoff velocity and ample opportunity for infiltration.</td>
</tr>
<tr>
<td><strong>BMP 5-3 Tractor Operation Limitation in Wetlands and Meadows:</strong> To reduce compaction, rutting, runoff concentration, and subsequent erosion by excluding the use of mechanical equipment in wetlands and meadows except for the purpose of restoring wetland and meadow function.</td>
<td>Applies to Mastication, Brush Rake, and Tilling. Mechanized equipment may not operate within 100 feet of meadows or wetlands at any time during implementation of this project, unless specifically approved by the Hydrologist and Aquatic Species Biologist.</td>
</tr>
<tr>
<td><strong>BMP 5-5 Disposal of Organic Debris:</strong> To prevent gully and surface erosion with associated reduction in sediment production and turbidity during and after treatment.</td>
<td>Potential methods of disposal include burning, chipping and mulching, lop and scatter, mechanical collection/piling and pile burning. An appropriate method of debris disposal will be used in each treatment area, based on the volume and density of debris, slope, residual groundcover objectives, and anticipated results of the various potential treatments.</td>
</tr>
<tr>
<td><strong>BMP 5-6 Soil Moisture Limitations for Mechanical Equipment Operations:</strong> To prevent compaction, rutting, and gullyng, with resultant sediment production and turbidity.</td>
<td>Applies to Mastication, Brush Rake, and Tilling. Mechanical treatments will be conducted when soil conditions are dry enough to minimize compaction and rutting. The Forest Soils Program Manager will assist with this determination as needed.</td>
</tr>
<tr>
<td><strong>BMP 5-7 Pesticide Use Planning Process:</strong> To introduce water quality and hydrologic considerations into the pesticide use planning process</td>
<td>Applies to Herbicide treatments. The project planning and analysis process incorporated water quality and hydrologic considerations in order to minimize potential impacts.</td>
</tr>
<tr>
<td><strong>BMP 5-8 Pesticide Application According to Label Directions and Applicable Legal Requirements:</strong> To avoid water contamination by complying with all label instructions and restrictions for use.</td>
<td>Applies to Herbicide treatments. This BMP requires glyphosate applicators to strictly adhere to pesticide label instructions.</td>
</tr>
<tr>
<td>BMP Name, Objective, and Direction</td>
<td>Application to the HSRD Fuelbreaks Project</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td><strong>BMP 5-10 Pesticide Spill Contingency Planning:</strong> To reduce contamination of water by accidental pesticide spills.</td>
<td>Applies to Herbicide treatments. A site-specific Pesticide Spill Contingency Plan will be developed and incorporated into the project safety plan. The plan will list: who will notify whom and how; time requirements for notifications; guidelines for spill containment; and who will be responsible for cleanup.</td>
</tr>
<tr>
<td><strong>BMP 5-11 Cleaning and Disposal of Pesticide Containers and Equipment:</strong> To prevent water contamination resulting from cleaning or disposal of pesticide containers.</td>
<td>Applies to Herbicide treatments. The cleaning and disposal of glyphosate containers will be done in accordance with Federal, State, and local laws, regulations and directives.</td>
</tr>
<tr>
<td><strong>BMP 5-12 Streamside Wet Area Protection During Pesticide Spraying:</strong> To minimize the risk of pesticide inadvertently entering waters, or unintentionally altering the riparian area, SMZ, or wetland.</td>
<td>Applies to Herbicide treatments. When spraying glyphosate, an untreated strip of land and vegetation will be left alongside surface waters, wetlands, riparian areas, or SMZs. Spraying will not occur within SMZs of flowing streams. Dry stream channels will have a no-application buffer of 5 ft on both stream banks.</td>
</tr>
<tr>
<td><strong>BMP 5-13 Controlling Pesticide Drift During Spray Application:</strong> To minimize the risk of pesticide falling directly into water, or non-target areas.</td>
<td>Applies to Herbicide treatments. A prescription will be developed that specifies the following: exclusion areas / buffer areas; formulation; equipment; droplet size; spray height; application pattern; flow rate; and limiting factors that may include wind speed and direction, temperature, or relative humidity. For this project, the application of glyphosate would be stopped when wind speed exceeds five miles per hour or as soon as drift is visually observed to avoid affecting non-target plants and aquatic habitats.</td>
</tr>
<tr>
<td><strong>BMP 6-1 Fire and Fuel Management Activities:</strong> To reduce public and private losses and environmental impacts that result from wildfires and/or subsequent flooding and erosion by reducing or managing the frequency, intensity, and extent of wildfires.</td>
<td>The Purpose and Need for this project is the application of this BMP. The management requirements, mitigation measures, and resource protection prescriptions are documented in the EA and supporting information.</td>
</tr>
<tr>
<td><strong>BMP 6-2 Consideration of Water Quality in Formulating Fire Prescriptions:</strong> To provide for water quality protection while achieving the management objectives through the use of prescribed fire.</td>
<td>Applies to Prescribed Burning. Prescribed burning is planned at the minimum intensity and severity necessary to achieve management objectives, and each Burn Plan will incorporate all relevant design measures from the Hydrology and Aquatic Species analyses.</td>
</tr>
<tr>
<td><strong>BMP Name, Objective, and Direction</strong></td>
<td><strong>Application to the HSRD Fuelbreaks Project</strong></td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td><strong>BMP 6-3 Protection of Water Quality from Prescribed fire Effects:</strong> To maintain soil productivity, minimize erosion, and minimize ash, sediment, nutrients, and debris from entering water bodies.</td>
<td>Applies to Prescribed Burning. Fires will be allowed to back into riparian vegetation, but direct lighting within riparian vegetation will not occur. All fire lines will be waterbarred per BMP 1-17 spacing requirements. Fire lines within RCAs (i.e., within 150 ft of seasonal streams and 300 ft of perennial streams, springs, and meadows) will be designed and constructed to reduce sediment entry into channels. Fire lines in RCAs will cross perpendicular to streams and follow the natural landscape contour as much as possible and will be cut by hand. Waterbars will be placed on either side of each stream crossing (above the high water line) to prevent or reduce sediment entry into streams.</td>
</tr>
</tbody>
</table>

**References**


Appendix 1a. Delineation of Riparian Conservation Areas, Streamside Management Zones, and Riparian Management Areas for the High Sierra Fuelbreaks Project

Some BMPs and design measures apply only in designated areas such as Riparian Conservation Areas (RCAs), Streamside Management Zones (SMZs), or Riparian Management Areas (RMAs). This document explains the direction for establishing these areas and how they relate to each other.

Riparian Conservation Areas (RCAs)

Riparian Conservation Areas are a land allocation established in the 2004 ROD. Within the areas designated as RCAs, specific sets of Desired Conditions and Standards and Guidelines apply. RCA areas are designated using the following definitions.

