



DECISION NOTICE
and
FINDING OF NO SIGNIFICANT IMPACT

ANGORA FIRE RESTORATION PROJECT
U.S. FOREST SERVICE
LAKE TAHOE BASIN MANAGEMENT UNIT (LTBMU)
EL DORADO COUNTY, CALIFORNIA

BACKGROUND

On the afternoon of June 24, 2007, the human-caused Angora Fire began on National Forest System (NFS) lands managed by the LTBMU. The Angora Fire burned over 3,100 acres including approximately 2,700 acres of NFS lands, all within the Wildland Urban Interface (WUI) Defense Zone, and destroyed or damaged more than 250 structures on the South Shore of Lake Tahoe.

The Angora Fire burned approximately 3,100 acres of Jeffrey pine and mixed conifer forest. The fire killed thousands of trees and affected forest resources such as soil and riparian and wildlife habitat. In the areas of high vegetation burn severity and much of the areas that burned at moderate severity (25–75% basal area mortality), the overall fuel loading is now low (average of less than 7 tons per acre). However, as dead trees fall, surface fuels will increase over time (Final EA, Section 1.3.1, Table 3.1-3). These trees will create a thick horizontal fuel loading that with the understory grass, forbs, and shrub growth will increase fuel loading on the surface that would increase probability of future wildland fires to burn at high severities and provide conditions that would make suppression of wildfires more difficult and once again threaten local communities. A higher fire severity impacts watersheds, soils, and archeological sites.

In order to respond to post-fire conditions, the LTBMU strategy for rehabilitation on NFS lands included three phases. Phases 1 and 2 are complete.

The first phase was fire suppression rehabilitation that occurred during the “mop-up” of the fire and was completed in November 2007. This was a series of immediate post-fire actions to rehabilitate hand and dozer fire lines, roads, safety zones, and portions of urban lots used during fire suppression efforts.

The second phase of rehabilitation of the area took place under the Burned Area Emergency Rehabilitation (BAER) process, in which erosion control measures were implemented in preparation for the initial storm events of 2007 fall and 2007-8 winter. The

BAER work also included noxious (invasive) weed detection surveys and hand removal of disturbed areas, urban lot seeding for erosion control, hand mulching, water bar installation and armoring, culvert maintenance, fencing installation, and aerial hydromulching.

The third phase of rehabilitation is longer-term and includes three stages.

The first stage addresses public safety within the burned area. This includes the removal of hazard trees on urban lots (completed in October 2007) and along NFS roads and trails. In March 2008, I signed a Decision Memorandum for the Angora Hazard Tree Removal Project authorizing hazard tree removal and mitigation along 256 acres of roads and trails. This work started in December 2008 and is scheduled for completion this summer.

Planting seedling trees (reforestation) on approximately 965 acres is a separate ongoing stage as part of the urban lot restoration work (Phase 3 - above) and integrates with this decision (Angora Fire Reforestation Project) (Phase 3 below). Reforestation includes hand planting Jeffrey pine, sugar pine, incense cedar, and red fir. Site preparation for seedling planting includes scraping of duff and litter down to mineral soil 12 inches around the planting spot. The purpose for planting seedlings is to expedite desired stand conditions such as density, tree size, and species composition. Relying on natural regeneration alone in certain areas would be delayed due to lack of a seed source and would result in areas dominated by shrubs and/or the non-preferred tree species, white fir and lodgepole pine. To date, planting has occurred on approximately 220 acres including urban lots in 2009. In April 2010, I signed a Decision Memorandum that authorized reforestation on approximately 745 acres. In May 2010, approximately 450 acres were planted. My April decision acknowledges that another 295 acres could be planted over the next couple years with the planting timed and considered with the activities under this decision (Phase 3).

We also donated seedlings to the U.C. Davis Cooperative Extension to distribute for planting on private lands in 2008.

- The third stage of long-term restoration includes Alternative 2 evaluated in this decision and accompanying Angora Fire Restoration Project Final Environmental Assessment (Final EA), in which an interdisciplinary team of resource specialists addressed a comprehensive approach toward restoring the burned landscape to meet desired social and ecological conditions. Based on community and public input, this stage incorporates five major restoration activities:

Fire, Fuels, Vegetation, and Forest Health,

Wildlife Habitat,

Aquatic Habitat and Stream Channel Restoration,

Road and Trail Delineation, and
Noxious (invasive) Weed Detection and Removal.

In addition, this decision does not include or incorporate specific project activities on NFS lands found in other NEPA documents and decisions that have project areas that either overlap with and/or are immediately adjacent to the Angora fire area (Final EA, Section 1.8). These include: South Shore Fuels Reduction and Healthy Forest Restoration, Fallen Leaf Lake Trail Access and Travel Management, Angora-Twin Peaks Access and Travel Management, Aspen Community Restoration, LTBMU Trail Maintenance, LTBMU Routine Road Maintenance, Terrestrial Invasive Plant Species Treatment (formerly Terrestrial Non-Native Invasive Plant Species Treatment), Angora Hazard Tree Removal Project, Urban Lot Restoration/Management, Angora Creek Fisheries Enhancement (special use permit amendment to El Dorado County), Angora Fire Reforestation and Angora pile burning in Stream Environment Zone study. These projects do not duplicate or conflict with efforts proposed in this decision.

DECISION

Based upon my review of the Angora Fire Restoration Project Final EA and the response provided in the recent 30 day public comment period (DN, Appendix C), I have decided to implement Alternative 2, as modified, which is the Proposed Action (Final EA, Alternative 2, Section 2.3), Project Design Features (DN, Appendix A & Final EA, Section 2.3.2) and Best Management Practices designed for this project (DN, Appendix B & Final EA, Appendix A). Alternative 2, as modified, includes activities on approximately 1,416 acres of the approximately 2,700 acres on NFS lands. **NOTE:** for the remainder of this DN, I will use “Alternative 2” to mean incorporating this modification. The 1,416 acres includes aspen planting, conifer removal from aspen, Angora Creek channel restoration, Seneca pond restoration, road and trail activities, Gardner Mountain meadow restoration, treatments in two wildlife snag zones, noxious (invasive) weed removal, and hand/mechanical tree removal and live tree thinning. The acres associated with some of these activities are refined from the EA (Section 1.6) to the Final EA (Section 1.6). My decision includes 1,168 acres of the burned area being left untreated (i.e. no activities except removing invasive weeds) providing a diversity of forest habitat in areas burned at low, moderate, and high severity.

Key highlights, including one modification, and the rationale for my decision for the five major restoration activities are:

Fire, Fuels, Vegetation and Forest Health

Key Highlights:

- Fuel removal of standing dead and downed wood and thinning of live trees will occur on approximately 1,411 acres. Thinning of live trees is based on desired residual basal

area of 80 square feet per acre, to improve residual tree vigor. Thinning of live trees would be a component only where needed as part of meeting fuel load and forest health objectives. Live tree thinning is varied and patchy in mechanical units with the exception of no live tree thinning planned in mechanical Unit 13.

- A ground-based logging system would be employed on up to 964 (including 13 acres of Cut-to-Length mechanical thinning in Gardner Mountain Meadow) acres that are located in areas with slopes under 30%. Construction of new roads and landings to facilitate fuel removal. Reconstruction or opening of existing roads, trails, and landings to facilitate fuel removal. Up to 7.7 miles of temporary road would be constructed, including spurs connecting to existing NFS and non-NFS roads. Existing and new landings and staging areas would be utilized to facilitate removal of fuels for ground-based operations. This entails approximately 23 new and 27 existing landings and staging areas.
- Modification: Instead of aerial logging approximately 447 acres where slopes are over 30%, I am modifying Alternative 2 to use hand thinning and piling/burning. The prescription will change in Units 1, 3, 6, 8 and 11 to remove 16 inches and less live trees and 20 inches and less dead standing and downed trees (See Final EA Figure 2-2). Piles would primarily include woody material 14 inches and less. The portion of tree boles over 14 inches would be left on the ground. Modifying this prescription does not meet the aerial prescription to reduce fuels loading down to 10 tons per acre. The surface fuel loading after hand treatment and piling/burning is estimated to average 12 tons/acre post treatment and range between 15-30 tons/acre (varying by unit) after 20 years as the remaining dead trees fall. Even though the 20 year post treatment does not meet the desired surface fuel loading, it does reduce the surface fuel loading as compared to taking no action (Final EA, Table 3.1-3).
- Included in the 1,411 acres is the 6 acres of conifer removal for aspen stand enhancement, approximately 77 acres of treatment proposed in 220 acres of wildlife snag zones (39 acres in SEZ; 38 ac Subdivision), and 13 acres of conifer removal for meadow restoration in the Gardner Mountain meadow.

My rationale:

- This decision moves fuel conditions toward desired future conditions as defined by the LTBMU Land and Resource Management Plan (Forest Plan), including the 2004 Sierra Nevada Forest Plan Amendment (SNFPA). Desired conditions for the Wildland Urban Interface Defense Zone are geared toward reducing wildland fire behavior under high fire weather conditions, including flame lengths of less than 4 feet at the head of a fire, reductions in the rate of spread at the head of the fire, reduction of hazards to firefighters by removing snags from locations likely to be used for fire suppression, and a doubling of fire line construction rates. My decision achieves the desired condition for surface fuels condition of 10-15 tons per acre (i.e. 15 for SEZs) in some units and moves

towards those conditions in others 20 years after the project (Final EA, Table 3.1-3 for all units except the ones modified in this decision).

- My decision reduces a portion of the amount of dead and downed trees that will accumulate over the next two decades as the burned trees decay and fall over (in 10 years it is expected that most of the smaller diameter dead trees (<15 inches dbh) and few of the larger dead trees (greater than 15 inches dbh) would have fallen) (Final EA, Section 1.3.1).
- My decision to modify from aerial to hand thinning reflects these considerations:
 - Aerial operations were proposed and analyzed before more detailed field survey work was completed. *At this time, aerial operations are no longer feasible.* The trees in these units were smaller in diameter size making it less feasible to use aerial operations. There was more white pine in the area than anticipated. White pine has deteriorated substantially and poses a safety hazard in implementing aerial operations (i.e. in their decaying state they are more likely to fall apart).
 - Hand treatment meets the desired condition in the short-term by removing the smaller diameter trees until the larger dead trees fall and increase surface fuel loading (20 years post project)(Final EA, Section 1.3.1).
 - While hand thinning does not achieve the purpose and need as well as aerial operations 20 years post project, it does move toward the desired condition and will reduce fuel loading compared to no action. These 5 units are scattered throughout and adjacent to mechanical units where desired conditions will be achieved (Final EA, Figure 2-2) which overall results in desired conditions being met on approximately 70% of the original mechanical treatment acres.

Wildlife Habitat

Key Highlights:

- In the low- to moderate-severity burn areas, 6 acres of conifer removal resulting to enhance aspen stand development and growth. Aspen stands in the high-severity burn areas, where no competing conifers or other vegetation exist, would be left alone (no conifer removal) to allow these stands to recover on their own.
- Aspen planting using seedlings and root cutting would occur in eleven 0.25-acre plots.
- Approximately 77 acres in wildlife snag zones totaling 220 acres would be treated (remove some smaller dead trees/thin live). Wildlife snag zones range from 7 to 39 acres and occur in fuels treatment units. Approximately 143 acres in wildlife snag zones would receive no tree removal treatments (i.e. 87 acres would receive no treatment at all; 56 acres would have

seedlings planted under the separate Angora reforestation decision).

My Rationale:

- This decision enhances wildlife habitat diversity by improving certain aspen stands from conifer encroachment and managing for greater amounts of snags and downed wood in 12 wildlife snag zones. These enhancements meet conditions for residual tree size class and snag dependent species including removing competing conifers, planting aspen, maintaining leave islands of intact vegetation, providing a diversity of snag size that are unevenly spaced in higher numbers (42-50 per acre, 9 inches or greater)(Final EA, Section 2.3.1).
- A diversity of habitat structure is provided by removing some dead trees, thinning some live trees, including prescriptions that retain snags and downed wood as well as benefiting aspen, the Gardner Mountain meadow and designated wildlife snag zones. In addition, 1,168 acres of burned areas will remain untreated further adding to habitat structure and diversity.

Aquatic Habitat and Hydrologic Function Restoration

Key Highlights:

- A total of 1,200 feet of Angora Creek channel through the meadow above Lake Tahoe Boulevard would be reconstructed.
- Large woody debris would be placed within a 2-mile segment of Angora Creek and tributaries.
- The 13 acre Gardner Mountain meadow would be restored through removal of live encroaching conifers and filling in a 1,500 foot long gully. This incised gully would be plugged with soil material, and grade control structures would be installed to maintain its new elevation. Riparian shrub and sod planting would be conducted as needed to stabilize areas of exposed soil.
- The drainage paths from the spring above Seneca Pond to tributaries of Angora Creek would be redirected to minimize risk of erosion and maximize flows to adjacent wetlands. The 0.5 acre human-made Seneca Pond would be restored to a wetland vegetation complex. Combined, these actions will result in an increase of approximately 2 acres of restored and enhanced wetland habitat.

My Rationale:

- This decision affects riparian habitats by providing aspen stands and willow, alder, and wetland herbaceous vegetation types. Stream, wetland, and meadow ecosystems would function as habitat for a diverse group of aquatic and terrestrial wildlife species and positively influence the quality and quantity of water in the project area. Alternative 2 stabilizes and improves aquatic and meadow conditions through stabilization and channel

restoration work, and also replaces the human-made Seneca Pond with wetland habitat.

Roads and Trails

Key Highlights:

- Establish administrative road and summer non-motorized trail systems consisting of 9.5 miles of classified road and 10.4 miles of classified trail (Final EA, Table 2-3) which incorporates:
 - Decommissioning/restoring 1.9 miles of road and 16.7 miles of trail
 - Constructing 6.4 miles of classified road (including the 2.6 miles adopted as classified road), and 8.9 miles of classified trail (including the 2.6 miles adopted as classified trail)
 - 0.3 miles of road and 1.4 miles of trail would be relocated out of stream environment zones (SEZs)
 - Installing three new locked gates and adjacent fencing
 - Constructing three road stream crossing upgrades
 - Constructing two trail stream crossing upgrades
 - Installing 14 way-finding signs at public access points
 - Upgrading shoulder parking with BMPs on Sawmill Road east of Lake Tahoe Boulevard

My Rationale:

- This decision defines, post-Angora fire, the road and trail system needed for forest management and for summer non-motorized recreational use. It reduces the impacts (i.e. sedimentation) from non-system (user-created) roads and trails that currently impact water quality and establishes new road and trail segments that adhere to current Best Management Practices (BMPs) further reducing risks and impacts to aquatic ecosystems and water quality.

Noxious (Invasive) Weeds

Key Highlights:

- Continues to contain, control or eradicate occurrences of noxious (invasive) non-native weed species within the Angora Fire burn area. Targeted species include bull thistle, field bindweed, St.John's wort, Tall whitetop and Oxeye daisy.

My Rationale:

- This decision continues to treat invasive weeds by proactively identifying and surveying them and then containing/controlling and/or eradicating individual plants

and/or populations of these weeds.

ADDITIONAL DECISION RATIONALE

In addition to the rationale provided above, I considered the following in selecting Alternative 2:

- 1. It is fully responsive to the Purpose and Need and is designed to move toward desired conditions** (Final EA, Sections 1.5 and 1.4).
- 2. The overall project scope and 5 restoration activities reflect early public input and engagement** (Final EA, Section 1.9).