### Table A1a-1 - Widths and definitions of RCAs

<table>
<thead>
<tr>
<th>Feature Type</th>
<th>RCA Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perennial Streams</td>
<td>300 feet on each side of the stream, measured from the bank full edge of the stream</td>
</tr>
<tr>
<td>Seasonally Flowing Streams (includes ephemeral streams)</td>
<td>150 feet on each side of stream, measured from the bank full edge of the stream</td>
</tr>
<tr>
<td>Streams in Inner Gorge</td>
<td>Top of inner gorge</td>
</tr>
<tr>
<td>Special Aquatic Features (fens, bogs, springs, seeps, lakes, ponds, wetlands, etc.) or Perennial Streams with Riparian Conditions extending more than 150 feet from edge of streambank or Seasonally Flowing streams with riparian conditions extending more than 50 feet from edge of streambank.</td>
<td>300 feet from edge of feature or riparian vegetation, whichever width is greater</td>
</tr>
<tr>
<td>Other hydrological or topographic depressions without a defined channel.</td>
<td>RCA width and protection measures are determined through project level analysis</td>
</tr>
</tbody>
</table>

Stream Classes, SMZs and RMAs

Stream Class is based on stream channel characteristics defined in Sierra Supplement 1 (1989). Stream Class is used to determine the width of the Streamside Management Zone (SMZ), which is a zone managed primarily to protect and maintain water quality, site productivity, channel stability, wildlife habitat, and riparian vegetation. These widths are described in Table A1a-2.

### Table A1a-2 – Calculation of Streamside Management Zone width.

<table>
<thead>
<tr>
<th>Stream Class</th>
<th>Width of the SMZ</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>100 feet plus 3 feet for each percent side slope above 30%</td>
</tr>
<tr>
<td>II</td>
<td>75 feet plus 3 feet for each percent side slope above 30%</td>
</tr>
<tr>
<td>III</td>
<td>50 feet plus 3 feet for each percent side slope above 30%</td>
</tr>
<tr>
<td>IV</td>
<td>25 feet plus 3 feet for each percent side slope above 30%</td>
</tr>
<tr>
<td>V</td>
<td>No special protection required</td>
</tr>
</tbody>
</table>
RMAs apply to all perennial features, and the width is always 100 feet from the edge of the feature (stream, lake, spring, etc.) measured horizontally.

Within SMZ/RMAs, motorized vehicles and equipment are permitted to operate on designated roads and motorized trails only. Shading must be maintained to protect stream temperatures. A minimum groundcover of 50% is also required (this does not apply to road and trail surfaces). Fuels management and site preparation activities are permitted, provided that if these activities reduce groundcover below the required 50% minimum, treatments are applied to restore groundcover density to meet the requirement.

Table A1a-3 - Summary of the relationships between feature types, RCA widths, Stream Classes, SMZ Widths, RMA Widths, and Stream Orders (and other GIS data).

<table>
<thead>
<tr>
<th>Feature Type</th>
<th>RCA Width</th>
<th>Stream Class</th>
<th>SMZ Width</th>
<th>RMA Width</th>
<th>Corresponding GIS Layer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perennial Streams</td>
<td>300 feet</td>
<td>I</td>
<td>At least 100 ft</td>
<td>100 feet</td>
<td>3+</td>
</tr>
<tr>
<td>Seasonally Flowing Streams</td>
<td>150 feet</td>
<td>II</td>
<td>At least 75 ft</td>
<td>N/A</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>III</td>
<td>At least 50 ft</td>
<td>N/A</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>IV</td>
<td>At least 25 ft</td>
<td>N/A</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>V</td>
<td>None required</td>
<td>N/A</td>
<td>-</td>
</tr>
<tr>
<td>Streams in Inner Gorge</td>
<td>Top of inner gorge</td>
<td></td>
<td></td>
<td>Variates</td>
<td></td>
</tr>
<tr>
<td>Special Aquatic Features (fens, bogs, springs, seeps, lakes, ponds, wetlands, etc.)</td>
<td>N/A</td>
<td>N/A</td>
<td>100 feet</td>
<td>Identified on GIS layers or in the field</td>
<td></td>
</tr>
<tr>
<td>Perennial Streams with Riparian Conditions extending more than 150 feet from edge of streambank</td>
<td>300 feet</td>
<td>I</td>
<td>At least 100 ft</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Seasonally Flowing streams with riparian conditions extending more than 50 feet from edge of streambank</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Class I streams are not always perennial. Intermittent streams with certain characteristics can also be Class I.
To make effective waterbars on firelines, just remember the 5-D System. The five D’s are: **Distance, Diagonal, Divert, Discharge, and Dissipate**.

Most forest values depend on healthy soils; clean water, streams full of fish, diverse wildlife habitats, productive timberlands, beautiful places, and so on. Firefighters strive to protect our soils by suppressing the wildfires that can damage them.

Methods used to fight fires, especially firelines, can cause erosion and soil degradation, and need to be treated to properly maintain forest values. Fireline surfaces usually cause runoff during heavy rainfall and snowmelt. Without waterbars, excessive runoff will concentrate and cause rills and gullies to form. Effective waterbars can prevent this from happening.

**Distance**: To be effective, waterbars must break up drainage areas and runoff on the fireline so that there’s not enough erosive energy available in runoff to erode the soil. To ensure that excess runoff cannot accumulate, waterbars must be placed the proper distance apart, based on the slope of the fireline. This breaks up the area that accumulates runoff, keeping it small enough to prevent damage. Erosion potential depends on slope and a table is provided on the next page that gives the maximum distance between waterbars, or between a waterbar and the next upslope drainage break.

**Diagonal**: After deciding where you will put each waterbar, the next decision is how to build them. An important principle in working with flowing water is: don’t bully the flow, lead it. Waterbars built directly across a fireline oppose the water's energy and tend to fail. Waterbars built diagonal to the fireline lead the water off and work much better. A diagonal waterbar has a gentle slope along its base that leads the water off. A simple rule is to add 5 to the slope of the road, in percent, and build the waterbar at that many degrees from perpendicular. Or simpler yet, just build them at 30 degrees off perpendicular (see the illustration on the next page).

**Divert**: A good waterbar will divert the water off the fireline. To do this the waterbar must be sufficiently deep to handle all the flow for as long as it's needed. Excavation is much more effective than fill in making a durable and effective waterbar (a ditch or a dip beats a dike).

**Discharge**: Another feature of a good waterbar is that it will discharge the flow. A good waterbar is not a dam – it must have an open outlet.

**Dissipate**: Finally, a good waterbar should dissipate the flow just below the outlet to exhaust its eroding power and cause it to filter into the soil. This may require placing slash, rock, or debris below the outlet, or fudging a bit on distance to take advantage of natural features that will dissipate the water's erosive energy.

So remember, when locating and building waterbars, place them the right **distance** apart, at a **diagonal** to the fireline, so that they **divert**, then **discharge**, then **dissipate** the energy of the flowing water. Be sure to make them deep enough so they’ll be durable.
<table>
<thead>
<tr>
<th>Fireline slope</th>
<th>Maximum Distance Apart</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>(feet)</td>
</tr>
<tr>
<td>1-6</td>
<td>300</td>
</tr>
<tr>
<td>7-9</td>
<td>200</td>
</tr>
<tr>
<td>10-14</td>
<td>150</td>
</tr>
<tr>
<td>15-20</td>
<td>90</td>
</tr>
<tr>
<td>21-40</td>
<td>50</td>
</tr>
<tr>
<td>41-60</td>
<td>25</td>
</tr>
</tbody>
</table>

**Recommended spacing for waterbars on firelines.**
Waterbars should be no further apart than this, but they may be closer. When in doubt, put in more. From: USDA-Forest Service, “Sale Administrator’s Handbook”

Wildlife

1. Flag and avoid elderberry plants in areas below 3000 feet elevation.

2. Elderberry shrubs below 3000 feet would be protected by having a 100-foot no herbicide buffer to protect potential habitat for the threatened species, valley elderberry longhorn beetle.