Alternative 2 integrates five restoration activities that were generated from initial public input requested and received on potential restoration opportunities from May through June 2008. We framed this invitation to solicit individual input and ideas on a range of restoration options considering future desired conditions rather than our traditional approach of asking the public to react to a specific proposal. We shared the existing condition of the area including resource information collected by our resource specialists. Approximately 60 people attended a public open house (in which we captured written input on flipcharts), and an additional 15 people submitted written comments or called with verbal input (Project Record C1).

Considering public and agency input which included regulatory agencies, Washoe Tribe consultation and integration of our LTBMU Land and Resource Management Plan (Forest Plan) direction which includes the 2004 Sierra Nevada Forest Plan Amendment, we determined and further refined the five restoration activities that were timely and ripe for consideration under our agency's National Environmental Policy Act (NEPA) process. Our proposed action (Alternative 2) and purpose and need respond to the early feedback and input we received from the community.

As part of this early public input and later public comment periods, I acknowledge that some comments conflicted with each other (i.e. restore Seneca Pond or leave it alone; remove all dead trees versus leave all dead trees versus remove some). As the decision-maker, I weighed all these options with enormous input from forest and regional resource specialists. Overall, I believe that many aspects of my decision address all and/or a portion of a comment topic. For example,

- Treating future fuel loading, my decision focuses on fuels within the Wildland Urban Interface Defense Zone (area closest to the community/homes) and left a portion of the burned area untreated allowing a portion of the forest to naturally regenerate.
- Proposing treatments that improve forest health and watershed function which improves and/ or more quickly establishes/restores wildlife and aquatic

habitats (i.e. Angora Cr, Gardner Mountain meadow, Seneca Pond, aspen stands, wildlife snag zones).

- Establishing a road and trail system that meets post-fire conditions, addresses previous resource impacts by relocating segments out of stream environment zones and serves both administrative use and current/future visitor uses.

3. Five topics that I feel need further explanation by me as part of my decision to select Alternative 2 are Seneca Pond, trails, wildlife habitat, proximity to neighborhoods, and project design features/best management practices.

Seneca Pond:

While some people supported the proposed restoration of Seneca Pond to a wetland complex, others expressed concern about its impact on local recreation. While I heard concern about the loss of trails to/around the pond, my decision incorporates a trail system that still serves this area. The concerns I heard and read regarding Seneca were that the pond experience would be lost as a highly regarded recreational destination spot for local residents. Those attributes include the loss of a swimming location for youth and pets.

I understand the concern and the social impacts associated with the conversion of Seneca Pond from its current condition as a small pond to a wetland habitat. My decision is to proceed with the restoration. My decision reflects that the improvements to the ecological watershed function of Angora Creek is a higher priority than the pond. The restoration of the human-made Seneca Pond would restore the historic drainage pathway from the upslope spring currently feeding the pond to support a larger area of riparian and wetland habitat, improving riparian and wetland habitat function. The experience for some people may change as the area transitions from a pond to a more robust and widespread riparian and wetland vegetation community. However, this will provide the opportunity to view an enhanced riparian community of alder, willow, and aspen and wetland communities of sedge grasses and wildflowers, and the wildlife that inhabits it. The area will continue to provide a recreation experience though it will not be identical to the experience provided today (pond itself).

One of the comments I read and heard the most was why we were proposing to restore the pond area when we (FS) had completed work over 10 years ago on it. Let me explain:

Seneca Pond is a human-made water body originally constructed in the early 1960s under private land ownership (Final EA, Figure 2-3). Prior to pond construction, this area appears in historic aerial photos to be a wet meadow/stream environment zone (SEZ). The wetland complex functioned as an important source of groundwater

recharge to Angora Creek, which both buffered water temperatures and provided perennial base flow sources in summer months.

In the mid-1990s, we (FS) proposed to restore historic drainage patterns in this area by obliterating the human-made diversion ditch feeding the pond, removing various diversion pipes that had been installed to capture subsurface spring flows, and converting the pond back to a wet meadow stream environment zone (SEZ). Public sentiment expressed a strong desire to maintain the pond. We decided that we could achieve the principle goal of reducing existing sources of accelerated erosion and restoring historic drainage patterns by obliterating the 1,200 foot long and 6 foot deep eroding diversion ditch feeding into the pond from an upslope tributary, while also maintaining and improving the pond for public enjoyment. Improving the pond was proposed to be achieved by reducing the size and overall depth of the pond and lining it with clay to maximize the duration of time the pond would hold water from spring snowmelt. Historically the pond went dry every year by mid-summer, and we expected that these improvements might increase the water holding capacity of the pond through mid to late August.

During construction operations in the pond, we unexpectedly hit groundwater about 4 feet below the ground surface elevation and above the planned elevation of the pond surface and clay liner. We quickly realized that an upslope spring was contributing a high volume of subsurface flow to this area. It was decided that the best solution was to intercept the flow from the spring at the point at which surface flows went subsurface (about 350 feet above the pond), and convey this flow into a constructed channel thereby providing perennial year round flows into and out of the pond.

What we did not foresee at the time was that providing year round flow to Seneca Pond would provide breeding, rearing, and over-wintering habitat for non-native (invasive species) bullfrogs, which out-compete and displace native amphibians. Prior to pond construction, Angora Creek and the adjacent wetlands provided habitat for native amphibian species such as Western toads (*Bufo boreas*). Ecosystem benefits of the pond are minimal as the population of non-native bullfrogs precludes the colonization of native amphibian species such as Western toad. Additionally, the banks and adjacent areas surrounding the pond are constructed of hard packed fill that supports limited riparian and wetland vegetation. By redirecting surface flows from the spring into historic pathways in drainage patterns that fit the current hydrologic regime, and creating a depressional wetland in the location of the pond, we estimate that we will increase the total area of enhanced riparian and wetland habitat by 2 acres. These habitats provide additional benefits related to water quality through nutrient uptake. This is particularly important in areas that are recovering from wildfire, as wildfire typically results in increasing orders of magnitude with mobilized nitrogen, until vegetation in the burn area has recovered.

In addition, after the Angora fire, peak water flows from the spring feeding into the pond increased (due to the loss of live trees) and created a breach in the constructed channel near the point of diversion 350 feet above the pond. This breach takes

approximately half of the flow to a new channel formed in a historic drainage swale, leaving the remaining flow in the constructed channel. The constructed channel and historic swale also continue to pick up flows from emerging groundwater as they travel down slope. Because the constructed channel is shallow and runs slightly side-slope, the increased spring flows which have occurred after the fire makes the constructed channel vulnerable to uncontrolled breaching and diversion. Restoring and conveying spring surface flows in a stable manner entirely to the historic swale will greatly expand the area of riparian and wetland vegetation through this area. Groundwater will continue to flow to the restored pond area. Since the clay liner will remain in place, groundwater flows will be sufficient to create and maintain a robust riparian and wetland community in this area, even though spring surface flows will be entirely redirected to its historic drainage path.

Restoring watershed function and processes is critical throughout the Lake Tahoe Basin to improve water quality and riparian/wetland habitat at Lake Tahoe. Therefore, based on the need and investments proposed in this project (Angora channel restoration), I have determined that it is timely and necessary to restore the function upstream of Angora Creek at/adjacent to Seneca Pond. On a larger landscape scale, below NFS lands, Angora Creek has and is receiving water quality restoration treatments from the State of California and El Dorado County. The timing to restore Seneca fits with all these efforts to improve water quality on this creek.

Trails:

Public comments included seven specific changes or additions to the trail system that were originally proposed during project scoping. Our interdisciplinary team reviewed these specific suggestions (Final EA, Section 2.1). At this time, I did not choose to select these suggestions as part of my decision because most tied to resource concerns (i.e. numerous stream environment zone crossings, steep slopes with erosion potential, creating stub trails that could be difficult to maintain and overall are not required for public access) and the ability to maintain the system as proposed. After we implement Alternative 2, we'll continue to observe how the trail system is serving local and visitor access needs and if warranted, can propose adjustments in the future. Right now, I believe Alternative 2 offers an excellent integrated trail system that will provide a visible (i.e. signage and being able to locate and navigate system trails) and quality summer non-motorized recreational experience. This system reflect the needs for recreational and administrative access considering ecological restoration needs and reducing environmental impacts (Final EA, Section 2.3, Tables 2-3 and 2-4, Figures 2-4 and 2-5).

- **Wildlife Habitat:**

There were concerns that the proposed action (Alternative 2) is not responsive to or would create significant impacts on wildlife habitat. Alternative 2 integrates in wildlife habitat needs by providing a diversity of habitat structure in the burned area.

Specifically, snags and downed wood are managed at higher levels. We incorporated aspen restoration and plantings to increase and scatter their locations in the burned area. We added in 12 zones (Final EA, Figure 2-1) designating 220 acres as wildlife snag zones. We proposed no standing or dead tree removal or live tree removal outside of the Wildland Urban Interface's Defense Zone allowing this burned area to recover naturally. Lastly, my modification of aerial to hand thinning retains larger dead (20+ inches) and live trees (16+ inches) including leaving tree boles approximately 14" and over on the ground.

- **Proximity to Neighborhoods**

I heard and read concerns about the impacts to neighborhoods from equipment operations adjacent to the Gardner Street and Seneca Drive neighborhoods as part of the Angora Hazard Tree removal. To partially reduce the impacts related to tree removal and thinning on adjacent neighborhoods and address concerns about noise, camping, and sanitation, we added project design feature 3 (DN, Appendix A; Final EA, Section 2.3.2). My decision to modify Alternative 2 to treat approximately 447 acres using hand thinning rather than aerial treatments will reduce noise associated with aircraft and the amount of activity at landings on Units 1, 3, 6, 8 and 11.

This measure could add more cost to project by restricting contractor activities and could result in the tree removal/thinning taking more time to complete. I retained flexibility in working with a contractor in certain circumstances as described in this project design feature. The addition of this feature is based on the concerns I received and knowing the impact residents have had for 4 years associated with rebuilding homes and repairing infrastructure within their neighborhoods as well as adjacent work on State, County and NFS lands.

I will continue to consider authorizing contractors to camp near their equipment. This is because contractors working on FS thinning projects last summer experienced vandalism to their equipment which is costly, can result in project delays, and has the potential to impact the environment. Whether or not camping occurs will vary as some contractors prefer to camp near their equipment and some choose not to camp at all.

We looked closer at the concern regarding localized congestion on neighborhood roads that access NFS lands. We access NFS lands where there is existing road access. Access includes Gardner Mountain/Panther St., Lake Tahoe Blvd., Tahoe Mountain Rd., Forest Mountain Rd., Boulder Mountain Rd., Mule Deer Dr., Pyramid Circle, Shoshone St., and Seneca Dr. These access project treatment areas directly and are considered the best locations based on Unit location, road conditions, topography, and short distances to streets. Alternate access points that may be feasible in situations with smaller trucks (not log or chip hauling equipment) and/or for use for contractor crew vehicles include

Camp Richardson and Hwy 89 (in lieu of Gardner Mountain/Panther St), and using Wintoon or Shoshone St. (in lieu of Seneca Dr).

There will also be noise associated with other project activities – Angora Creek channel restoration, Seneca Pond restoration, road and trail work though the impact is less than the tree removal/thinning activities because most of this work is conducted by local USFS employees during typical work day hours.

I received comments concerned about disturbing the burned area which has recovered with shrubs, grasses and wildflowers. There are also areas with tree seedlings as well as some planted within the last two years. Where equipment is operating, there will be disturbance to the soil surface and young vegetation. We are employing a suite of project design features and applying best management practices that minimize soil and watershed disturbances and avoid significant environmental effects (DN, Appendices A & B).

My decision reflects an overall restoration of this landscape focused around the neighborhoods. All the activities are consistent with the Basin's Environmental Improvement Program providing multiple resource benefits. All strive to jump start and/or restore portions of the project area consistent with desired conditions (Final EA, Section 1.4). Alternative 2 creates a different outcome than the no action alternative. The EA describes the conditions that are expected approximately 10 and 20 years post fire if no action is taken (Final EA, Section 1.3). Alternative 2 begins to directly restore the area so it doesn't create the same forest structure and fuel loadings that burned during the Angora fire. My decision recognizes the short-term impact for long-term restoration.

I appreciate the patience of those that live adjacent to this area and recreate in it daily. I too have spent time walking the trails and area. The vegetation will recover just as it did after the fire. In some places, it will recover faster (i.e. aspen plantings, live tree thinning, riparian and meadow areas).

Project Design Features and BMPs (Best Management Practices (BMPs)):

My decision incorporates project design features (DN, Appendix A) and BMPs (DN, Appendix B).

Based on our 2009 BMPEP monitoring report (including lessons learned from the October 13, 2009 rainstorm), implementation from the Angora Hazard Tree project, input from FS interdisciplinary resource specialists, and public comments including field trips and meetings with representatives from the Tahoe Regional Planning Agency and Lahontan Regional Water Quality Control Board, we developed site-specific design features and best management practices (BMPs) for the project. BMPs are based on standard practices as described in the USFS Region 5 BMP Handbook (USFS 2000). For the activities in Alternative 2, we identified applicable BMPs from this handbook, and

incorporated descriptions of project specific applications (DN Appendix B). The project specific application of some of these BMPs has been further defined and refined in the Proposed Action (Alternative 2) and through the development of project design features (DN, Appendix A). We spent considerable time working with local regulatory agencies on these features and modified/clarified (such as Final EA design features #12, adding 15 d, e, and f modifying SEZ risk assessment, 13, 16-21, 29, 36, 39, 42,45, and 51, 53) many from Draft EA to the Final EA (Section 2.3.2) and DN (Appendix A). For example, soil and water quality protection design features for tree removal/thinning operations were revised to clarify stream environment zone buffer distances specific to stream types (perennial, intermittent and ephemeral) and criteria to identify adequate soil moisture conditions was clarified.

ALTERNATIVES CONSIDERED

ALTERNATIVES CONSIDERED BUT DISMISSED FROM DETAILED ANALYSIS

The results of scoping identified significant issues that did not merit full development and analysis of an alternative to the proposed action (Final EA, Section 1.10). Some of these scoping comments were addressed by modifying and/or clarifying the proposed action (Alternative 2) and/or project design features. These modifications were within the scope and intent of Alternative 2 and met the purpose and need; therefore, they did not lead to an alternative that requires full analysis. Wildlife habitat is an example of a modification/clarification (Final EA, Section 2.1).

While there were comments on Seneca Pond, the comments reflected support or no support for Alternative 2. I did not receive any alternative to Alternative 2 except to keep Seneca Pond as it is today. We could not identify any other proposal that would restore water quality and function back to Angora Creek while retaining the pond. The no action alternative reflects the comments I received by keeping Seneca Pond in its existing condition.

We did receive suggestions on the proposed trail system. We considered and further evaluated seven suggestions but these were not selected or integrated into Alternative 2. The seven suggestions and our response to them is as follows:

Consider adding the trail from the east side of Angora Lake toward Seneca Pond. This trail was considered for the trail system but was dropped due to erosion potential from steep slopes and crossings of numerous SEZs. It would also conflict with the existing uses on Angora Road (e.g., parking, vehicle traffic). A new trail location was considered, but this would increase the user demand for this area beyond its current capacity and is beyond what is feasible to maintain in the future.

Retain the original stub road as a trail from Angora Creek Road down to the creek. Due to the location within a SEZ and water quality concerns, this trail is not in a good location for resource protection. This stub would be decommissioned.

Consider additional non-motorized use to accommodate increased visitor use. The Forest Service carefully considered the increasing public use as part of the overall South Shore recreational needs, including facility (i.e., trailhead parking) capacity and relationship to the ongoing trail planning efforts such as the Angora Twin Peaks Access Travel Management Plan and the Fallen Leaf Access Travel Management Plan. These considerations are already reflected in Alternative 2.

Consider a trail from the top of Tahoe Mountain Road where it meets Glenmore Way down to Forest Mountain Road, to accommodate non-motorized, year-round recreational use. Through a combination of new trail construction and the adoption/reconstruction of a portion of unclassified existing trail, there will be a trail link from Deveron Way to the intersection of Tahoe Mountain Road and Forest Mountain Road. This proposed alignment will be roughly 2 miles in length and will provide additional trail link and loop opportunities to adjacent trail systems. Due to the soil characteristics and steep slopes involved, it is not feasible to create a trail link parallel to Tahoe Mountain Boulevard between Glenmore Way and Forest Mountain Road.

Consider including spur trails to streams to allow viewing of stream areas and associated plant and animal habitats. The Forest Service has considered trail use, its relationship to SEZs, and the impacts to water quality and other ecological issues to minimize impacts. Alternative 2 would provide direct access across the transportation network. New spur trails would not be created as a result of this, but individuals are not prohibited from accessing SEZs of their own accord.

Consider including non-motorized trails that go up the hill to Angora Lakes. New trails in this area were not considered due to the very steep slopes, associated erosion potential, and frequency of maintenance over the long term. Current access to Angora Lakes can be gained via Angora Ridge Road and the 12N14A trailhead.

Consider an alternative that includes rerouting or redesigning trails that are proposed for elimination. The Forest Service carefully evaluated the existing roads and trails as well as the user-created trails in the entire project area. Alternative 2 reflects a balance between recreation use and administrative access, and ecological restoration and environmental impacts (Final EA, Section 2.3, Tables 2-3 and 2-4 and Figures 2-4 and 2-5).

Lastly, we did consider one additional alternative which was dismissed from detailed analysis.

Reduced Removal of Snags:

There were concerns that the proposed action (Alternative 2 before modification) would remove snags that are not necessary to meet the purpose and need. To address that concern, an alternative was considered that:

- Leaves all snags >16 inches in diameter (dbh) except where they pose an imminent health and safety hazard to forest users and workers.

An analysis was conducted to compare the amounts of downed fuel that would accumulate as in the proposed action (Alternative 2 before modification): post project implementation and 20 years post project implementation. These values were compared with the desired conditions that are described in the EA (Final EA, Section 1.4). These conditions include: reducing wildland fire behavior under high fire weather conditions (90th percentile i.e. hot, dry summer days), including flame lengths of less than 4 feet at the head of a fire, reductions in rate of spread at the head of the fire, reduction of hazards to firefighters by removing snags from locations likely to be used for fire suppression, and a doubling of fire line construction rates. To meet these desired conditions for the Wildland Urban Interface Defense Zone, average fuel loading to meet desired conditions should be less than 10-15 tons per acre (15 in stream environment zones) of various size and decay classes of woody debris (Final EA, Section 1.3).

The analysis of residual fuel loadings if dead trees >16 inches were left (Project Record Document E20) revealed that fuel loadings would be 36 tons per acre (average) on ALL proposed treatment units which exceeds the desired conditions of between 10-15 tons per acre. In addition, leaving dead trees >16 inches would leave approximately 31 downed logs per acre, which would affect fireline construction rates.

Applying this prescription across the Wildland Urban Interface Defense Zone does not meet the purpose and need. Thus, this alternative was dismissed from detailed analysis.

PUBLIC INVOLVEMENT

Immediately after the Angora Fire was extinguished, we engaged the local community and cooperating agencies on how to respond to the need to restore the area after the fire.

The Final EA fully describes the proactive and ongoing efforts to collaborate prior to preparation of the Proposed Action (Alternative 2) and the summary of public involvement efforts involved under the NEPA process (Section 1.9). The Proposed Action (Alternative 2 before modification) was originally listed as a proposal on the Lake Tahoe Basin Management Unit Forest Schedule of Proposed Actions on April 1, 2008. Twenty-five comments were received through a variety of methods, including written letters, emails,

public meetings, and phone calls. Our response to these scoping comments is in project record document C3. The EA was published on March 10, 2010 and was widely circulated for a 30-day comment period. 10 comments were received. Our response to these comments is found within Appendix C of this Decision Notice. Furthermore, the Final EA lists agencies and people consulted in Chapter 4.

FINDING OF NO SIGNIFICANT IMPACT

After considering the environmental effects described in the EA, I have determined that these actions will not have a significant effect on the quality of the human environment considering the context and intensity of impacts (40 CFR 1508.27). Thus, an environmental impact statement will not be prepared. I base my finding on the following:

Beneficial and adverse impacts – My finding of no significant environmental effects considers both beneficial and adverse impacts. I did not find any impacts adverse in terms of being significant nor biased by the beneficial effects of the action (Final EA, Sections 3.3 through 3.10). Alternative 2 parameters along with project design features and BMPs will mitigate effects to less than significant levels (DN/FONSI, Appendices A and B)(Final EA, Sections 3.3 through 3.11).

The degree to which the proposed action affects public health or safety – There will be no significant effects on public health and safety. Alternative 2 addresses public health and safety concerns through implementation of limited temporary forest closures during some active tree cutting (Final EA Section 2.3.1) and through project design feature #3, (Final EA, Section 2.3.2). The project involves routine work and activities that occur throughout NFS lands. Mechanical hazard tree removal work continues to occur within the project area. Signs will be used warning public users of project activities such as vehicles using the road, tree cutting, burning and equipment usage. The use of any mechanized equipment will require a hazardous material spill plan and procedures to minimize any spills adjacent to water. The temporary forest order closing a portion of the project area during implementation could occur depending upon visitor use and the timing of ground and hand operations. All other project work is anticipated to occur without needing any public closures. Public health and safety is built into prescribed burning through burn plans that are approved by El Dorado Air Quality Management District.

Unique characteristics of the geographic area – The project area is within the Lake Tahoe Basin (watershed). To avoid potential impacts to Lake Tahoe, Alternative 2 incorporates applicable Best Management Practices (DN, Appendix B) and interprets and defines them more site-specifically in Alternative 2 and as project design features (DN, Appendix A).

The degree of controversy over environmental effects – Public comment of the EA revealed disagreement over the conclusion and interpretation from implementing

Alternative 2 on California spotted owl and blacked-back woodpeckers (DN, Appendix C, Response to Comments – I-1 &2). Regarding spotted owls, the Final EA provides a thorough analysis of the impacts to California Spotted Owl (Section 3.6), which is based upon appropriate and relevant scientific information. The Project Record (as cited in Final EA section 3.6) contains a list of current and relevant science that was used to help determine the level of effects to California spotted owl. The project BE/BA and MIS report provides a full accounting of the analysis and the scientific information that was considered (Document E64). Regarding blacked-back woodpeckers, Alternative 2 provides for retention of dead wood habitat components by varying the degree of forest prescriptions (no treatment - retention of various snag and down wood levels). The analysis for blacked-back woodpeckers also takes into account other moderate-high severity post-wildfire conditions within the Lake Tahoe basin where active forest management has not occurred. During the 30 day scoping period, we received a comment that provided literature citations, which states that to attain adequate habitats for early serial species it is desirable to maintain a) dead wood components (snags and down wood) and b) the distribution of un-managed areas of burned forests. Those information sources were considered during design of Alternative 2 by incorporating snag and down wood prescriptions to be left after dead tree removal and live tree thinning, designating wildlife snag zones (varying fuels treatment across the project area) and disclosing the amount of existing burned habitat (in the Lake Tahoe Basin) being left in an untreated condition. We considered the review of scientific literature and assessed existing habitat conditions for black-backed woodpeckers in previously burned areas (Angora Fire and Showers Fire) and unburned coniferous stands. Our conclusion was that in order to meet species habitat needs, it is appropriate to achieve vegetative and structural (live and dead trees) components across the landscape (Final EA, Sections 1.4.2,1.5.2, 2.3.1 (Wildlife) and 3.6).

The degree to which the possible effects on the human environment is highly uncertain or involves unique or unknown risks – The LTBMU has considerable experience and success with these five restoration activities having implemented many similar projects over the past 10 years. The Final EA shows that the effects from removal of dead trees/thinning of live trees, road and trail construction and decommissioning/restoration, watershed/channel restoration, conifer thinning in meadows, pile burning, meadow and channel restoration, and manual treatment of noxious (invasive) weeds are not uncertain, and do not involve unique or unknown risk (Final EA, Sections 3.1-3.7).

The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration – The action will not establish a precedent for future actions with significant effects. No significant effects are identified (Final EA, Chapter 3), nor does this action influence a decision in principle about any future considerations. I've integrated all connected actions (i.e. landings, temporary roads) associated with Alternative 2 (Final EA, Section 2.3.1).

Whether the action is related to other actions with individually insignificant but cumulatively significant impacts – There are no significant cumulative effects between this project and other ongoing or planned projects in or adjacent to this project. The effects of other foreseeable future actions as well as past actions and ongoing actions were included in the analysis (Final EA, Sections 3.3, 3.4, 3.5, 3.6, 3.7, 3.8, 3.9, 3.10, 3.11).

The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places, or may cause loss or destruction of significant scientific, cultural, or historical resources – Project design features # 82 and 83 ensure that Alternative 2 will have no significant adverse effects on districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places (Final EA, Section 3.9; Project Record Documents F and G).

The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973 – The action will have a “no effect” on any endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973. No federally-listed endangered or proposed species were identified by the USFWS associated with this project. No critical habitat for federally-listed threatened or endangered species is designated within the Lake Tahoe Basin. The project BE/BA (Project Record Documents C and J) determined no proposed or designated critical habitat exists in or near the project action area (Final EA, Section 3.6 and 3.7).

Whether the action threatens a violation of Federal, State, or local law or other requirements imposed for the protection of the environment – Alternative 2 will not violate Federal, State, and local laws or requirements for the protection of the environment. Applicable laws and regulations were considered in the EA (Final EA, Section 1.11). The action was designed to be consistent with the LTBMU Forest Plan, as amended (Final EA, Section 1.11.1; Project Record Document B1).

FINDINGS REQUIRED BY OTHER LAWS AND REGULATIONS

National Forest Management Act

This Act requires the development of long-range land and resource management plans (Forest Plan). The LTBMU Land and Resource Management Plan was approved in 1988 as required by this Act. It has been amended several times, including the 2004 Sierra Nevada Forest Plan Amendment. The Forest Plan requires projects to be reviewed for consistency with natural resource management direction. As part of this project, we completed a consistency review with the Forest Plan and I find that Alternative 2 including the project

design features (DN, Appendix A) and Best Management Practices for Soil and Hydrology (DN, Appendix B) is consistent with the Plan. The Final EA (Appendix C) provides a piece of the Forest Plan consistency check/ analysis associated with riparian conservation objectives associated with the 2004 Sierra Nevada Forest Plan Amendment. The Forest Plan consistency check is documented in the project planning record (Project Record Document B1).

Endangered Species Act

I find that this decision is consistent with Section 7(c) of the Endangered Species Act, the United States Fish and Wildlife Service list of “endangered and threatened species that may be affected by Projects in the Lake Tahoe Basin Management Area” (updated on January 29, 2009). The list was reviewed (Project Record Document E12). My decision will have a “no effect” on any endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.

National Historic Preservation Act

I find that this decision is consistent with Section 106 of the National Historic Preservation Act, which requires federal agencies to take into account the effect of a project on any district, site, building, structure, or object that is included in, or eligible for inclusion in the National Register. Section 106 of the National Historic Preservation Act (P.L. 89.665, as amended) also requires federal agencies to afford the State Historic Preservation Officer a reasonable opportunity to comment. Surveys were conducted for Native American religious or cultural sites, archaeological sites, and historic properties or areas that may be affected by this decision (Project Record Document E13).

Clean Water Act (Public Law 92-500)

I find that this decision is consistent with the Clean Water Act, which requires all Federal agencies to comply with the provisions of the Clean Water Act. The Clean Water Act regulates forest management activities near federal waters and riparian areas. The design features associated with Alternative 2 ensure that the terms of the Clean Water Act are met, primarily pollution caused by erosion and sedimentation. Angora Creek, Gardner Mountain Meadow and Seneca Pond restoration are expected to improve water quality.

Clean Air Act (Public Law 84-159)

I find that this decision is consistent with the Clean Air Act. The Forest Service will follow specified provisions for smoke management whenever fire is prescribed as a treatment. The following documents provide guidance and direction for smoke management to protect air quality: (1) Interim Air Quality Policy on Wildland and Prescribed Fires, issued by the Environmental Protection Agency in 1998; (2) Memorandum of Understanding between the California Air Resources Board (CARB) and the USDA Forest Service, signed on

July 13, 1999; and (3) Smoke Management Guidelines in Title 17 of the Code of Federal Regulations.

The project area lies within the Lake Tahoe Air Basin and the El Dorado Air Quality Management District. As a matter of regional policy, a smoke management plan will be submitted to and approved by El Dorado Air Quality Management District, who will issue a Burn Permit to the LTBMU prior to any prescribed burning that will occur within the project area. The smoke management plan will be implemented to ensure particulate matter emissions from prescribed burning will not violate California Ambient Air Quality (CAAQ) emission standards. Dust abatement associated with ground based mechanical thinning will be implemented as described in this DN (Appendix A (#39) and B).

United States District Court, Eastern District of California Ruling – 11/4/09

On November 4, 2009 Judge Morrison C. England issued a Memorandum and Order requiring that fuels projects that are under the 2004 Sierra Nevada Forest Plan Amendment and were not approved prior to November 4, 2009 must include a detailed consideration of a noncommercial funding alternative. My decision is compliant with this order because Alternative 2 represents a noncommercial funding alternative as described in the Court Order. Implementation of Alternative 2 is not based, nor does it depend on, the commercial sale of wood fiber (e.g., saw timber, fuelwood, and/or biomass). The prescriptions for tree removal and thinning are based solely on fuels and forest health objectives as described in the Final EA (Sections 1.4, 1.5; 2.3.2) and not on any value in the products removed. It is not an objective of this project to generate revenue. It is anticipated that funding for implementation will come from agency appropriations or through capital projects authorized under the Lake Tahoe Restoration Act 2000 and appropriated through the Sierra Nevada Public Lands Management Act, as amended in 2003. However, cut trees can be utilized as wood products. Due to the fact that the burned trees have experienced deterioration since the fire occurred, it is expected that removed materials in this project would consist primarily of biomass and fuelwood. These materials are normally removed through service contracts. Should markets exist at the time of implementation for wood fiber products, the Forest Service may elect to dispose of project generated fuels via sale to meet the ecological goals of the project.

Environmental Justice (Executive Order 12898)

I find that this decision is consistent with Executive Order 12898, which requires that all federal actions consider potentially disproportionate effects on minority and low-income communities, especially if adverse effects to environmental or human health conditions are identified. Adverse environmental or human health conditions created by any of the alternatives considered would not affect any minority or low-income neighborhood disproportionately.

The activities proposed in all alternatives were based solely on the existing and desired condition of the vegetation, sensitivity of the environment, and practical treatment access in response to the purpose and need. In no case was the treatment prescription design

based on the demographic makeup, occupancy, property value, income level, or any other criteria reflecting the status of adjacent non-federal land. Federally owned lands proposed for treatment are distributed throughout the project area and are intermixed with non-federal lands. My decision would not affect any non-federal land that would impact minority or low-income neighborhoods disproportionately. There is no evidence that any individual, group, or portion of the community would benefit unequally from this decision.