3. Prior to fuelbreak maintenance, survey for California spotted owls in FR069 to determine current nest location.

4. Mechanical treatments are to meet fuels objectives in protected activity centers (PACs) located in WUI defense zones. In PACs located in WUI threat zones, mechanical treatments occur where prescribed fire is not feasible and where avoiding PACs would significantly compromise the overall effectiveness of the landscape fire and fuels strategy. Design mechanical treatments to maintain habitat structure and function of the PAC.

5. Mechanical treatments occur in protected activity centers; (PACs) located in WUI defense zones and, in some cases, threat zones, yet prohibited within a 500-foot radius buffer around a spotted owl activity center within the designated PAC. Prescribed fire occurs within the 500-foot radius buffer. Hand treatments, including hand line construction, tree pruning, and cutting of small trees (less than 6 inches dbh), may be conducted prior to burning as needed to protect important elements of owl habitat. Treatments in the remainder of the PAC use the forest wide standards and guidelines for mechanical thinning.

6. Implement Limited Operating Period (LOP) from March 15 through August 15 for PAC FR069 when crews are spraying herbicide. The reason for the LOP is to reduce noise disturbance to potential nesting owls. Contact district wildlife biologist to determine if spotted owls are nesting or surveys need to be conducted.
APPENDIX G
GUIDELINES FOR OPERATIONS

The following Guidelines for Operations apply to activities under this contract, when relevant to the project. These guidelines are intended to clarify the expectations of the parties related to these specific areas of operations.

1. **Project Area Map (Map).** This is the boundary of the Project Area as shown in Appendix C and designated on the ground by the Forest Service to meet the anticipated needs of the parties. The following are identified on the Map:

   a) Boundaries of all harvest and treatment units.
   b) Specified roads.
   c) Roads and trails to be kept open.
   d) Locations of areas known to be infested with specific invasive species of concern.

2. **Use of Roads by the Partner.** Partner is/are authorized to use existing National Forest system roads and specified roads. The Parties will determine that such use will not cause damage to the roads or National Forest resources.

3. **Protection of Residual Trees.** Partner’s operations shall not unnecessarily damage young growth or other trees to be reserved.

4. **Safety.** Partner’s operations shall facilitate the Forest Service’s safe and practical inspection of Partner’s operations and conduct of other official duties on the Project Area. Partner has/have all responsibility for compliance with safety requirements for Partner's employees.

   When operations are in progress adjacent or on Forest Service controlled roads and trails open to public travel, Partner shall furnish, install, and maintain all temporary traffic controls that provide the user with adequate warming of hazardous or potentially hazardous conditions associated with operations occurring in the area. The parties shall agree to a specific traffic control plan prior to commencement of work. Devices shall be appropriate to current conditions and shall be covered or removed when not needed.

   During periods of general recreation activity within Project Area or vicinity, the Forest Service may restrict road construction, timber cutting, yarding, and other harvesting operations to days other than Saturdays, Sundays, and holidays.

LOGGING AND MAINTENANCE OPERATIONS SIGNING STANDARDS

All signs must be manufactured & installed as specified in the FHWA "Manual on Uniform Traffic Control Devices" (MUTCD) & FS publication "Standards for Forest Service Signs & Posters" (EM 7100-15).

SIGN STANDARDS
**SHAPE & COLOR:** Generally, signs for logging and maintenance operations are either diamond-shaped or rectangular. All signs are **reflective orange background with black legend and border** unless shown otherwise. Handpainted, homemade signs are not legal. Fluorescent paint is not reflectorized.

**SUBSTRATE:** Sign substrate material may be High Density Overlay (HDO) Plywood, Aluminum, Fiberglass Reinforced Plastic, Corrugated Plastic or Roll-up Fabrics.

**SIGN SIZE:** Sign size is a factor of speed and MUTCD & FS standards. Where conditions of speed, volume, or special hazard require greater visibility or emphasis, larger signs should be used. Minimum sizes for the most common signs can be found in Figure 4. Refer to the EM-7100-15 for additional sign sizes.

**LEGEND:** All lettering shall be Series "C" alphabet, conforming to Standard Alphabets for Highway Signs. Letter size is also a function of speed - use letter size and word messages as specified in MUTCD and EM-7100-15.

**SIGN PLACEMENT**

Signs are to be installed in locations as agreed to in the traffic control plan. All signs are to be removed, covered, or folded when operations are not in progress or the sign message is not applicable. Signs should generally be located on the right-hand side of the roadway. When special emphasis is needed, signs may be placed on both the left and right sides of the road. Sign message shall be clearly visible to road users, mounted on posts or portable sign stands.

**LATERAL CLEARANCE**

From the edge of the road - 2 foot minimum, where slope limits to less than 6 feet. 6-12 foot preferred.

**HEIGHT**

Minimum of 7 feet, measured from the bottom of the sign to the near edge of the travelway. The height to the bottom of a supplemental sign mounted below the primary sign will be 6 feet.

Dimensions
**PLACEMENT DISTANCE**

Signs must be located 100-500 feet prior to the activity, (both ends if a through road) and maintained at that distance. This distance is based on speed. Refer to Figure 2, Table II-1, MUTCD, a portion of which is reproduced here, to determine correct placement distance.

**SIGN SUPPORTS**

**POSTS:** Signs are to be mounted on separate posts. Supplemental signs such as Speed Advisory plates are to be mounted on the same post as the primary sign. Do not mount signs on trees or other signs. Posts may be wood, metal, carsonite or similar material. Where sign supports cannot be sufficiently offset from the road edge, supports will meet breakaway standards. Single wood posts with less than 24 square inches do not require breakaway design.

**TEMPORARY/PORTABLE SUPPORTS:** Portable supports may be used for short-term, short-duration, and mobile conditions. MUTCD defines this time period as one work shift, 12 hours or less. All portable supports must meet MUTCD standards, including breakaway. These must be a minimum of 1 foot above the road surface or more if visibility requires it.

![Figure 3: Examples of Temporary/Portable Supports](image)

**SIGNS**

The following signs meet the intent of the Safety standard. This is not a complete listing of signs that may be needed.

<table>
<thead>
<tr>
<th>FG20-1-48*</th>
<th>FG20-2-48</th>
<th>FG20-3-42*</th>
<th>FG20-3a-42</th>
</tr>
</thead>
<tbody>
<tr>
<td>FW22-3-30</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

![Figure 2: A Portion of MUTCD TABLE II-1](image)
5. **Accident and Injury Notification.** Partner shall notify Forest Service of any lost time personal injury accident or any accident or vandalism resulting in personal property damage over $400 in value that occurs as a result of or is associated with Partner’s Operations.