Migratory Bird Treaty Act of 1918 as amended (16 USC 703-712)

I find that this decision is consistent with the Migratory Bird Treaty Act. The original 1918 statute implemented the 1916 Convention between the United States and Great Britain (for Canada) for the protection of migratory birds. Later amendments implemented treaties between the United States and Mexico, Japan, and the Soviet Union (now Russia). Specific provisions in the statute include the establishment of a federal prohibition, unless permitted by regulations, to “pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird, included in the terms of this Convention...for the protection of migratory birds...or any part, nest, or egg of any such bird.” Because forestlands provide a substantial portion of breeding habitat, land management activities within the LTBMU can have an impact on local populations. The Angora Fire Restoration Project would not adversely impact any populations or habitat of migratory birds (Final EA, Section 3.6.6, and Project Record Document E14).

Special Area Designations

There are no specially designated areas that would be affected by the Angora Fire Restoration Project (e.g., Research Natural Areas, Inventoried Roadless Areas, Wilderness Areas, and Wild and Scenic Rivers).

Local Agency Permitting Requirements and Coordination

The TRPA and California Regional Water Quality Control Board, Lahontan Region (Lahontan Water Board) have determined that this project qualifies under the terms of their *Memorandum of Understanding (MOU) for Vegetation Management* (2009) for TRPA to serve as the single regulatory agency. This project also qualifies under the Memorandum of Understanding between TRPA and Forest Service (2009) regarding Fuels Reduction and Forest Health Projects. TRPA's involvement will be guided by the conditions set forth in the TRPA-FS MOU.

CEQA applies to discretionary projects to be carried out or approved by public agencies. The Lahontan Water Board's process to grant a conditional waiver of waste discharge requirements on NFS lands is a discretionary act subject to CEQA. Prior to approving a project, the Lahontan Water Board must certify that: (1) the environmental document has been completed in compliance with CEQA; (2) that the Lahontan Water Board has reviewed

and considered the information contained in the environmental document; and (3) that the environmental document reflects the Lahontan Water Board's independent judgment and analysis (Cal. Code Regs., tit. 14, § 15090.) The Angora Restoration project is a water quality improvement project due to stream, meadow, wetland and riparian restoration activities along with road and trail improvements bringing them up to water quality standards. Reforestation of conifers and aspen as well as thinning and fuel reduction activities are long term improvements to the sustainability and resiliency of watershed condition and function.

Permits may be required to comply with Sections 401 and 404 of the CWA through the Lahontan Regional Water Quality Control Board and the U.S. Army Corps of Engineers for stream and wetland restoration and road and trail activities that area not associated with vegetation and fuel reduction activities (as described above).

Permits would be required from the El Dorado Air Quality Management District prior to prescribed burning.

IMPLEMENTATION DATE & PROPOSED PROJECT TIMEFRAMES

My decision only applies to NFS lands as analyzed in the Final EA. Projects are expected to start in September 2010 with dead tree removal and live tree thinning initiating in Units 5, 9, 13 and hand thinning. Most activities are planned for implementation from 2011-2014. Some activities will extend past 2014 though weather and funding also factor into implementation timing.

If an appeal is filed, implementation may occur on, but not before fifteen business days from the date of appeal resolution. If no appeal is filed, implementation may begin five business days from the close of the appeal period.

ADMINISTRATIVE REVIEW OR APPEAL OPPORTUNITIES

This decision is subject to administrative review (appeal) pursuant to 36 CFR Part 215. Individuals or organizations who provided comments or otherwise expressed interest in the proposal by the close of the comment period are eligible to appeal the decision pursuant to 36 CFR part 215 regulations. The notice of appeal must meet the appeal content requirements at 36 CFR 215.14.

The appeal must be filed (regular mail, fax, email, hand-delivery, or express delivery) with the Appeal Deciding Officer at:

Randy Moore, Regional Forester
USDA Forest Service
Pacific Southwest Region
1323 Club Drive
Vallejo, CA 94592



Email: appeals-pacificsouthwest-regional-office@fs.fed.us
Phone: (707) 562-8737
Fax: (707) 562-9091

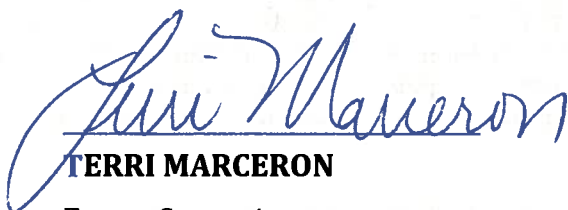
The office business hours for those submitting hand-delivered appeals are: 7:30 AM to 4:00 PM Monday through Friday, excluding holidays. Electronic appeals must be submitted in a format such as an email message, plain text (.txt), rich text format (.rtf), or Word (.doc) to the email address listed above. In cases where no identifiable name is attached to an electronic message, a verification of identity will be required. A scanned signature is one way to provide verification.

Appeals, including attachments, must be filed within 45 days from the publication date of this notice in the Tahoe Daily Tribune, the newspaper of record. Attachments received after the 45 day appeal period will not be considered. The publication date in the Tahoe Daily Tribune, newspaper of record, is the exclusive means for calculating the time to file an appeal. Those wishing to appeal this decision should not rely upon dates or timeframe information provided by any other source.

CONTACT

For additional information concerning this decision or the Forest Service appeal process, contact:

Duncan Leao or Richard Vacirca
Lake Tahoe Basin Management Unit
35 College Drive
South Lake Tahoe, CA 96150
Phone (530)543-2600, Fax (530)543-2693


TERRI MARCERON

Forest Supervisor
Lake Tahoe Basin Management Unit

7/9/2010
DATE

Appendices

- A- Project Design Features
- B- Project BMPs
- C- Response to Comments (30 day comment period from March/April 2010)

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410, or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Appendix A

Project Design Features

The Angora Restoration project direction from the Forest Supervisor was for the interdisciplinary team to prevent negative effects up-front, rather than include mitigation measures to correct effects after they occur. The Angora Restoration project proposed action is designed for prevention of negative effects, and these prevention measures are termed “design features” because they are part of the design of the project to minimize or prevent negative environmental effects. The term “design feature” is used throughout the proposed action description to clarify this purposeful project design.

Project design features were developed in response to community input during scoping, interdisciplinary team discussion and analysis, and public interaction during the implementation of the Angora Hazard Tree Removal Project. Project design features are elements of the project design that ensure consistency with the Forest Plan. These features are included as part of the proposed action based upon past experience with similar projects in the Lake Tahoe Basin area and have been proven to be effective based on monitoring and professional observations. In addition, water quality BMPs (intended to control non-point source pollution) are included in project design features, and the BMP list is shown in Appendix A.

Fuel Removal and Vegetation Treatments

Normal operating period is generally considered to be from May 1 through October 15 each year. However, operable conditions may be present outside of that time period and inoperable conditions may be present within that period. Design features may apply to one or more of the following conditions: dry, wet, frozen, or snow-covered soils. (Note: the normal operating period headings may include design features that apply in wet conditions).

All Project Phases:

1. For vegetation treatments, road and trail work, and stream and meadow restoration work: Watershed or transportation specialist will review project BMPs prior to a large storm event (1 inch in 24 hours rain event, or prolonged periods of rain over a 48 hour period exceeding a total of 2.5 inches) that may exceed BMP capacity and will notify contract administrator if additional BMPs are recommended to disconnect runoff from surface water features.
2. Coordinate construction to occur between May 1 and October 15 to the maximum extent possible. If grading or movement of soil becomes necessary between October 16 and April 30, a standard grading exception request will be submitted to TRPA. SEZs will be flagged prior to activities.
3. In general project work (Tree removal and thinning activities) would occur between the hours of 7 am to 7 pm from Monday through Friday (excluding holidays). Tree cutting and mastication would not take place within 300 feet from residences from 6:30 pm to 8 am
 - a. Exceptions are approved by contract administrator in coordination with the Forest Supervisor and include the following:
 - b. Vehicle or equipment maintenance/repairs

- c. Weekend work in order to finish up a treatment area in a timely manner, or stabilize an area prior to equipment move out and prior to upcoming storm events (e.g. grading season deadlines)
- d. If fire restrictions limit operating times extended work hours may be approved

Contractor camping would occur under the following conditions:

- a. Implementation of proper sanitation practices (i.e. prevents pollution of air, soil, and water resources). This includes measures for garbage and human waste disposal.
- b. The location, duration, and conditions for camping would be agreed to by contract administrator in coordination with the Forest Supervisor. For example, camping would not be allowed at the following locations: At landings adjacent to or at the end of streets connecting to NFS lands (Gardner Mtn./Panther Street, Lake Tahoe Blvd., Tahoe Mtn. Road, Forest Mtn. Road, Boulder Mtn. Road, Mule Deer Drive, Pyramid Circle, Shoshone Street, and Seneca Drive) or adjacent to classified NFS trails (not connected to landing) or waterbodies.

Equipment staging on and adjacent to county/city streets not associated with an active landing would not occur for more than one week at a time per neighborhood access point. Active landings that are immediately adjacent to neighborhoods include the eastern most landing off of Gardner Mtn./Panther Street, landings off of Tahoe Mtn, Forest Mtn, Mule Deer Cir., and Pyramid Cir. In these landings equipment could be stored for more than one week with and the longevity affected by factors such as weather conditions and treatment unit size.

- 4. To minimize scorch and residual tree mortality in units where hand piling and burning will occur, construct piles a minimum of 5 feet away from the dripline of residual live trees.

Fuel Removal/Vegetation Treatments in Uplands (during normal operating period)

- 5. To minimize compaction, gullyng, and rutting, ground based and cable equipment operations would be conducted when soils are dry to moist at the 4–8-inch depth. This determination would be made by a LTBMU watershed specialist, using the table in the SEZ Sensitivity Rating (Project Record Document E15) as a guideline.
- 6. Use hand treatments, end-lining, equipment reach, or cable on slopes greater than 30% (BMP 5-2).
- 7. Install water bars on skid trails and cable unit corridors to provide proper drainage and prevent erosion when operations are complete and before large precipitation events (BMP 1-17). Design and minimum spacing of water bars will be in accordance with the Forest Service Timber Sale Administration Handbook.
- 8. To the extent practicable, where end-lining occurs on slopes above 10%, end-line material along slope contours (i.e., cross-slope) to avoid creating ruts oriented down-slope. Where Forest Service implementation monitoring finds potential for sediment delivery, contractor would rake in the berms from ruts created by end-lining or cable system use.

Fuel Removal/Vegetation Treatments in RCAs and SEZs (during and outside of normal operating periods)

In All Units:

9. Limit work in SEZs to the time of year when soils are dry or when operable winter conditions are present (BMPs 1-13 and 5-6) (See Fuel Removal/Vegetation Treatments in Uplands [outside of normal operating period] heading).
10. Flag and avoid equipment use in and adjacent to special aquatic features (springs, seeps, and fens); use hand treatments in these areas (BMP 1-22). See sensitive plant section for buffers of individual species.
11. Leave existing downed trees and large woody debris that are in perennial or intermittent stream channels in place unless removal is needed to maintain channel stability, as determined by a Forest Service watershed specialist and/or fish biologist (Project Record Document E16).
12. Trees may be marked only (live or dead) within 5 feet of the stream bank edge of perennial or intermittent channels where fuel loads or stand densities exceed prescription and where large woody debris is at or above desired levels. Use directional falling to keep felled trees out of intermittent and perennial streams unless the channel reach is identified as deficient in large woody debris, in which case a Forest Service fisheries biologist will select trees greater than or equal to 12 inches dbh to be felled directionally into the channel.
13. Avoid equipment operating in ephemeral channels except where crossings are needed to gain access on the other side of the channel. Ephemeral channel crossings would be minimized to 1 crossing every 800 feet of channel length and the location of these crossings would be determined by contract administrator.
14. Where it is necessary to cross an area with inoperable soil moisture conditions in SEZs, equipment will operate over a slash mat, landing mat, or other protective material to minimize soil compaction. If slash is used, it would be removed when operations in the area are concluded. The determination of crossing location and method will be made by contract administrator.

In CTL Units:

15. Limit mechanical equipment operations in SEZs to cut-to-length (CTL) operations or operations using equipment that has been demonstrated to adequately protect soil and water resources (i.e., equipment that is lighter on the land, rubber-tired equipment, equipment that operates on a bed of slash, or other innovative technologies that reduce impacts to soils). Tree removal using a cable system would be acceptable, but cable corridors would be located outside of SEZs, and outside the Whole Tree buffer for perennial channels, and ponds.
 - a. Stands that exhibit equal or less sensitivity than the Heavenly Valley Creek SEZ Demonstration Project (HSEZ) site based on the most current version of the sensitivity rating system may be treated with ground-based equipment under operable soil moisture conditions.
 - b. SEZ stands that rate more sensitive than the HSEZ project site will be treated by hand crews, end-lining, or mechanical over-snow operations.

- c. When stands are rated more sensitive than the HSEZ site, but only a portion of the stand is responsible for the high sensitivity rating, the less sensitive part may be treated with mechanical equipment, but the sensitive portions of these stands must be treated by hand crews, end-lining, or mechanical over-snow operations. Areas with wet soils or other sensitive features will be flagged for hand treatment prior to commencement of mechanical operations.
 - d. For burned SEZs, apply the FS Region 5 Erosion Hazard Rating to prescribe adequate ground cover at completion of treatment. Adequate ground cover produces an erosion hazard rating of low within SEZs. If adequate ground cover cannot be provided, the SEZ must be treated by hand.
 - e. Application of chipped or masticated material to provide adequate ground cover will stop at the stream buffer (i.e., chip within the SEZ only up to the equipment exclusion buffer). Chip depth will not exceed an average of 2 inches and a maximum of 4 inches.
 - f. The risk assessment rating works best for treatment units of 50 acres or less. Divide larger units and rate them individually. Units will be divided prior to implementation based on relevant stream channel and/or terrestrial geomorphic features.
16. Within 25 feet of perennial or intermittent streams CTL tree removal methods would be limited to reaching in and removing logs where ground contact can be avoided to mitigate ground disturbance.
17. Contract administrator would consult with LTBMU watershed specialist to determine additional needed buffer widths, based on proximity to perennial channels, slope steepness (greater than 20 percent), and amount of existing ground cover (less than 30 percent).

In Whole Tree (WT) Units:

18. For WT operations, the following table would be used to determine equipment exclusion buffers for perennial channels, lakes and ponds:

Slope	Soil Cover	
	< 75%	> 75%
< 20%	75 ft	50 ft
> 20%	100 ft	75 ft

- a. A 25 ft buffer would still apply in WT treatments units for intermittent channels.
 - b. A minimum 10 ft buffer from the top of steep slopes (>30%) that are connected to an SEZ would also apply for whole-tree equipment exclusion.
19. Ground based equipment in WT treatment stands would not operate in SEZs. Treat SEZ areas within WT stands with hand crews. The portion of a felled tree that is greater than 14" diameter would be left on site to maintain coarse woody debris while the remainder would be included in hand piles for later burning.
20. Ground based equipment would not operate within the equipment exclusion buffer for WT treatment except at temporary or permanent stream crossings (BMP#1-19), but may reach in to remove material. Avoid tree removal using a cable system within this buffer unless full suspension can be achieved.

21. To achieve desired fuel loading in SEZs within units, trees may be end-lined out of the SEZ after consultation with a watershed specialist. Slash in excess of 15 tons per acre will be removed by hand from the 50-foot buffer from stream channels and lakes, piled, and burned.
 - a. Prohibit tree removal methods that disturb the ground surface within 25 feet of a perennial or intermittent stream channel or other water body (e.g., lakes, ponds).
 - b. Provide ground cover such as slash, wood chip, or masticated material, adequate to prevent erosion in disturbed areas.
 - c. Where Forest Service implementation monitoring finds potential for sediment delivery, contractor would rake in the berms from ruts created by end-lining.

Hand Piling and Pile Burning in SEZs

22. Maintain a 50-foot buffer (no piling or burning) along perennial or intermittent streams, lakes, bogs, and fens. Slash would not be piled in springs and seeps.
23. Permit piling and burning up to 10 feet from the edge of ephemeral channels.
24. Allow fire to creep between piles and into these buffers, maintaining a burn intensity that would protect soil and water resources. Do not allow fire in flagged areas with sensitive plant occurrences and invasive weeds.
25. Place piles in a non-linear pattern within each unit where possible.
26. The maximum hand pile size in SEZs would not exceed 10 foot diameter by 5 foot height.
27. Where feasible, burning would occur on moist, very moist, or wet soil (see Appendix B) and when fuels are dry.
28. No more than 15 percent of any SEZ acre may be piled in a given year (based on an average pile diameter of 10 feet and average pile spacing of 20 feet).
29. After initial ignition of piles, but while still burning, allow each pile to be re-piled once (i.e., place large unburned pieces back into the burning pile). Additional re-piling would be allowed if necessary to achieve 80 percent consumption of the piled material, except for piles adjacent to aspen.
30. Hot piling of burn piles is prohibited within SEZs (i.e., don't feed one pile with the material from other piles or ground material).

Roads (during normal operating period)

The purpose of these features is to avoid or minimize the potential for erosion from the concentration of road runoff associated with system roads or temporary roads utilized during the fuelwood and vegetation removal activities, as well as aquatic habitat and hydrologic function restoration activities. These actions will avoid adverse impacts to beneficial uses and will protect the unique hydrologic and aquatic values of Lake Tahoe.

31. New temporary (unclassified) roads would be outsloped to ensure proper drainage of the road surface. Additional BMPs would be installed as recommended by a watershed or transportation specialist to ensure that temporary roads are hydrologically disconnected from intermittent and perennial stream channels. These BMPs could include lead-off ditches, water bars, rolling dips,

etc. These would be installed during temporary road construction and maintained during the time the road is in use or installed at the end of operations each day.

32. Remove ephemeral channel crossings prior to any large precipitation event (1 inch or greater) forecasted by the National Weather Service and before the winter season begins (BMP 2-16).
33. Construct and remove temporary crossings on intermittent channels when the channels are not flowing and install crossings such that water flow and fish passage will not be obstructed (BMP 2-16).
34. Stabilization of the Forest Service access road at the intersection of city or county streets and roads may be required to prevent the tracking of debris and soils onto city and county streets and roads. Onsite meetings with city or county engineers would determine the extent and type of stabilization to use at each intersection.
35. All native NFS roads that intersect with NFS paved or chip sealed roads would be stabilized through the use of aggregate base material (standard specification C or D) or wood chips. Soil type, grade, and alignment would determine the extent of this stabilization.
36. After mechanical operations are complete and where feasible based on soil type, temporary roads will be restored by using all of the following methods:
 - a. providing ground cover, such as slash, wood chips or masticated material (spread no more than 6-inches thick).
 - b. removing all temporary crossings and installing drainage structures as appropriate to prevent accumulating water on the decommissioned road surface.
 - c. ripping, where feasible (based on soil rock content and absence of invasive weeds), when soils are moist or dry. Contract Administrator shall determine whether ripping is feasible.
 - d. installing natural barriers such as large logs and rocks where necessary at the road entrance points to prevent continued use of road alignment.
37. All temporary roads would be returned to their original use and width under the ATMs (e.g. Forest Service trails used as temporary roads would be returned to trail width).
38. Barriers would be strategically established along open areas adjacent to roads or trails (boulders, split rail fence, and barriers/signs) after mechanical treatment has been completed. Barriers function to discourage post-treatment establishment of user-created routes that are not designated routes. In addition, natural barriers such as large logs and rocks would be placed where necessary at road entrance points to prevent continued use of decommissioned road alignment.
39. Roads would be watered for dust abatement as needed following Forest Service Handbook 2409.15. Determination of dust abatement will be made by contract administrator. The purpose of dust abatement is to control road surface loss, provide for road user safety, and minimize impact to adjacent resources and neighborhoods. Water used for dust abatement (BMP 2-23) would come from STPUD hydrants. Commercial dust palliatives may be used, if approved by the Contract Administrator.

Fuel Removal/Vegetation Treatments—Landings

40. Prohibit landings, fuel storage, and refueling in SEZs (BMP 1-12).

41. Locate landings, fuel storage and refueling areas outside RCAs where operationally feasible.
42. Proper drainage from landings will be provided during use; ditching, sloping, and water bars or other BMPs may be used where needed as recommended by watershed specialist to disconnect runoff from surface water features.
43. Hazardous materials, including Sporax® or equivalent, diesel fuel, and gasoline will be transported (except across designated crossings), stored, and handled outside SEZs. Sporax® or equivalent used in SEZs must be used according to label directions. Spill Prevention, Containment, and Countermeasures Plans will be prepared, if quantities used require them.
44. Restore landings after operations are complete using the following methods, as determined by the LTBMU Watershed Specialist:
 - a. Providing ground cover, such as slash, wood chips or masticated material (spread no more than 6-inches thick).
 - b. Ditching, sloping, and water bars may be used where needed as recommended by watershed specialist to disconnect runoff from surface water features.
 - c. Landings will be ripped to approximately a 12-inch depth after ground cover has been spread. Ripping is not permitted in known infestations of invasive weeds, and may not be possible in rocky soils; this determination may be made by the Contract Administrator.
 - d. Landings within 50 feet of an SEZ will be seeded with a native seed mix of grasses, forbs, and shrubs. Landings within 100 feet of invasive weeds may require seeding depending on weed species. Consult with LTBMU botanist to determine if seeding is necessary.

Fuel Removal/Vegetation Treatments in Uplands (outside of normal operating period)

45. When working outside of the normal operating period, conditions must be adequate to prevent erosion, sediment delivery to water bodies, and soil compaction that would impact soil productivity or soil hydrologic function. Operable conditions must be present on at least 85 percent of the treatment unit and generally would include the following:
 - a. Frozen soil operations are permitted where operated vehicles, tractors and equipment can travel without sinking into soil, road, and landing surfaces to a depth of more than 2 inches for a distance of more than 25 feet. Temperatures must also remain low enough to preclude thawing of the soil surface.
 - b. For over-snow operations, maintain approximately 12 inches of compacted snow/ice on undisturbed ground, and 6 inches of compacted snow/ice on existing disturbed surfaces.
 - c. Lesser depths may be agreed to by a LTBMU Watershed Specialist and the Contract Administrator based on current research and monitoring.
46. If operable soil moisture conditions are present beneath a lesser snow depth (i.e., less than 6 inches), operations may continue until soil moisture conditions become inoperable. Use the table in the SEZ Sensitivity Rating (found in the Soils and Hydrology Report on file in the project record, Tab 11) to determine operable soil moisture conditions. Monitor conditions closely and stop operations when surface soil (2-4") disturbance is greater than what would be expected during normal season operations.
47. When working outside of the normal operating period, monitor operations daily when rain is probable or when temperatures rise above 45 degrees Fahrenheit to ensure that adequate snow

and frozen soil depths are maintained. Move equipment and materials to areas near pavement before conditions become inoperable.

48. Apply a 25 foot equipment exclusion buffer around perennial and intermittent channels during over the snow and frozen soil operations.
49. When adequate snow or frozen soil conditions are not present, temporary crossings on intermittent or ephemeral channels may be approved on a case by case basis through agreement between the sale administrator and a watershed specialist. Crossing density would be limited to 1 crossing every 800 linear feet of stream channel. These crossings shall not result in bank damage or water quality impairment or obstructed flows.

Roads (outside of normal operating period)

50. Unless adequate snow cover or frozen soil conditions exist, where a native surface road meets a paved road, the road intersection must be covered with rock or organic material to reduce tracking of mud onto the paved road.
51. If a native surface road becomes rutted, close the road unless spot-rocking, or other mitigation would be effective in preventing road damage, or until conditions improve. Rutting is defined as depressions deep enough to channel water, over 10 percent or more of the road surface, on a per mile basis. Avoid any rutting that can deliver sediment to a water body or SEZ.
52. During winter operations, paved surfaced roads may be plowed, including turnouts, if the action will not cause damage to the road surface and associated drainage structures.
53. On native surface roads, retain a minimum of 6 inches of compacted snow on 85% or more of the road surface after plowing to facilitate freezing. During road use, a minimum of 6 inches of compacted snow must be present on 85% or more of the road surface, unless the road surface is frozen to a depth of 3 inches or more. Ensure that plowing does not damage drainage structures or road surface.
54. Road alignments within the contract area that require snow removal will be visibly marked on both sides along the entire alignment to facilitate plowing. Excess snow removed during plowing will not be placed into drainages or riparian areas.
55. Before over-the-snow operations begin, mark existing culvert locations. During and after operations, ensure that all culverts and ditches are open and functional.
56. When roads are plowed, snow berms must be breached to allow drainage during snowmelt. Space outlets so as not to concentrate road surface flows (usually spaced at a minimum of every 300 feet).

Stream Channel and Aquatic Habitat Restoration

57. Salvage/recovery of fish will be conducted within anticipated construction dewatering or diversion zones operations by electro-shocking or other suitable means as developed through consultation with the California Department of Fish and Game and LTBMU fisheries staff.
58. Stream channel construction activities will occur after groundwater levels within channel construction zones are 5 feet below the ground surface elevation (as measured from existing groundwater piezometers). From previous groundwater data, this is estimated to occur around August 1.

59. No permanent roads or trails will be constructed for stream channel/floodplain/wetland ecosystem restoration; temporary roads for restoration activities will be designed to minimize soil erosion, compaction, and stream bank deterioration.
60. Temporary roads that are needed to access channel segments and wetland areas where excavation and fill activities occur will be completely restored following project activities. Restoration of the temp road will involve de-compaction sod placement and other re-vegetation methods.
61. To facilitate rapid establishment of stabilizing bank vegetation, live sod will be placed on newly excavated channel banks and watered. The newly constructed channel segment will be treated by pumping limited flows into the new channel. Treatment will include allowing water to infiltrate in the constructed channel, pumping turbid water within pools of the newly constructed channels and dispersing that water out onto the floodplain through sprayers until turbidity standards are met as defined in the Storm Water Pollution Prevention Plan and Basin Plan Prohibition Exemption. This method of sod preparation and seasoning has been successfully used on other stream restoration projects such as Cookhouse Meadow.
62. Soil erosion controls will be installed during reconstruction activities. These controls will include the use of filter fabric, silt fencing, straw wattles, or other suitable means to contain material on site. In the event that the implementation requires more than one field season, fill used for temporary meadow access roads will be removed, stockpiled at the staging area, and reinstalled at the beginning of the next field season. Stockpiles remaining after October 15 will be winterized, which will include covering the piles and other measures such as coir logs or silt fences.
63. Onsite dust abatement procedures will be implemented — on forest system and temporary access roads, stockpile areas, and the gravel extraction site—to ensure fine sediments are not transported off site as airborne particles. Abatement procedures will include both watering and physically covering bare soils.
64. Once flows are fully diverted into the newly constructed channel, the existing channel will be allowed to drain completely. The existing channel will then be filled with material that will have been excavated from new channel construction and stored at stockpile areas. The filled channel will be revegetated with sod plugs, native seed, live willows, and mulch.
65. Sod borrow sites and filled channel will be revegetated and irrigated for at least 1 year, and up to 2 years, post construction to maximize plant growth and site stability.
66. Water from the stream will be siphoned to use as water supply for construction activities such as dust abatement and irrigation. A screen will be placed over the siphon to avoid impacts to fish. Siphoning will be ceased if stream flow level falls below a level that will affect fisheries resources, as determined by a LTBMU fisheries biologist.

Sensitive Plants

These measures are designed to protect unique plant populations and/or habitat from damage.

67. An LTBMU botanist will be notified prior (minimum of 2 weeks) to any project implementation involving ground disturbance to properly flag sensitive areas. Sensitive plant areas identified during surveys or project implementation will be avoided. Sensitive plant areas are areas that contain Region 5 sensitive plant species and special-interest plant species (TRPA and

FS). Depending on the species and habitats identified, fuel reduction or stream restoration could be implemented in buffered areas as long as the level of disturbance will not degrade local hydrology, soils, or the mycorrhizal community. For instance stream restoration activities may require short term impacts to sensitive plant sites, however by restoring the long term hydraulic regime habitat for such species will function more effectively.

68. Prescribed fire will be excluded from the sensitive plant buffered zones.
69. Trees will be directionally felled away from sensitive plant populations, sensitive plant communities (fens), or special-interest plant species.

Meesia Sites (Fens) and Sphagnum Moss Site

The design measures are proposed for both three-ranked hump-moss (*Meesia triquetra*) and broad-nerved hump-moss (*Meesia uliginosa*) and sphagnum moss (*Sphagnum* sp.) site.

70. Fens and the sphagnum moss site will be flagged and avoided, and will include a buffer, determined by LTBMU botanists. The zone of avoidance will either be defined by the edge of wet soils that support the hydrology of the sites or 100 feet from the extent of plant location.
71. No prescribed fire will occur within 100 feet from these sites.
72. LTBMU botanists will be on site around all fens during project implementation.
73. LTBMU botanists and hydrologists will flag the area of the sphagnum site and determine boundaries for mechanical or hand thinning.
74. Trees will be directionally felled away from the sphagnum site and all adjacent wet soils.

Invasive Weeds

These measures are intended to protect the native plant and animal species and associated habitat that are unique to the project area. The project design measures will be implemented to control impacts due to invasive weeds.

75. Known weed infestations will continue to be monitored and surveyed for new occurrences in portions of the project area with focus on temporary roads and landings prior to implementation. Weed infestations within the treatment area or along travel routes associated with the project area will be treated using approved methods, or flagged and avoided according to the species present and project constraints. (The entire fire area is infested with bull thistle (*Cirsium vulgare*), so prior to implementation the invasive weed coordinator will be notified so that the area can be treated by crews or flagged and avoided. Additionally, there is a staging area infested with tall white top (*Lepidium latifolium*) that should be avoided).
76. Staging areas (e.g., for equipment, materials, or crews) will not be located in weed infested areas.
77. All off-road equipment used on this project will be washed before moving into the project area to ensure that the equipment is free of soil, seeds, vegetative material, or other debris that could contain or hold seeds of invasive weeds. Off-road equipment includes all logging and construction equipment and brushing equipment such as brush hogs, masticators, and chippers; it does not include log trucks, chip vans, service vehicles, water trucks, and pickup trucks. Equipment will be considered clean when visual inspection (by contract administrator) does not reveal soil, seeds, plant material, or other such debris. When working in known weed-infested

areas, equipment will be cleaned before moving to other NFS lands that do not contain invasive weeds.

78. All earth-moving equipment, gravel, fill, or other materials are required to be weed-free. Sand, gravel, rock, or organic matter from an approved onsite source will be used.
79. Road and trail staging areas and landings would be only as large as needed for safe operation. Staging areas will be re-vegetated to discourage the establishment of invasive weeds. The LTBMU botanist will determine sites which need re-vegetation.
80. Weed-free mulches and seed sources will be used. Topsoil from the project area will be salvaged for use in onsite revegetation when possible, unless contaminated with invasive weeds. All activities that require seeding or planting must utilize locally collected native seed sources when possible. Plant and seed material should be collected from or near the project area, from within the same watershed, and at a similar elevation when possible. Persistent non-natives such as cultivated timothy (*Phleum pratense*), orchard grass (*Dactylis glomerata*), or ryegrass (*Lolium* spp.) will not be used. This requirement is consistent with the Forest Service Region 5 policy that directs the use of native plant material for revegetation and restoration for maintaining “the overall national goal of conserving the biodiversity, health, productivity, and sustainable use of forest, rangeland, and aquatic ecosystems.” Seed mixes will be approved by an LTBMU botanist.
81. Disturbed sites where infestations of invasive plants are likely to become established will be revegetated. Revegetation with plants native to the area would occur at landings, staging areas, and other highly disturbed sites to reduce risk of invasion from non-native invasive species. Revegetation could include tilling, mulching, plantings, watering, and seeding with native shrubs, forbs, and grasses. Sites would be evaluated for revegetation needs based on future use of site, extent of disturbance, accessibility, and similar parameters.