Partner shall notify Forest Service within 8 hours of any personal injury accident. For vandalism and personal property accidents, Partner shall notify Forest Service at the same time notification is given to the state and local law enforcement authorities.

Partner shall take all reasonable measures after an accident or vandalism event to preserve the scene of the incident and provide information to facilitate a Forest Service investigation.

6. **Sanitation and Servicing.** Partner shall take all reasonable precautions to prevent pollution of air, soil, and water by Partner’s operations. Precautions shall include if facilities for employees are established on the Project Area, they shall be operated in a sanitary manner. The parties shall agree to the cleanup and restoration of a polluted site. Partner shall maintain all equipment operating on Project Area in good repair and free of abnormal leakage of
lubricants, fuel, coolants, and hydraulic fluid. Partner shall not service tractors, trucks, or other equipment on National Forest lands where servicing is likely to result in pollution to soil or water. Partner shall furnish oil-absorbing mats for use under all stationary equipment or equipment being serviced to prevent leaking or spilled petroleum-based products from contaminating soil and water resources. Partner shall remove from National Forest lands all contaminated soil, vegetation, debris, vehicle oil filters (drained of free-flowing oil), batteries, oily rags, and waste oil resulting from use, servicing, repair, or abandonment of equipment.

7. **Prevention of Oil Spills.** If Partner maintain(s) storage facilities for oil or oil products on the Project Area, Partner shall take appropriate preventive measures to ensure that any spill of such oil or oil products does not enter any stream or other waters of the United States or any of the individual States. If the total oil or oil products storage exceeds 1,320 gallons in containers of 55 gallons or greater, Partner shall prepare a Spill Prevention Control and Countermeasures Plan. Such plan shall meet applicable EPA requirements (40 CFR 112), including certification by a registered professional engineer. Partner shall notify the Forest Service and appropriate agencies of all reportable (40 CFR 110) spills of oil or oil products on or in the vicinity of the Project Area that are caused by Partner’s employees, agents, sub-Partners or their employees or agents, directly or indirectly, as a result of Partner’s operations. Partner will take whatever initial action may be safely accomplished to contain all spills.

8. **Hazardous Substances.** Partner shall notify the National Response Center and Forest Service principal contact of all releases of reportable quantities of hazardous substances on or in the vicinity of the Project Area that are caused by Partner’s employees, agents, sub-Partners or their employees or agents, directly or indirectly, as a result of Partner’s operations, in accordance with 40 CFR 302.

9. **Cleaning Equipment.** In order to prevent the spread of noxious weeds into the Project Area, the Partner shall be required to clean all off-road logging and construction equipment prior to entry on to the Project Area. This cleaning shall remove all soil, plant parts, seeds, vegetative matter, or other debris that could contain or hold seeds. Only logging and construction equipment so cleaned and inspected by the Partner will be allowed to operate within the Project Area. All subsequent move-ins of equipment to the Project Area shall be treated in the same manner as the initial move in. “Off-road equipment” includes all logging and construction machinery, except for log trucks, chip vans, service vehicles, water trucks, pickup trucks, cars, and similar vehicles.

Partner shall employ whatever cleaning methods are necessary to ensure that off-road equipment is free of noxious weeds. Equipment shall be considered free of soil, seed, and other such debris when a visual inspection does not disclose such material. Disassembly of equipment components or specialized inspection tools is not required.

As agreed upon, Partner shall inspect equipment at cleaning location, and provide documentation of inspection to the Forest Service.
New infestations of noxious weeds, of concern to Forest Service and identified by either Partner or Forest Service, on the Project Area or on the haul route, shall be promptly reported to the other party. Partner and Forest Service shall agree on treatment methods to reduce or stop the spread of noxious weeds when new infestations are found. A current list of noxious weeds of concern to Forest Service is available at each Forest Service office.

10. **Felling and Bucking.** Felling shall be done to minimize breakage of included timber and damage to residual timber. Unless agreed otherwise, felling shall be done by saws or shears. Bucking shall be done to permit removal of all minimum pieces. Partner may buck out cull material when necessary to produce pieces meeting utilization standards. If necessary to assess extent of defect, Partner shall make sample saw cuts or wedges.

11. **Felling in Clearings.** Insofar as ground conditions, tree lean, and shape of clearings permit, trees shall be felled so that their tops do not extend outside clearcutting units, construction clearings, and areas of regeneration cutting.

12. **Stump Heights.** Stumps shall not exceed, on the side adjacent to the highest ground, the maximum heights set forth in Appendix E except that occasional stumps of greater heights are acceptable when Partner determine(s) that they are necessary for safe and efficient conduct of logging. Unless otherwise agreed, Partner shall re-cut high stumps so they will not exceed heights specified in F-14 and shall dispose of severed portions in the same manner as other logging debris. The stump heights shown in Appendix F were selected with the objective of maximum reasonable utilization of the timber, unless the Map shows special areas where stump heights are lower for aesthetic, land treatment, or silvicultural reasons.

13. **Protection of Streamcourses.** Partner’s Operations shall be conducted to prevent debris from entering streamcourses, except as may be authorized under paragraph (d). In event Partner cause(s) debris to enter streamcourses in amounts that may adversely affect the natural flow of the stream, water quality, or fishery resource, Partner shall remove such debris as soon as practicable, but not to exceed 2 days, and in an agreed manner that will cause the least disturbance to streamcourses.

   a) Culverts or bridges shall be required on Temporary Roads at all points where it is necessary to cross Streamcourses. Such facilities shall be of sufficient size and design and installed in a manner to provide unobstructed flow of water and to minimize damage to streamcourses. Trees or products shall not be otherwise hauled or yarded across streamcourses unless fully suspended.

   b) Wheeled or track-laying equipment shall not be operated in streamcourses, except at crossings agreed to by Partner and the Forest Service or as essential to construction or removal of culverts and bridges.

   c) Flow in streamcourses may be temporarily diverted only if such diversion is necessary for Partner’s planned construction and Forest Service gives written authorization. Such flow shall be restored to the natural course as soon as practicable and, in any event, prior to a major storm runoff period or runoff season.
14. **Erosion Prevention and Control.** Partner’s operations shall be conducted reasonably to minimize soil erosion. Equipment shall not be operated when ground conditions are such that excessive damage will result. Partner shall adjust the kinds and intensity of erosion control work done, to ground conditions and weather conditions and the need for controlling runoff. Erosion control work shall be kept current immediately preceding expected seasonal periods of precipitation or runoff.

Prior to periods of accelerated water runoff, especially during the spring runoff and periods of heavy rainfall, commensurate with its use, Partner shall inspect and open culverts and drainage structures, construct special cross ditches for road runoff, and take other reasonable measures needed to prevent soil erosion and siltation of streams.

Unless otherwise agreed in writing, after September 15 of each operating season, erosion control work must be kept current. Partner shall complete erosion prevention and control work, including streamcourse protection, within 15 calendar days after completion of skidding and/or yarding operations for each landing.

Designation of on the ground work shall be done as promptly as feasible unless it is agreed that the location of such work can be established without marking on the ground.