Heritage Resources

Twenty four historic properties were identified within the project boundaries. Three of these properties have been evaluated and determined not eligible to the National Register of Historic Places and will require no additional protection measures. Twenty one properties will be treated as “eligible” and will require Standard Resource Protection Measures (SRPM). These SRPMs are designed to ensure that the proposed actions do not adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places, or adversely affect significant scientific, cultural, or historical resources. The SRPMs will be implemented to control impacts on heritage resources. Table 3.9-1 lists the Forest Service site number and the SRPMs that will be implemented.

82. STANDARD RESOURCE PROTECTION MEASURES

- I. At a minimum, historic properties shall be excluded from areas where activities associated with an undertaking will occur.
 - A. All proposed activities, facilities, improvements, and disturbances shall avoid historic properties. Avoidance means that no activities associated with an undertaking that may affect historic properties, unless specifically identified in this PA, shall occur within an historic property’s boundaries, including any defined buffer zones. Portions of undertakings may need to be modified, redesigned, or eliminated to properly avoid historic properties.

1. For historic properties eligible for the NRHP under 36 CFR 60.4(d), or those that may be important only for the information they contain, the physical demarcation of historic properties, and their exclusion from an undertaking's proposed activity areas is a minimum requirement.
 2. Physical demarcation and avoidance during the implementation of an undertaking is also required for other historic properties eligible for the NRHP under other criteria. But minimum protection requirements shall also include the use of buffer zones to extend the protection area around historic properties where setting is an important attribute, and the proposed activity may have an effect on the setting's quality.
 3. Linear sites may be crossed or bounded in areas where their features or characteristics clearly lack historic integrity, that is, where those portions (taking into account any buffer zones related to setting) do not contribute to site eligibility or values.
- B. All historic properties within an APE shall be clearly delineated prior to implementing any associated activities that have the potential to affect historic properties.
1. Historic property boundaries shall be delineated with coded flagging and/or other effective marking. Activities within historic property boundaries will be prohibited with the exception of using developed Forest transportation systems when the HRM recommends that such use is consistent with the terms and purposes of this agreement.
 2. Historic property location and boundary marking information shall be conveyed to appropriate Forest Service administrators or employees responsible for implementation so pertinent information can be incorporated into planning and implementation documents, and contracts (e.g., clauses or stipulations in permits).
- C. Buffer zones may be established to ensure added protection where the HRM or other professional archaeologist determines that they are necessary. The use of buffer zones in conjunction with other avoidance measures is particularly applicable where setting contributes to the property's eligibility under 36 CFR 60.4, or where it may be an important attribute of some types of historic properties (e.g., historic buildings or structures; historic or cultural properties important to Native Americans). The size of buffer zones needs to be determined by the professional archaeologist on a case-by-case basis. Landscape architects may be consulted to determine appropriate viewsheds for historic resources. Knowledgeable Native Americans should be consulted when the use or size of protective buffers for Native American traditional or cultural properties needs to be determined.
- D. When any changes in proposed activities are necessary to avoid historic properties (e.g., project modifications, redesign, or elimination; removing old or confusing project markings or engineering stakes within site boundaries; or revising maps or changing specifications), these changes shall be completed prior to initiating any activities.

- E. Monitoring may be used to enhance the effectiveness of protection measures in conjunction with other measures (Stipulation IV). The results of any monitoring inspections shall be included in the annual report (Stipulation VI.B(1)(f)).
- II. The Forest HRM may provide written approval for the work specified below within the boundaries of historic properties, under carefully controlled conditions. All activities performed under category II standard resource protection measures must be documented in SRs, pursuant to this PA; none may be performed under exemptions.
- A. The following specified activity(ies) may be approved under the conditions detailed below:
 - 1. Felling and removal of hazard, windthrow, and salvage trees within historic properties under the following conditions:
 - a. Felled trees may be removed using only the following techniques:
 - (1) hand bucking and carrying,
 - (2) rubber tired loader,
 - (3) crane/self loader,
 - (4) helicopter;
 - b. Equipment operators shall be briefed on the need to reduce ground disturbances (e.g., minimizing turns);
 - c. No skidding nor tracked equipment shall be allowed within historic property boundaries; and
 - d. All such activities must be monitored by qualified heritage specialists at the time of tree removal.
83. In the event that any new heritage sites are discovered during project implementation, the LTBMU archaeologist will be notified and procedures in accordance with the 36 CFR Part 800 will be implemented.

Appendix B

Best Management Practices for the Angora Fire Restoration Project

This document discusses the applicable best management practices (BMPs) for the proposed action's design features. Details are provided for application of the BMPs. These BMPs are designed to reduce or eliminate direct, indirect, and cumulative impacts to soil and hydrologic conditions and to reduce potential impacts (nutrient and sediment loads, affecting lake clarity) to Lake Tahoe, a unique national feature. Actual application of these BMPs are based on the proposed action and integration (further refinement) with project design features (EA, Section 2.3.2)

Forest management and associated road building in the steep rugged terrain of forested mountains has long been recognized as a source of non-point water quality pollution. Non-point pollution is not, by definition, controllable through conventional treatment plan means. Containing the pollutant at its source, thereby precluding delivery to surface water, controls non-point pollution. Sections 208 and 319 of the federal Clean Water Act, as amended, acknowledge land treatment measures as being an effective means of controlling non-point sources of water pollution and emphasize their development.

Working cooperatively with the California State Water Quality Control Board (SWQCB), the Forest Service developed and documented non-point pollution control measures applicable to National Forest System (NFS) lands. Following evaluations of the control measures by SWQCB personnel as they were applied on site during management activities, assessment of monitoring data, and the completion of public workshops and hearings, the Forest Service's measures were certified by the state and approved by the U.S. Environmental Protection Agency (EPA) as the most effective means the Forest Service could implement to control non-point source pollution. These measures were termed best management practices. BMP control measures are designed to accommodate site-specific conditions. They are tailor-made to account for the complexity and physical and biological variability of the natural environment. In the 1981 Management Agency Agreement between the SWQCB and the Forest Service, the State agreed that "the practices and procedures set forth in the Forest Service document constitute sound water quality management and, as such, are the best management practices to be implemented for water quality protection and improvement on NFS lands." The implementation of BMPs is the performance standard against which the success of the Forest Service's non-point pollution water quality management efforts are judged.

The Clean Water Act provided the initial test of effectiveness of the Forest Service non-point pollution control measures because it required the evaluation of the practices by the regulatory agencies (SWQCB and EPA) and the certification and approval of the practices as the *best* measures for control. Another test of BMP effectiveness is the capability to custom fit the measures to a site-specific condition where non-point pollution potential exists. The Forest

Service BMPs are flexible in that they are tailor-made to account for diverse combinations of physical and biological environmental circumstances. A final test of the effectiveness of the Forest Service BMPs is their demonstrated ability to protect the beneficial uses of the surface waters in the state. The BMPs incorporate 75 years of erosion control and watershed protection experience and are based on sound scientific principles. The land treatment measures incorporated into Forest Service BMPs evolved through research and development and have been monitored and modified over several decades with the expressed purpose of improving the measures and making them more effective. Onsite evaluations of the control measures by state regulatory agencies found the practices were effective in protecting beneficial uses and certifiable for Forest Service application as their means to protect water quality.

Implementation, effectiveness, and forensic monitoring will be performed to monitor project activity. Implementation monitoring consists of detailed visual monitoring of treated areas and roads/landings prior to the rainy season with emphasis placed on determining if management measures (such as erosion control measures or riparian buffers) were implemented or installed in accordance with approved timber harvest projects including waiver eligibility criteria.

The Sierra Nevada Forest Plan Amendment Record of Decision (2004, SNFPA ROD) provides the directive for the use of regional stream condition inventory (SCI) protocol to assess the effectiveness of the prescribed suite of BMPs on protection of physical, biological, and chemical conditions in a project area. SCIs and channel stability analyses (CSAs) were performed in most of the watersheds associated with the project.

Existing and ongoing water quality monitoring information can be obtained from the United States Geologic Survey (USGS), which maintains stream gages at several locations within the Angora analysis area. The USGS monitoring sites in the analysis area are located on the Upper Truckee River near Highway 50 at Meyers and in South Lake Tahoe. Continuous stream flow data is collected at these sites, and periodic water quality samples (approximately 25–30 samples) are also collected each year. The water quality data collected by the USGS at these stations would be monitored periodically throughout project implementation to track Angora project effects on stream water quality. No additional water quality sampling is proposed for this project.

Included within the Tahoe Regional Planning Agency (TRPA) 2008 Water Quality Management Plan for the Tahoe Basin is a section devoted to stream environment zone (SEZ) protection and restoration. The term SEZ was developed by TRPA to denote perennial, intermittent, and ephemeral streams and drainages, as well as marshes and meadows. SEZs generally possess the following characteristics: riparian or hydric (wet site) vegetation; alluvial, hydric soils; and the presence of surface water or near-surface groundwater at least part of the year. SEZs are essential because they provide multiple resource benefits; provide natural treatment and conveyance of surface runoff; contain significant fish and wildlife habitat; improve and maintain environmental amenities of the Lake Tahoe region; and achieve TRPA's environmental thresholds for water quality, vegetation preservation, and soil conservation.

As stated in the Water Quality Management Plan, TRPA's environmental threshold goal is to "preserve existing naturally functioning SEZ lands in their natural condition and restore 25% of

the SEZ lands that have been identified as disturbed, developed, or subdivided, to attain a 5% total increase in the area of naturally functioning SEZ lands” (TRPA 2008)

The TRPA revised their Code of Ordinances in December 2004, in response to the Lahontan Water Board updating their basin plan in 1995, to allow for the use of “innovative technology equipment” for vegetation management treatments in SEZs (State of CA WQCP 2005, TRPA 2004).¹

BMPs, as described in this document, have been effective in protecting beneficial uses within the affected watersheds and have been applied in other projects within the Lake Tahoe Basin Management Unit. Where proper implementation has occurred, there have not been any substantive adverse impacts to cold-water fisheries habitat conditions or primary contact recreation use of the surface waters. The practices specified herein are expected to be equally effective in maintaining the identified beneficial uses.

The following management requirements are designed to address the watershed management concerns. BMPs are derived from the Forest Service publication *Water Quality Management for National Forest System Lands in California* (USDA Forest Service 2000). All applicable water quality BMPs would be implemented. BMPs used within the Angora Fire Restoration Project are listed in Table 1.

Table 1. Angora Fire Restoration Project Best Management Practices

PSW Region BMPs	Best Management Practice Description
BMP 1-1: Timber sale planning process	Earth scientists or other trained individuals will evaluate onsite watershed characteristics and the potential environmental consequences of activities related to the proposed timber harvest activities. They will design the timber sale to include site-specific prescriptions for each area of water quality concern.
BMP 1-2: Timber harvest unit design	Earth scientists or qualified specialists will conduct a hydrologic and geologic survey of the area affected by proposed harvest activities. Mitigations or changes needed to stabilize slopes or improve streamcourses will be incorporated into the harvest unit design.

¹ The first projects to apply this new guidance have been completed and include the LTBMU Heavenly Valley Creek SEZ demonstration (HSEZ) project (Norman et al. 2008) and the Celio Ranch project (Goldberg 2006). The HSEZ fuel reduction project was implemented in summer 2007. The project utilized low ground pressure (i.e., 6 pounds per inch [psi] alone or 13 psi fully loaded) mechanical equipment (CTL harvester and forwarder) to treat heavy fuel loads in the SEZ, and included an intensive monitoring program to evaluate the soil and water resource effects of the project. The results of that study demonstrated that the CTL mechanical operations resulted in a minor decrease in saturated hydraulic conductivity (Ksat, a measure of soil infiltration capacity) (Norman et al. 2008). However, the established threshold for Ksat was not reached, and the difference between pre- and post-project values did not result in ecologically significant impacts to soil hydrologic function such as infiltration, permeability, and runoff (Norman et al. 2008). In addition, there was no statistically significant difference between pre- and post-project soil bulk density. The 11% reduction in soil cover measured was well within the range of acceptable soil cover set forth in the USFWS Region 5 soil quality standards (SNFPA FEIS Appendix F). Additional details about the results from the HSEZ monitoring effort are available in the hydrology specialist report (located in the project file). The HSEZ project monitoring results showed that mechanical treatment of SEZs with CTL forwarding and harvesting technology could be safely implemented under favorable soil moisture conditions (i.e., relatively high Ksat and low soil moisture content) without causing ecologically adverse impacts to soil or water quality (Norman et al. 2008).

PSW Region BMPs	Best Management Practice Description
BMP 1-3: Determination of erosion hazard rating (EHR) for timber harvest unit design	Use the EHR system developed by the California Soil Survey. Committee to evaluate the potential erosion hazard of proposed timber harvest units during the pre-sale planning process, and use this information to help design the timber sale and to select appropriate erosion control measures.
BMP 1-4: Use of sale area maps (SAMs) for designating water quality protection needs	The Interdisciplinary Team (IDT) will identify and delineate water quality protection features, such as the location of streamcourses and riparian zones to be protected, wetlands to be protected, boundaries of harvest units, and roads where log hauling is prohibited or restricted, as part of the environmental documentation process. The Sale Preparation Forester will include them on the SAM at the time of contract preparation.
BMP 1-5: Limiting the operating period of timber sale activities	Limited operating periods will be identified and recommended during the TSPP by the IDT. Purchaser must submit a general plan of operation which will identify planned periods for, and methods of road construction, timber harvesting, completion of slash disposal, erosion control work and other contractual requirements. The purchaser will provide an annual schedule of anticipated activities. Limited operating period will be used to limit the purchaser's operation to specified periods when adverse environmental effects are not likely.
BMP 1-6: Protection of unstable lands	The IDT will prepare plans and environmental documents, utilizing information provided from specialists trained and qualified to identify unstable areas. Where unstable lands are presently classified as suitable forest lands, the classification is changed to unsuitable forest lands, which will not be harvested until they can be harvested without irreversible adverse effects to soils, productivity, or watershed conditions.
BMP 1-8: Streamside management zone designation	Roads, skid trails, landings and other timber harvesting facilities will be kept at a prescribed distance from designated stream courses. Factors such as stream class, channel aspect, channel stability, sideslope steepness, and slope stability will be considered in determining the activities limited within Streamside Management Zones (SMZs). Aquatic and riparian habitat, beneficial riparian zone function, and their condition and estimated response to the proposed timber sale will also be evaluated in designating the SMZ.
BMP 1-9: Determine tractor loggable ground	To minimize soil erosion and subsequent sedimentation and water quality degradation resulting from ground disturbance of logging systems. To determine tractor loggable ground, consider physical site characteristics such as steepness of slopes and soil properties. The Erosion Hazard Rating is one method that can be used.
BMP 1-10: Tractor skidding design**	Watershed factors such as slope, soil stability, exposure, SMZs, meadows, and other factors that may affect surface water runoff and sediment yield potential will be considered when designing skidding patterns. The careful control of skidding patterns serves to avoid onsite and downstream channel instability, build-up of destructive runoff flows, and erosion in sensitive watershed areas such as meadows and SMZs.

PSW Region BMPs	Best Management Practice Description
BMP 1-12: Log landing location	Landing locations proposed by the purchaser or their representatives must be agreed to by the Sales Administrator (SA). An acceptable landing will be evaluated according to a set of criteria that includes the following: the cleared or excavated size of landings should not exceed that needed for safe and efficient skidding and loading operations; landing locations that involve the least amount of excavation and the least erosion potential will be selected; landings will be located near ridges away from headwater swales, in areas that will allow skidding without crossing stream channels or causing direct deposit of soil and debris to the stream; landings will be located where the least number of skid roads will be required, and sidecast material can be stabilized without entering drainages; skid approach will be as nearly level as feasible; and the number of skid trails entering a landing will be minimized.
BMP 1-13: Erosion Prevention and Control Measures During Timber Sale Operations	Equipment will not be operated when ground conditions are such that excessive damage will result. Erosion control measures will be kept current, which means daily, if precipitation is likely, or at least weekly, when precipitation is predicted.
BMP 1-14: Special Erosion Prevention Measures on Disturbed Lands	Where required by the contract, the purchaser will give adequate treatment by spreading slash, mulch, wood chips, or some other treatment (if agreed upon) on portions of tractor roads, skid trails, landings, cable corridors, or temporary road fills. This provision is to be used only for timber sales that contain special soil stabilization problems that are not adequately treated by normal methods.
BMP 1-15: Revegetation of Areas Disturbed by Harvest Activities	Where soil has been severely disturbed and the establishment of vegetation is needed to control accelerated erosion, the purchaser will be required to establish an adequate ground cover of grass or other vegetative stabilization measures approved by the USFS.
BMP 1-16: Log Landing Erosion Prevention and Control	<ul style="list-style-type: none"> • Timber Sale Contract (TSC) requirements provide for erosion prevention and control measures on all landings, which will include provisions for proper drainage. After landings have served purchaser's purpose, the purchaser will ditch or slope the landings and may be required to rip or subsoil and make provisions for revegetation to permit the drainage and dispersal of water.
BMP 1-17: Erosion Control on Skid Trails	To protect water quality by minimizing erosion and sedimentation derived from skid trails, erosion control measures are required on a skid trails, tractor roads, and temporary roads. Normally, such measures involve constructing cross ditches and water spreading ditches. The location of all erosion control measures are designated and agreed to on the ground by the SA.
BMP 1-18: Meadow Protection	At a minimum, meadow protection requirements contained in Forest Land and Resource Management Plans must be identified and implemented. Unauthorized operation of vehicular or skidding equipment in meadows or in protection zones is prohibited by the TSC. Damage to designated meadows and/or their associated protection zones will be repaired by the purchaser in a timely manner, as agreed to by the SA. Damage to a streamcourse or streamside management zone (SMZ) caused by unauthorized purchaser operations will be repaired by the purchaser in a timely manner and agreed upon manner.
BMP 1-19: Streamcourse	Streamcourse protection principles including but not limited to the following will be carried out: location and method of streamcourse crossings must be agreed to

PSW Region BMPs	Best Management Practice Description
Protection (Implementation and Enforcement)	by the SA prior to construction; all damage to streamcourses, including banks and channels, must be repaired to the extent practicable; all debris generated by the project will be removed from streamcourses in an agreed upon manner that will cause the least disturbance; equipment use in SMZs will be limited or excluded; water bars and other erosion control structures will be located to disperse concentrated flows and filter out sediments prior to entry into a streamcourse; and material from temporary road and skid trail streamcourse crossings will be removed and streambanks restored to the extent practicable.
BMP 1-20: Erosion Control Structure Maintenance	During the period of the TSC, the purchaser will provide maintenance of soil erosion structures constructed by purchaser until they become stabilized, but not for more than 1 year after their construction. After 1 year, needed erosion control maintenance will be accomplished using other funding sources under TSC provisions B6.6 and B6.66.
BMP 1-21: Acceptance of Timber Sale Erosion Control Measures Before Sale Closure	“Acceptable” erosion control means only minor deviation from established objectives, so long as no major or lasting damage is caused to soil or water. SAs will not accept erosion control measures that fail to meet these criteria.
BMP 1-22: Slash Treatment in Sensitive Areas	Special slash treatment site preparation will be prescribed in sensitive areas to facilitate slash disposal without the use of mechanized equipment.
BMP 1-25: Modification of Timber Sale Contract	Once timber sales are sold, they are harvested as planned in the TSC. Occasionally, however, it will be necessary to modify a TSC due to new concerns about the potential effects of land disturbance on a water resource. Where the project is determined to unacceptably affect watershed values, the appropriate Line Officer will take corrective actions, which may include contract modification.
BMP 2-1: General Guidelines for the Location and Design of Roads	Location, design and construction of roads will be agreed upon by the IDT in order to result in minimal resource damage.
BMP 2-2: Erosion Control Plan	Within a specified period after the award of a contract (currently 60 days prior to the first operating season), the purchaser will submit a general plan that, among other things, establishes erosion control measures. Operations cannot begin until the Forest Service has approved the plan in writing.
BMP 2-3: Timing of Construction Activities	Temporary road construction and road re-construction activities will be conducted during the dry season, when rain and runoff are unlikely and weather and ground conditions are such that impacts to soils and water quality will be minimal. Construction of drainage facilities and performance of other contract work to control erosion and sedimentation is required in conjunction with earthwork projects. The operator shall limit the amount of area being graded at a site at any one time, and shall minimize the time that an area is left bare.

PSW Region BMPs	Best Management Practice Description
BMP 2-4: Stabilization of Road Slope Surfaces and Spoil Disposal Areas	Minimize or prevent erosion from exposed cut slopes, fill slopes, and spoil disposal areas by using bioengineering and other techniques. Depending on site factors such as slope angle, soil type, climate, and proximity to waterways, many fill slopes, some cut slopes, and some spoil disposal areas will require vegetative and/or mechanical measures to provide surface soil stability.
BMP 2-5: Road Slope Stabilization Construction Practices	To reduce sedimentation by minimizing erosion from road slopes and slope failure along roads, plan all road construction considering erosion prevention and adequate stabilization needs. Application is commonly in conjunction with BMP 2-4. Complete most, if not all, of the stabilization measures prior to the first winter rains.
BMP 2-6: Dispersion of Subsurface Drainage From Cut and Fill Slopes	Minimize the possibilities of cut or fill slope failure and the subsequent production of sediment. Since the angle and height of cut and fill slopes can increase the risk of instability, it is often necessary to provide subsurface drainage to avoid moisture saturation and subsequent slope failure.
BMP 2-7: Control of Road Drainage	Used alone or in combination, methods such as the construction of properly spaced cross drains, water bars, or rolling dips; installation of energy dissipaters, aprons, downspouts, gabions, or flumes; armoring of ditches and drain inlets and outlets; and removing or adding berms can be used to control unacceptable effects of drainage.
BMP 2-9: Timely Erosion Control Measures on Incomplete Roads and Stream Crossing Projects	Apply protective measures to all areas of disturbed, erosion-prone, unprotected ground that is not to be further disturbed in the present year. Affected areas can include roads, road fills, skid trails, landings, stream crossings, bridge excavations, and firelines. Preventative measures include removal of temporary culverts, culvert plugs, diversion dams, or elevated stream crossings; installation of temporary culverts, side drains, cross drains, diversion ditches, sediment basins, berms, or other facilities needed to control erosion; removal of debris, obstructions and spoil material from channels and floodplains; and planting vegetation, mulching, and/or covering exposed surfaces with jute mats or other protective material.
BMP 2-10: Construction of Stable Embankments	Construct embankments with materials and methods that minimize the possibility of failure and subsequent water quality degradation. Design and construct the roadway with a proper slope ratio and with adequate strength to support the treadway, shoulders, subgrade, and traffic loads. Construct embankments using one of the following methods: side casting and end-dumping, layer placement, controlled compaction, and/or using retaining walls, confinements systems, plantings, or a combination of these methods.
BMP 2-11: Control of sidecast material during construction and maintenance	To minimize sediment production originating from side cast material during road construction or maintenance, loose, unconsolidated material must not be permitted to enter SMZs. Side casting is an unacceptable construction alternative in areas where it can adversely impact water quality. Prior to the start of construction or maintenance activities, waste areas must be located where excess material can be deposited and stabilized.
BMP 2-12: Servicing and refueling equipment	If the volume of fuel exceeds 660 gallons in a single container, or if total storage at a site exceeds 1,320 gallons, project Spill Prevention, Containment, and Counter Measures (SPCC) plans are required. Operators are required to remove service residues, waste oil, and other materials from National Forest land and be prepared to take responsive actions in case of a hazardous substance spill, according to the SPCC plan.

PSW Region BMPs	Best Management Practice Description
BMP 2-13: Control of construction and maintenance activities adjacent to SMZs	Construction and maintenance fills, sidecast, and end-hauled materials are kept out of SMZs except at designated sites to minimize effects on the aquatic environment. It is also necessary to stabilize fill slopes to prevent sediment accumulations in the streamside zone.
BMP 2-14: Controlling in-channel excavation	When necessary in the construction or removal of culverts, bridges, and other facilities, heavy equipment is permitted to cross or work in or near streams or lakes during construction under specific protection requirements. Excavation during the installation of instream structures must follow all of the following minimum water quality protection requirements: 1) Unless otherwise approved, no excavation will be made outside of caissons, cribs, cofferdams, or sheet piling; 2) the natural streambed or lake bottom adjacent to the structure will not be disturbed without prior approval of the ER or COR; 3) If any excavation or dredging is made at the site of the structure before it is sunk in place, all excavations will be restored to the original surface and the streambed or lake bottom must be protected with suitable material; 4) material deposited within the stream or lake area from foundation or other excavation will not be discharged into live streams or lakes, but will be put into settling areas as shown in plans or approved by the ER or COR; 5) If the channel or lake bottom is disturbed during construction, it must be restored to its original configuration while minimizing any additional disturbance; and, 6) disturbance of stream or lake banks are kept to a minimum. Disturbed banks are stabilized.
BMP 2-15: Diversion of flows around construction sites	Stream flow must be diverted around construction sites such as bridges, culverts, and dams for all live streams. The diverted flows are returned to their natural streamcourse as soon as possible after construction or prior to the rainy season. All disturbed areas are stabilized prior to the rainy season or as needed.
BMP 2-16: Stream crossings on temporary roads	Stream crossing structures are required on all temporary roads where it is necessary to cross designated channels. Such crossings are designed to provide for unobstructed flows and the passage of fish, and to minimize damages to stream channels and water quality. The number of crossings will be kept to the minimum needed for access and will be as perpendicular to stream courses as possible. Temporary crossing facilities will be removed and the site stabilized prior to the rainy season each year or when the facility is no longer needed.
BMP 2-17: Bridge and culvert installation	Spoil material from excavation during construction of in-channel structures should neither obstruct the stream course or natural floodplain nor impair the efficiency of the installed structure. Excavated material should be kept out of stream channels, stockpiled material on floodplains should be removed prior to a storm event, and flowing water should be diverted around work sites.
BMP 2-19: Disposal of right-of-way and roadside debris	Ensure that organic debris generated during road construction is kept out of streams so that channels and downstream facilities are not obstructed and ensure that debris jams are not formed that obstruct fish passage or could result in downstream damage from high water flow surges after dam failure. Construction debris and other generated roadside slash developed along roads in SMZs shall be disposed of by: 1) onsite piling and burning, burying, chipping, scattering, disposal in cutting units, windrowing at the base of slopes, or incorporation (only in temporary roads); 2) removal to agreed locations; 3) A combination of the above 4 large limbs and logs removal to designated sites outside the SMZ or relocation within the SMZ to meet aquatic resource management.

PSW Region BMPs	Best Management Practice Description
BMP 2-21: Water source development consistent with water quality protection	Water source development to supply water for road construction and maintenance, dust control, and fire control shall avoid use of earth fill and dam construction. Cofferdams and water holes will be built out of sandbags filled with clean sand or gravel. Downstream water flow will not be reduced to a level that will be detrimental to established uses.
BMP 2-22: Maintenance of roads	Provide the basic maintenance required to protect the road and to ensure that damage to adjacent land and resources is prevented. This is the normal prescription for roads closed to traffic and often requires an annual inspection to determine what work is needed. At a minimum, maintenance must protect drainage facilities and runoff patterns. Additional maintenance includes surfacing and resurfacing, outsloping, clearing debris, etc.
BMP 2-23: Road surface treatment to prevent loss of materials	When necessary, contractors, purchasers, special users, and Forest Service project leaders will undertake road surface treatment measures such as watering, sealing, aggregate surfacing, or paving to minimize loss of road materials.
BMP 2-24: Traffic control during wet periods	Roads that must be used during wet periods should have a stable surface and sufficient drainage to allow use while also maintaining water quality. Rocking, paving, and armoring are measures that protect the road surface and reduce soil loss. Where wet season field operations are planned, roads may need to be upgraded, use restricted to low ground pressure vehicles or frozen ground conditions, or maintenance intensified to handle the traffic without creating excessive erosion and damaging the road surface.
BMP 2-25: Snow removal controls to avoid resource damage	Where Forest Roads are used throughout the winter, the contractor will be responsible for snow removal that will protect roads and adjacent resources. Rocking or other special surfacing will be necessary before the operator is allowed to use the roads. Snow berms will be removed where they result in accumulation or concentration of snowmelt runoff on the road and erosive fill slopes. Snow berms will be installed in places that will preclude concentration of snowmelt runoff and that will serve to rapidly dissipate melt water.
BMP 2-26: Decommission of roads	Temporary roads will be obliterated or decommissioned following their intended use. Obliteration/decommissioning may include re-contouring or outsloping to return the road prism to near natural hydrologic function, blocking the road to vehicle access, removing crossings and restoring natural drainage, and stabilizing road surfaces with ripping and/or revegetation.
BMP 5-2: Slope limitations for mechanical equipment operations	Ground based equipment operation will be limited to slopes where corrective measures such as water bars can be effectively installed to reduce gully and sheet erosion and associated sediment production.
BMP 5-3: Tractor operation limitation in wetlands and meadows	Mechanical equipment will be excluded from wetlands and meadows except for the purpose of restoring wetland and meadow function. The target areas will be protected from mechanical operations except when they are identified for treatment by trained and qualified personnel on the IDT. Specific protection measures will be established for each area that could incur adverse water quality impacts.