During periods of accelerated water runoff, especially during the spring runoff and periods of heavy rainfall, commensurate with its use, Partner shall inspect and open culverts and drainage structures, construct special cross ditches for road runoff, and take other reasonable measures needed to prevent soil erosion and siltation of streams.

When operations are active, erosion control work will be kept current and will be completed as soon as practicable. Additionally, FS may require special erosion prevention measures which may include, but not limited to; use of certified weed free straw, wood chips, slash, mulch, etc. on areas of bare soil with high erosion hazard potential.

15. **Protection of Improvements.** So far as practicable, Partner shall protect specified roads and other improvements (such as roads, trails, telephone lines, ditches, and fences):

   a) Existing in the operating area,
   b) Determined to have a continuing need or use, and
   c) Designated on the Map.

Partner shall keep roads and trails needed for fire protection or other purposes and designated on the Map reasonably free of equipment and products, slash, and debris resulting from Partner’s operations. Partner shall make timely restoration of any such improvements damaged by Partner’s operations and, when necessary because of such operations, shall move such improvements.

16. **Meadow Protection.** Reasonable care shall be taken to avoid damage to the cover, soil, and water in meadows shown on the Map. Vehicular or skidding equipment shall not be used on meadows, except where roads, landings, and tractor roads are approved. Unless otherwise
agreed, trees felled into meadows shall be removed by endlining. Resulting logging slash shall be removed where necessary to protect cover, soil, and water.

17. **Wetlands Protection.** Wetlands requiring protection under Executive Order 11990 are shown on the Map. Vehicular or skidding equipment shall not be used in such wetlands, except where roads, landings, and tractor roads are approved.

18. **Current Operating Areas.** Where project work is in progress but not completed, unless agreed to otherwise, Partner shall, before operations cease annually, remove all temporary log culverts and construct temporary cross drains, drainage ditches, dips, berms, culverts, or other facilities needed to control erosion. Such protection shall be provided, for all disturbed, unprotected ground that is not to be disturbed further prior to end of operations each year, including roads and associated fills, tractor roads, skid trails, and fire lines. When weather permits operations, Partner shall keep such work on any additional disturbed areas as up to date as practicable.

19. **Erosion Control Structure Maintenance.** During the period of this contract, Partner shall provide maintenance of soil erosion control structures constructed by Partner until they become stabilized, but not for more than one year after their construction. **No tightly woven fiber mesh or plastic monofilament netting shall be used for soil stabilization.**

20. **Slash Disposal.** Partner’s timing of product removal and preparatory work shall not unnecessarily delay slash disposal. Specific slash disposal measures to be employed by Partner are stated in Appendix E.

21. **Fire Precautions and Control**
   a) **Plans.** Prior to initiating Partner’s operations during Fire Precautionary Period, Partner shall file with Forest Service a Fire Prevention and Control Plan providing for the prevention and control of fires on the Project Area and other areas of Partner’s Operations. Such plan shall include a detailed list of personnel and equipment at Partner disposal for implementing the plan.

   b) **Fire Precautions.** Specific fire precautionary measures listed in this Appendix shall be applicable during Partner’s Operations in “Fire Precautionary Period” described. The dates of Fire Precautionary Period may be changed by agreement, if justified by unusual weather or other conditions. Required tools and equipment shall be kept in serviceable condition and immediately available for fire fighting at all times during Partner’s operations in Fire Precautionary Period.

   c) **Substitute Precautions.** The Forest Service may authorize substitute measures or equipment, or waive specific requirements by written notice, if substitute measures or equipment will afford equal protection or some of the required measures and equipment are unnecessary.

   d) **Emergency Precautions.** The Forest Service may require the necessary shutting down of equipment on portions of Partner’s Operations, as specified by the emergency fire
precautions schedule. Under such conditions, after Partner cease(s) active operations, Partner shall release for hire by Forest Service, if needed, Partner’s shutdown equipment for fire standby on the Project Area or other areas of Partner’s Operations and personnel for fire standby or fire patrol, when such personnel and equipment are not needed by Partner for other fire fighting or protection from fire. Equipment shall be paid for at fire fighting equipment rates common in the area or at prior agreed rates and, if Partner request(s), shall be operated only by personnel approved by the Partner. Personnel so hired shall be subject to direction and control by Forest Service and shall be paid by Forest Service at fire fighting rates common in the area or at prior agreed rates.

e) **Fire Precautionary Period and Fire Precautions.** Specific fire precautionary measures are set forth below. Upon request of Forest Service, Partner shall permit and provide an individual to assist in periodic testing and inspection of required fire equipment. Partner shall promptly remedy deficiencies found through such inspecting and testing.

1. The following requirements shall apply during the period April 1- December 1 and during other such periods as specified by Forest Service.

2. **See fire plan**

22. **Fire Control.** Partner shall, both independently and in cooperation with Forest Service, take all reasonable and practicable action to prevent and suppress fires resulting from Partner’s Operations and to suppress any forest fire on Project Area. Partner’s independent initial fire suppression action on such fires shall be immediate and shall include the use of all necessary personnel and equipment at Partner’s disposal on Project Area or within the distance of Project Area: *(Initial fire suppression within 25 road miles, and fire suppression reinforcement within 100 miles).*

a) **The Partner’s Reinforcement Obligations.** Whenever an Operations Fire or Negligent Fire, whether on or off Project Area or any other forest fire on Project Area, has not been suppressed by initial action and appreciable reinforcement strength is required, Forest Service may require further actions by Partner until such fire is controlled and mopped up to a point of safety. Such actions may include any or all of the following as necessary to fight such fire:

b) **Suspend Operations.** To suspend any or all of Partner’s Operations.

c) **Personnel.** To release for employment by Forest Service any or all of Partner’s personnel engaged in Partner’s Operations or timber processing within the distance of Project Area: *(25 Road miles).* Any organized crew so hired shall include Partner’s supervisor, if any. Personnel so employed shall be paid at Forest Service standard emergency fire fighting rates.

d) **Equipment.** To make available for Forest Service rental at fire fighting equipment rates common in the area or at prior agreed rates any or all of Partner’s equipment suitable for fire fighting and currently engaged in Partner’s Operations within the distance of Project
Limited Liability for Operations Fires.

Maximum Amount of Partner's Obligation per Operation's Fire. Entry should be determined as follows and rounded up to the nearest $100. The minimum amount will be $1,000.00. If State statute or law defines limited liability, use that determination (e.g., Oregon), otherwise calculate the amount using the following formula:

\[((1) \times (2) + (3) \times (4)) \times (5)\] = Maximum Amount of Cooperator’s Obligation per Operations Fire. Round up to the next $100.

(1) Equals the number of workers normally required to operate the size of proposed project.

______4____ Workers

(2) Equals the daily (12 hour) wage rate for semi-skilled (AD-1) firefighter.

$___15.50_____/Hr. \times 12 \text{ hours} = $____186______

(3) Equals the number of pieces of equipment normally required to operate the size of proposed project that can effectively cut and clear fire lines.

______4____ Pieces of equipment

(4) Average daily rate for each piece of equipment, including cost of operator, from current local engineering cost guide.

$_____120___/Hr. \times 12 \text{ hours} = $_____1440_____/12\text{hr.}

(5) Equals the number of days normally required to control and mop up such fires to a point where control lines can reasonably be expected to hold under foreseeable conditions. Minimum is one day and maximum is 10.

_____5_____days

**Partner’s Obligation per Operations Fire,**

Maximum: 51,389

Amount: $________________________
APPENDIX H: FIRE PLAN FOR CONSTRUCTION AND SERVICE CONTRACTS

1. **SCOPE:**

   The provisions set forth below outline the responsibility for fire prevention and suppression activities and establish a suppression plan for fires within the contract area. The contract area is delineated by map in the contract. The provisions set forth below also specify conditions under which contract activities will be curtailed or shut down.

2. **RESPONSIBILITIES:**

   A. **Contractor**

      (1) Shall abide by the requirements of this Fire Plan.

      (2) Shall take all steps necessary to prevent his/her employees, subcontractors and their employees from setting fires not required in completion of the contract, shall be responsible for preventing the escape of fires set directly or indirectly as a result of contract operations, and shall extinguish all such fires which may escape.

      (3) Shall permit and assist in periodic testing and inspection of required fire equipment. Contractor shall certify compliance with specific fire precautionary measures in the fire plan, before beginning operations during Fire Precautionary Period and shall update such certification when operations change.

      (4) Shall designate in the Fire Plan and furnish on Contract Area, during operating hours, a qualified fire supervisor authorized to act on behalf of Contractor in fire prevention and suppression matters.

   B. **Forest Service**

      The Forest Service may conduct one or more inspections for compliance with the Fire Plan. The number, timing, and scope of such inspections will be at the discretion of agency employees responsible for contract administration. Such inspections do not relieve the Contractor of responsibility for correcting violations of the fire plan or for fire safety in general, as outlined in paragraph 2.A above.

3. **DEFINITIONS:**

   The following definitions shall apply:

   **Active Landing:** A location the contractor may be skidding logs into, or performing other operations such as delimming, log manufacturing, and chipping logs. Except for EV and E days, loading logs or stockpiling chips only, on a cleared landing, does not constitute an Active Landing.

   **Hot Saw:** A harvesting system that employs a high-speed (>1100 rpm) rotating felling head, i.e., full rotation lateral tilt head.

   **Mechanical Operations:** The process of felling, skidding, chipping, shredding, masticating, piling, log processing and/or yarding which requires the use of motorized power which includes, chainsaws, chippers, motorized carriages, masticators, stroke delimiters, skidders, dozers etc.

4. **TOOLS AND EQUIPMENT:**

   The Contractor shall comply with the following requirements during the fire precautionary period, as defined by unit administering contracts:

   **The Fire Precautionary Period is set by the State of California which is April 1 through December 1 of any year.**
This contract ✗ requires, ☐ does not require, a Fire Box and associated Fire Tools according to CPRC Section 4428.

A. Fire Tools and Equipment: Contractor shall meet minimum requirements of Section 4428 of the California Public Resources Code (C.P.R.C.). Fire tools kept at each operating landing shall be sufficient to equip all employees in the felling, yarding, loading, chipping, and material processing operations associated with each landing. Fire equipment shall include two tractor headlights for each tractor dozer used in Contractor's Operations. Tractor headlights shall be attachable to each tractor and served by an adequate power source. All required fire tools shall be maintained in suitable and serviceable condition for fire fighting purposes.

Trucks, tractors, skidders, pickups and other similar mobile equipment shall be equipped with and carry at all times a size 0 or larger shovel with an overall length of not less than 46 inches and a 2-1/2 pound axe or larger with an overall length of not less than 28 inches.

Where cable yarding is used, Contractor shall provide a size 0 or larger shovel with an overall length of not less than 46 inches and a filled backpack can (4 or 5 gallon) with hand pump within 25 feet of each tail and corner block.

B. Fire Extinguishers: Contractor shall equip each internal combustion yarder, fuel truck, and loader with a fire extinguisher for oil and grease fires (4-A:60-B:C).

Skidders and tractors shall be equipped with a minimum 5-BC fire extinguisher.

All Fire Extinguishers shall be mounted, readily accessible, properly maintained and fully charged.

Contractor shall equip each mechanized harvesting machine with hydraulic systems, powered by an internal combustion engine (chipper, feller/buncher, harvester, forwarder, hot saws, stroke delimber, etc.), except tractors and skidders, with at least two 4-A:60-B:C fire extinguishers or equivalent.

C. Spark Arresters and Mufflers: Contractor shall equip each operating tractor and any other internal combustion engine with a spark arrester, except for motor vehicles equipped with a maintained muffler as defined in C.P.R.C. Section 4442 or tractors with exhaust-operated turbochargers. Spark Arresters shall be a model tested and approved under Forest Service Standard 5100-1a as shown in the National Wildlife Coordinating Group Spark Arrester Guide, Volumes 1 and 2, and shall be maintained in good operating condition. Every motor vehicle subject to registration shall at all times be equipped with an adequate exhaust system meeting the requirements of the California Vehicle Code.

D. Power Saws: Each power saw shall be equipped with a spark arrester approved according to C.P.R.C. Section 4442 or 4443 and shall be maintained in effective working order. An Underwriters Laboratories (UL) approved fire extinguisher containing a minimum 14 ounces of fire retardant shall be kept with each operating power saw. In addition, a size 0 or larger shovel with an overall length of not less than 38 inches shall be kept with each gas can but not more than 300 feet from each power saw when used off cleared landing areas.

• This contract ✗ requires, ☐ does not require, Section 4E of the Fire Plan.

E. Tank Truck or Trailer: Contractor shall provide a water tank truck or trailer on or in proximity to Contract Area during Contractor's Operations hereunder during Fire Precautionary Period. When Project Activity Level B or higher is in effect, a tank truck or trailer shall be on or immediately adjacent to each active landing, unless otherwise excepted when Hot Saws or Masticators are being used. See Section 6 for specific contract requirements.

The tank shall contain at least 300 gallons of water available for fire suppression. Ample power and hitch shall be readily available for promptly and safely moving tank over roads serving Contract Area. Tank truck or trailer shall be equipped with the following:

1. Pump, which at sea level, can deliver 23 gallons per minute at 175 pounds per square inch measured at the pump outlet. Pumps shall be tested on Contract Area using a 5/16 inch orifice in the Forester One Inch In-Line Gauge test kit. Pump shall meet or exceed the pressure value in the following table for nearest temperature and elevation:
The pump outlet shall be equipped with 1-1/2 inch National Standard Fire Hose thread. A bypass or pressure relief valve shall be provided for other than centrifugal pumps.

(2) 300 feet of 3/4-inch inside diameter rubber-covered high-pressure hose mounted on live reel attached to pump with no segments longer than approximately 50 feet, when measured to the extreme ends of the couplings. Hose shall have reusable compression wedge type 1-inch brass or lightweight couplings (aluminum or plastic). One end of hose shall be equipped with a coupling female section and the other end with a coupling male section. The hose shall, with the nozzle closed, be capable of withstanding 200 PSI pump pressure without leaking, distortions, slipping of couplings, or other failures.

(3) A shut-off combination nozzle that meets the following minimum performance standards when measured at 100 P.S.I. at the nozzle:

<table>
<thead>
<tr>
<th>G.P.M.</th>
<th>Horizontal Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Straight Stream</td>
<td>10</td>
</tr>
<tr>
<td>Fog Spray</td>
<td>6 - 20</td>
</tr>
</tbody>
</table>

(4) Sufficient fuel to run the pump at least 2 hours and necessary service accessories to facilitate efficient operation of the pump.

When Contractor is using Hot Saws or Masticators, an additional 250 feet of light weight hose, approved by the Forest Service, shall be immediately available for use and be capable of connecting to the 300 feet of hose and appurtenances in (2) and (3) above.

This equipment and accessories shall be deliverable to a fire in the area of operations and is subject to the requirements for each specific activity level identified in Section 6.

F. **Compressed Air Foam System:** A Compressed Air Foam System (CAFS) is a fire suppression system where compressed air is added to water and a foaming agent. By agreement, Contractor may substitute a CAFS or functional equivalent in lieu of the tank truck, trailer or fire extinguishers, provided it meets or exceeds the following specifications and requirements:

2. Units shall be kept fully charged with air; water and foam concentrate as recommended by the manufacturer and have the appropriate tools to service the system.
3. The unit shall contain enough energy to empty tank and clear hose prior to exhausting propellant.
4. The unit shall be capable of being completely recharged within 10 minutes.
5. When used on cable yarding landings, the unit shall be outfitted for immediate attachment to carriage and transported without damage to the unit.
Fire extinguishers required for Hot Saws, Masticators and similar equipment identified in Section 4 B. above may be substituted with a 3-gallon CAFS.

Tank truck, trailer or equivalent may be substituted with a 30 Gallon CAFS with at least 550 feet of one inch hose and an adjustable nozzle with enough water, air and foam concentrate for at least one recharge.

This equipment and accessories shall also be deliverable to a fire in the area of operations and subject to the requirements for each specific activity level identified in Section 6.

5. **GENERAL**

A. **State Law:** In addition to the requirements in this Fire Plan, the Contractor shall comply with all applicable laws of the State of California. In particular, see California Public Resource Codes.

B. **Permits Required:** The Contractor must secure a special written permit from the District Ranger or designated representative before burning, welding or cutting metal or starting any warming fires. If contract requires Blasting and Storing of Explosives and Detonators, an Explosives Permit may be required pursuant to the California Health and Safety Code, Section 12101.

C. **Blasting:** Contractor shall use electric caps only unless otherwise agreed in writing. When blasting is necessary in slash areas, a Fire Patrolperson equipped with a size 0 or larger shovel with an overall length of not less than 46 inches and a filled backpack can (4 or 5 gallon) with hand pump shall remain in the immediate area for an hour after blasting has been completed.

D. **Smoking:** Smoking shall not be permitted during fire season, except in a barren area or in an area cleared to mineral soil at least three feet in diameter. In areas closed to smoking, the CO may approve special areas to be used for smoking. The Contractor shall sign designated smoking areas. Contractor shall post signs regarding smoking and fire rules in conspicuous places for all employees to see. Contractor's supervisory personnel shall require compliance with these rules. Under no circumstances shall smoking be permitted during fire season while employees are operating light or heavy equipment, or walking or working in grass and woodlands.

E. **Storage and Parking Areas.** Equipment service areas, parking areas, and gas and oil storage areas shall be cleared of all flammable material for a radius of at least 10 feet unless otherwise specified by local administrative unit. Small mobile or stationary internal combustion engine sites shall be cleared of flammable material for a slope distance of at least 10 feet from such engine. The COR shall approve such sites in writing.

F. **Reporting Fires:** As soon as feasible but no later than 15 minutes after initial discovery, Contractor shall notify Forest Service of any fires on Contract Area or along roads used by Contractor. Contractor's employees shall report all fires as soon as possible to any of the following Forest Service facilities and/or personnel listed below, but not necessarily in the order shown:

<table>
<thead>
<tr>
<th>Name</th>
<th>Office Address</th>
<th>Office telephone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dispatch Center</td>
<td>Sierra Dispatch</td>
<td>2311 North Clovis Ave</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fresno, CA 93727</td>
</tr>
<tr>
<td></td>
<td></td>
<td>911 First</td>
</tr>
<tr>
<td></td>
<td></td>
<td>559-500-4544</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Emergency</td>
</tr>
<tr>
<td></td>
<td></td>
<td>559-500-4546</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Business</td>
</tr>
<tr>
<td>Nearest FS Station</td>
<td>High Sierra Ranger District</td>
<td>Sierra NF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>29688 Auberry Road,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Prather, CA 93651</td>
</tr>
<tr>
<td></td>
<td></td>
<td>559-855-5355</td>
</tr>
<tr>
<td>Inspector</td>
<td>Molly Murray</td>
<td>Prather, CA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>559-855-5355 ext</td>
</tr>
<tr>
<td>COR</td>
<td>Ray Acker</td>
<td>Prather, CA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>559-855-5355 ext</td>
</tr>
<tr>
<td>District Ranger</td>
<td>Kim Sorini-Wilson</td>
<td>Prather, CA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>559-855-5355 ext 3340</td>
</tr>
</tbody>
</table>

When reporting a fire, provide the following information:

- Your Name
- Call back telephone number
- Project Name
G. **Communications**: Contractor shall furnish a serviceable telephone, radio-telephone or radio system connecting each operating side with Contractor's headquarters. When such headquarters is at a location which makes communication to it clearly impractical, Forest Service may accept a reasonable alternative location. The communication system shall provide prompt and reliable communications between Contractor's headquarters (or agreed to alternative) and Forest Service via commercial or Forest Service telephone.

This contract ☒ requires, ☐ does not require, Section 5G of the Fire Plan.

H. **Fire Patrolperson**: Contractor shall furnish a qualified fire patrolperson each operating day when Project Activity Level C or higher is in effect. When on duty, sole responsibility of patrolperson shall be to patrol the operation for prevention and detection of fires, take suppression action where necessary and notify the Forest Service as required. This Fire patrol is required on foot, unless otherwise agreed. By agreement, one patrolperson may provide patrol on this and adjacent projects. No patrolperson shall be required on Specified Road construction jobs except during clearing operations unless otherwise specified.

The Contractor shall, prior to commencing work, furnish the following information relating to key personnel:

<table>
<thead>
<tr>
<th>Title</th>
<th>Name</th>
<th>Telephone Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire Supervisor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fire Patrolperson</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

I. **Clearing of Fuels**: Contractor shall clear away, and keep clear, fuels and logging debris as follows:

<table>
<thead>
<tr>
<th>Welding equipment and stationary log loaders, yanders and other equipment listed in California State Law:</th>
<th>10 feet slope radius</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tail or corner haulback blocks:</td>
<td>All running blocks shall be located in the center of an area cleared to mineral soil at least 15 feet in diameter.</td>
</tr>
<tr>
<td>Lines near, between or above blocks:</td>
<td>Sufficient clearing to prevent line from rubbing on snags, down logs and other dead woody material.</td>
</tr>
</tbody>
</table>

6. **EMERGENCY PRECAUTIONS**

Contractor's Operations shall conform to the limitations or requirements in the Project Activity Level (PAL) table below. Project Activity Levels applicable to this project shall be the predicted activity levels for the Fire Danger Rating Area(s), or fire weather station(s) stated in the Contract Area Map Legend on Integrated Resource Service Contracts (IRSC's), and other contracts where applicable.

**Fire Danger Rating Area/Fire Weather Station for Project**

All project areas = MT REST

The Forest Service, in its sole discretion, may change the predicted activity level if the current fire suppression situation, weather and vegetation conditions warrant an adjustment. If practicable, Forest Service will determine the following day’s activity level by 6:00 PM. Contractor shall obtain the predicted Project Activity Level from the appropriate Ranger District Office before starting work each day.

**Phone Number or Website to obtain Predicted Activity Levels**: 559-500-4488
Forest Service may change the Project Activity Level Table to other values upon revision of the National Fire Danger Rating System. When Contractor is notified, the revised Project Activity Levels will supersede the levels in the Project Activity Level Table below.

**PROJECT ACTIVITY LEVEL**

<table>
<thead>
<tr>
<th>Level</th>
<th>Project Activity Minimum Requirements and Restrictions. Restrictions at each level are cumulative.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Minimum requirements noted above in Sections 4 and 5.</td>
</tr>
<tr>
<td>B</td>
<td>1. Tank truck, trailer, or approved CAFS substitute shall be on or adjacent to the Active Landing.</td>
</tr>
</tbody>
</table>
| C     | 1. When Hot Saws or Masticators are operating, a tank truck, trailer, or approved CAFS substitute shall be within ¼ mile of these operations. Effective communications shall exist between the operator and the Active Landing.  
2. Immediately after Mechanical Operations cease, Fire patrol is required for two hours. |
| D     | 1. Immediately after Hot Saw or Masticator operations cease, Fire patrol is required for three hours.  
2. No Dead Tree felling after 1:00 PM, except recently dead.  
3. No burning, blasting, welding or cutting of metal after 1:00 PM, except by special permit. |
| Ev    | 1. The following activities may operate all day:                                                   
   a) Loading and hauling logs decked at approved landings.  
   b) Loading and hauling chips stockpiled at approved landings.  
   c) Servicing equipment at approved sites.  
   d) Dust abatement, road maintenance (Chainsaw use prohibited), culvert installation within cleared area, chip sealing, paving, earth moving or rock aggregate stockpile loading and installation (does not include pit or quarry development).  
   e) Chainsaw and log processing operations associated with loading logs or other forest products at approved landings.  
2. Hot Saws or Masticators may operate until 1:00 PM; provided that:                           
   a) A tractor with a blade or other equipment capable of constructing fireline is on or adjacent to the active landing or within ¼ mile of the operating equipment. This piece of equipment shall have effective communication with the Hot Saw or Masticator.  
   b) Any additional restrictions specified by the Forest.  
3. All other conventional Mechanical Operations are permitted until 1:00 PM.  
4. Some operations may be permitted after 1:00 PM, on a case-by-case basis, under the terms of a PAL Ev Variance Agreement. Activities for which a Variance may be issued are: 
   • Rubber Tire Skidding  
   • Chipping on Landings  
   • Helicopter Yarding  
   • Fire Salvage  
   When approved by a Line Officer, a Variance Agreement can be implemented when the criteria specified in the agreement are met and mitigation measures are in place. This approval is good for ten (10) days unless cancelled sooner or extended by the Contracting Officer for an additional ten (10) days.  
   Variance approval can be withdrawn at the sole discretion of the Forest Service. Variance approval is contingent on the 7-day fire weather forecast, fuel conditions, site characteristics, current fire situation, state of Contractor’s equipment for prevention and suppression readiness, type of operation and social and community considerations etc. (See attached Project Activity Level Variance Agreement). |
The following activities may operate all day:
1. Loading and hauling logs decked at approved landings.
2. Loading and hauling chips stockpiled at approved landings.
3. Servicing Equipment at approved sites.
4. Dust abatement, road maintenance (chainsaw use prohibited) or loading stockpiles and rock aggregate installation (does not include pit or quarry development).
5. Chainsaw operation associated with loading at approved landings.
All other activities are prohibited.

This Project utilizes “The Project Activity Level” (PAL), an industrial operation’s fire precaution system. The following Climatology Chart indicates the Historic Activity Levels for the Project Fire Danger Rating Area or Fire Weather Station utilized on this Project. This is only a historical average of the Activity Levels for the identified Fire Danger Rating Area or Weather Station.

<table>
<thead>
<tr>
<th>Fire Danger Rating Area/Weather Station</th>
<th>Dinkey Creek Work Center</th>
<th>Years Analyzed 2015</th>
<th>Historic Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Month</td>
<td>A</td>
<td>B</td>
<td>C</td>
</tr>
<tr>
<td>July</td>
<td>1</td>
<td>7</td>
<td>12</td>
</tr>
<tr>
<td>August</td>
<td>0</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>September</td>
<td>2</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>October</td>
<td>5</td>
<td>6</td>
<td>12</td>
</tr>
</tbody>
</table>
Region 5 Project Activity Level (PAL) Ev Variance Application/Agreement

Project Name: __________________________________________
Contract Number: _______________________________________
Contractor Name: _______________________________________
Request # __, for period: ________________________________
Units/SubDivisions Affected: ______________________________

<table>
<thead>
<tr>
<th>Location of operation:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slope</td>
</tr>
<tr>
<td>Aspect</td>
</tr>
<tr>
<td>Elevation</td>
</tr>
<tr>
<td>Fuels on site</td>
</tr>
<tr>
<td>Fuels in surrounding area</td>
</tr>
<tr>
<td>7 Day PAL Outlook</td>
</tr>
<tr>
<td>Short range predictions (Red Flags)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fuel Moistures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response time of suppression resources</td>
</tr>
<tr>
<td>Potential for ignition</td>
</tr>
<tr>
<td>RAWS location</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Current Fire Situation:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Draw down information</td>
</tr>
<tr>
<td>National Readiness Level</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Contractual considerations:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal Operating Season</td>
</tr>
<tr>
<td>Frequency of recent contract fires in area</td>
</tr>
<tr>
<td>Type of operation</td>
</tr>
<tr>
<td>Contractors past/current performance &amp; equipment readiness</td>
</tr>
<tr>
<td>Other site-specific mitigation or precaution (i.e. Contractors proposals)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Social &amp; Community Considerations:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proximity of high value resources</td>
</tr>
<tr>
<td>Sensitivity of location</td>
</tr>
</tbody>
</table>
Proposed Actions:

Description of Mitigation Measures:

Remarks:

Fire Management Officer Concurrence  Date

Line Officer Approval  Date

I have considered the above request and determined the specified mitigation measures or actions must be implemented to continue operations in Project Activity Level Ev. Unless extended, the approval remains in effect for ten (10) calendar days unless cancelled sooner or extended by the Forest Service for an additional ten (10) days. At the sole discretion of the Forest Service, this variance can be modified and/or cancelled at no cost to the government.

Contracting Officer  Date

Contractor Representative  Date