PSW Region BMPs	Best Management Practice Description
BMP 5-4: Revegetation of surface disturbed areas	On unstable soil surfaces resulting from project activities, revegetation with native seed and/or application of mulch may be required to protect water quality and minimize soil erosion. The onsite factors evaluated will include soil productivity, topography, EHR, and soil water holding capacity.
BMP 5-5: Disposal of organic debris	The project IDT will determine the methods of debris disposal and/or placement of debris after treatment. Methods of disposal include: prescribed burning, chipping, mastication, lop and scatter, and mechanical harvesting/collection.
BMP 5-6: Soil moisture limitations for mechanical equipment operations	To prevent compaction, gullyng and rutting, mechanical equipment operations will be limited or excluded during wet soil conditions.
BMP 6-2: Consideration of water quality in formulating fire prescriptions	To ensure water quality protection while achieving management objectives through the use prescribed fires, prescription elements will include, but not be limited to, factors such as fire weather, slope, aspect, soil moisture, and fuel moisture. The prescription will include at the watershed and subwatershed level the optimum and maximum burn block size, aggregated burned area, acceptable disturbance for contiguous and aggregate length for the riparian/SMZ, and maximum expected area covered by water repellent soils.
BMP 6-3: Protection of water quality from prescribed burning effects	Implementation of techniques to prevent water quality degradation, maintain soil productivity, and minimize erosion from prescribed burning. These techniques include: constructing water bars in fire lines, reducing fuel loading in drainage channels, and retaining or re-establishing ground cover as needed to keep erosion of the burned site within the limits of the burn plan.
BMP 7-1: Watershed restoration	To repair degraded watershed conditions and improve water quality and soil stability, utilize the following watershed restoration techniques: improve ground cover density, improve infiltration, and improve overall watershed function.
BMP 7-3: Protection of wetlands	Activities and new construction in wetlands will not be permitted whenever there is a practical alternative. Factors relevant to the survival and quality of the wetlands, such as water supply, water quality, recharge areas, habitat diversity and stability, and hydrologic function of riparian areas will be considered when evaluating proposed actions in wetlands. Replacement in kind of lost wetlands should be evaluated to apply a “no net loss” perspective to wetland preservation.
BMP 7-4: Forest and hazardous substance spill prevention control and counter-measure (SPCC) plan	To prevent contamination of waters from accidental spills, a SPCC plan must be prepared if the total oil products on site in aboveground storage exceed 1,320 gallons, or if a single container exceeds 660 gallons.
BMP 7-7: Management by closure to use	If the Forest Supervisor determines that a particular resource or improvement needs protection from use to preclude adverse water quality effects, activities that could result in damages to those resources or improvements may be excluded.
BMP 7-8: Cumulative off-site watershed effects	Cumulative Watershed Effects (CWE) analyses are used to protect identified beneficial uses of water from the combined effects of multiple management activities.

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Appendix C
Response to Comments
from 30 Day Comment Period (March/April 2010)
Angora Fire Restoration Final EA

In response to the legal notice for the 30 day comment period for the Environmental Assessment (EA), ten (10) comment letters were received. One additional letter was postmarked a day after the comment period ended and was not considered (36 CFR 215.6 (a)). Comments contained in the Response to Comments reflect references to numbers that are contained in the March EA (such as design feature numbers). These numbers have since changed in the Final EA due to document editing, therefore Forest Service responses that include number references may not directly reference the same number but do reference the same topic from the commenter. All references to the EA in this document refer to the Final EA unless otherwise noted. The comments and the Forest Service (FS) responses are as follows:

Comment Letter A – Karen Higgins

Comment #1: Commenter does not understand how it will be beneficial to re-disturb the natural recovery of vegetation and habitat that has occurred since the fire happened. The new disturbance will create hot and open conditions that will inhibit new vegetation from re-growing. The Forest Service allowed this [disturbance] to happen right after the fire, and now wants to let it happen again.

Forest Service Response: We understand the commenters concern regarding disturbing vegetation that has grown since the fire. One of the overall purpose and needs for this project is to conserve live trees after thinning activities in order to increase the resiliency of the remaining live trees from insects, disease, and drought stress (chapter 1.5.1 of the EA). The EA (chapter 3) discloses the range of environmental effects, both beneficial and adverse, that are expected from the Proposed Action on vegetation recovery. We understand that there will be short-term effects as the regrowth of grass, brush, and forbs are disturbed again. In the long term, this disturbance will allow for a more rapid restoration of coniferous forest habitat for wildlife species, and will also provide for long-term protection of the local community in the event of another wildfire. Past history including after the Angora Fire indicates that grasses, forbs, and brush will rapidly re-occupy the site and that the open conditions created by the fire and from the proposed action will not preclude vegetative recovery.

Comment #2: The contractor who operated during the fall of 2009 showed disregard for sensitive areas and was not closely supervised by the Forest Service. How do we know this won't happen again?

Forest Service Response: We understand that there is a need to conduct activities while paying special attention to sensitive areas, such as stream environment zones (SEZ's), and roads and trails that are frequently visited by the community. The EA identifies project design features which are intended to be sensitive to SEZs and be cautious while conducting operations adjacent to neighborhoods. For instance a design feature has been added which states the following:

1. In general project work (Tree removal and thinning activities) would occur between the hours of 7 am to 7 pm from Monday through Friday (excluding holidays). Tree cutting and mastication would not take place within 300 feet from residences from 6:30 pm to 8 am

Exceptions are approved by contract administrator in coordination with the Forest Supervisor and include the following:

- a. Vehicle or equipment maintenance/repairs
 - b. Weekend work in order to finish up a treatment area in a timely manner, or stabilize an area prior to equipment move out and prior to upcoming storm events (e.g. grading season deadlines)
 - c. If fire restrictions limit operating times extended work hours may be approved
2. Contractor camping would occur under the following conditions:
 - a. Implementation of proper sanitation practices (i.e. prevents pollution of air, soil, and water resources). This includes measures for garbage and human waste disposal.
 - b. The location, duration, and conditions for camping would be agreed to by contract administrator in coordination with the Forest Supervisor. For example, camping would not be allowed at the following locations: At landings adjacent to or at the end of streets connecting to NFS lands (Gardner Mtn./Panther Street, Lake Tahoe Blvd., Tahoe Mtn. Road, Forest Mtn. Road, Boulder Mtn. Road, Mule Deer Drive, Pyramid Circle, Shoshone Street, and Seneca Drive) or adjacent to classified NFS trails (not connected to landing) or waterbodies.
 3. Equipment staging on and adjacent to county/city streets not associated with an active landing would not occur for more than one week at a time per neighborhood access point. Active landings that are immediately adjacent to neighborhoods include the eastern most landing off of Gardner Mtn./Panther Street, landings off of Tahoe Mtn, Forest Mtn, Mule Deer Cir., and Pyramid Cir. In these landings equipment could be stored for more than one week with and the longevity affected by factors such as weather conditions and treatment unit size.

There are some exceptions described in order to allow efficient and safe work. Final The Final EA also includes a number of soil and water quality protection design features for fuels treatment operations which were updated to clarify between stream type (perennial, intermittent and ephemeral), distance from SEZs, anticipation of above average precipitation events, and defining adequate soil moisture conditions. Specifics of each design feature are described in Section 2.3.2 of the EA.

Comment #3: The clearcutting of the trees has already encouraged uncontrolled snowmobile use which has damaged recovering vegetation and is also disturbing to local residents. The Forest Service is not adequately enforcing this problem.

Forest Service Response: Snowmobile use is consistent with the current Forest Service policy that allows for access to this area during the winter, as long as it occurs within established guidelines and requirements for approved areas of use and snow cover (Lake Tahoe Basin Management Snowmobile Guide 2002). Snowmobile use is open to the majority of the project area and along neighborhoods. Snowmobile use is closed for access in the extreme southwest portion of the project area. Snow cover must be at least 6" and any contact between the snowmobile and the ground is prohibited. Violations of snowmobile use regulations will be enforced and public reporting of violations is also appreciated.

Comment #4: Has the Forest Service adequately considered the increased dust and sedimentation caused by the increased winds after the fire?

Forest Service Response: As vegetation recovers it is expected that dust and sedimentation caused by wind reaching the ground surface as a result of the fire will be reduced. Section 3.2.3 and 3.3.4, Vegetation and Soil Direct, Indirect, and Cumulative Effects respectively describes the expected re-establishment of vegetation and effective cover and organic material. The Angora Fire resulted in high and moderate burn severities which reduced both overstory and understory vegetation. As understory vegetation continues to recover and surface organic matter accumulates erosion from wind is expected to decrease. The EA includes activities that will both disturb ground vegetation in the short term and promote trees, shrubs, grasses, and downed wood that will act as soil cover in the long term. In addition, reforestation activities, which will expedite conifer recovery, have been ongoing since the spring of 2008.

Comment Letter B- Judith Hildinger

Comment #1: The proposal for recreational signage is excessive. The Forest Service should not be encouraging increased recreational use in the area. Current Forest Service enforcement is not adequate.

Forest Service Response: The objective of installing signage at the 14 entry points is to direct users to managed trails and reduce unmanaged recreation as a result of the lack of way finding information. The proposal to increase signage is to address an existing problem from unauthorized trail use. Currently the trail system is not marked.

The proposed signage is designed to reduce unauthorized trail use and associated resource impacts. The signs do not increase recreational use, rather they inform visitors where appropriate trail use experiences can occur.

Comment #2: We are concerned about the level of noise associated with the aerial (helicopter) operations. This noise should be minimized to avoid impacts to residents and tourists.

Forest Service Response: Helicopter operations are considered as a mechanical fuels treatment method. During development of project design it became apparent that the Forest Service needed to be sensitive to conducting mechanical operations in a way that would minimize noise impacts and disturbance to residents. Therefore a design feature was created (see section 2.3.2 #3) to partially address noise concerns. See also response to commenter letter A, #2.

Comment #3: We recommend emphasizing fuel treatments near year-round populated areas.

Forest Service Response: Fuels and vegetation treatments in this project are located all within the Wildland Urban Interface Defense zone. The EA acknowledges that in the event of limited funding, fuel treatments will emphasize proximity to neighborhoods, as well as South Lake Tahoe High School (EA, Section 2.3.1).

Comment Letter C – Elizabeth Swope

Comment #1: I am concerned about the traffic congestions and impacts from truck traffic on local residents and their driveway and local road access. Please consider using Winton Road to access the project site.

Forest Service Response: We understand that residents have concerns regarding potential localized congestion on neighborhood roads. Therefore, access from neighborhood roads to NFS lands will occur on existing roads and alternate access points will be considered where feasible for project activities. The majority of equipment hauling will occur from NFS lands that access Gardner Mtn./Panther Street, Lake Tahoe Blvd., Tahoe Mtn. Road, Forest Mtn. Road, Boulder Mtn. Road, Mule Deer Drive, Pyramid Circle, Shoshone Street, and Seneca Drive. These are areas that access project treatments directly and are considered the best locations based on the location of treatments, road conditions, topography, and short distances to streets. Alternate access points for equipment hauling may be feasible in some of the following situations:

using access near Camp Richardson and Hwy. 89 (in lieu of using Gardner Mtn/Panther Street), and using Winton Road or Shoshone Street (in lieu of Seneca Drive) in limited situations.

Winton Road provides limited access to NFS lands in the southern end of the project area. The feasibility of its use will depend on the type of access by equipment that is needed and the location of treatments that occur within the project area. For example, if log and chip hauling is required at this access point then the classified NFS road at Winton will require some road blading, brushing, tree removal, and straightening of the access road in order to navigate these types of equipment. If crew carrying vehicles are used then this road could be used without additional maintenance. Based on the fact that the majority of vegetation and fuels treatment is north of the Winton access point it is more feasible to use NFS land access from Seneca Dr. (due to its central location and good condition of road). During the Angora Hazard Tree Removal Project, Seneca Drive access was used because it was the shortest haul distance and required the least amount of road maintenance for hauling.

Furthermore, as stated in the cover letter for the EA: “We will ensure that staff and contractors working on Angora Fire Restoration projects minimize inconvenience to local residents as much as possible while completing necessary restoration work in a timely manner. We have included an additional design feature (EA Section 2.3.2) #3 to partially address project impacts to local residents and their driveway and local road access

Comment #2: Do not further disturb or eliminate Seneca Pond. The Forest Service made a decision 10 years ago to restore the pond. You should protect the serenity and beauty of this area from further disturbance.

Forest Service Response: During both scoping of the Proposed Action and the 30-Day Comment Period we received some input that preferred Seneca Pond stay in its current condition. We also received comments supporting re-connection of the spring(s) to Angora Creek, changing the pond back to a wetland habitat. In the mid-1990s, we (FS) proposed to restore historic drainage patterns in this area by obliterating the man-made diversion ditch feeding the pond, removing various diversion pipes that had been installed to capture subsurface spring flows, and converting the pond back to a wet meadow SEZ. Public sentiment communicated during the comment period at that time also expressed a strong desire to maintain the pond. We decided that we could achieve the principle goal of reducing existing sources of accelerated erosion and restoring historic drainage patterns by obliterating the 1,200 foot long and 6 foot deep eroding diversion ditch feeding into the pond from an upslope tributary, while also maintaining and improving the pond for public enjoyment. Improving the pond was proposed to be achieved by reducing the size and overall depth of the pond and lining it with clay to maximize the duration of time the pond would hold water from spring snowmelt.

Historically the pond went dry every year by mid-summer, and we expected that our improvements might increase the water holding capacity of the pond through about mid to late August

During construction operations in the pond we unexpectedly hit groundwater about 4 feet below the ground surface elevation, and above the planned elevation of the pond surface and clay liner. We quickly realized that an upslope spring was contributing a high volume of subsurface flow to this area. It was decided the best solution was to intercept the flow from the spring at the point at which surface flows went subsurface, about 350' above the pond, and convey this flow into a constructed channel, thereby providing perennial year round flows into and out of the pond.

What we did not foresee at the time was that providing year round flow to Seneca Pond would provide breeding, rearing, and over-wintering habitat for non-native/invasive bullfrogs, which are known to out-compete and displace native amphibians. Prior to pond construction Angora Creek and the adjacent wetlands provided habitat for native amphibian species such as Western toads (*Bufo boreas*). Ecosystem benefits of the pond are minimal as the population of non-native bullfrogs precludes the colonization of native amphibian species, such as Western toad. Additionally, the banks and adjacent areas surrounding the pond are constructed of hard, packed fill that supports limited riparian and wetland vegetation. By redirecting flows from the spring into historic pathways in drainage patterns that fit the current hydrologic regime, and obliterating the pond, we estimate we will increase the total area of enhanced riparian and wetland habitat by 2 acres. These habitats provide additional benefits related to water quality through nutrient uptake. This is particularly important in areas that are recovering from wildfire, as wildfire typically results in orders of magnitude increases in mobilized nitrogen, until vegetation in the burn area has recovered.

In addition, after the Angora fire peak flows from the spring feeding into the pond increased, (due to loss of live trees) and created a breach in the constructed channel near the point of diversion 350' above the pond. This breach takes approximately half of the flow to a new channel formed in a historic drainage swale, leaving the remaining flow in the constructed channel. The constructed channel and historic swale also continue to pick up flows from emerging groundwater as they travel downslope. Because the constructed channel is shallow and runs slightly side-slope, the increased spring flows which have occurred after the fire makes the constructed channel vulnerable to uncontrolled breaching and diversion. Restoring and conveying spring surface flows in a stable manner entirely to the historic swale will greatly expand the area of riparian and wetland vegetation through this area. Groundwater will continue to flow towards to the restored pond area. Since the clay liner will remain in place, groundwater flows will be sufficient to create and maintain a robust riparian and wetland community in this area, even though spring surface flows will be entirely redirected to its historic drainage path.

Further discussion on the areas of existing and desired conditions and the need to restore the pond are described in the EA in section 1.3.3, 1.4.3 and 1.5.3. The no action

alternative leaves the pond in its existing condition and describes the effects of not restoring the pond.

Comment #3: I am opposed to the removal of trees on 1,398 acres. This action will create hot and dry conditions for new trees to grow, and will disturb young vegetation and soil.

Forest Service Response: We understand the commenters concern regarding creating hot and dry conditions for new trees to grow and disturbing young vegetation and the soil in the burn area. One of the overall purpose and needs for this project is to conserve live trees after thinning activities in order to increase the resiliency of the remaining live trees from insects, disease, and drought stress (chapter 1.5.1 of the EA). The EA (chapter 3) discloses the range of environmental effects, both beneficial and adverse, that are expected from the Proposed Action on vegetation recovery. We understand that there will be short-term effects as the regrowth of grass, brush, and forbs is disturbed again. In the long term, this disturbance will allow for a more rapid restoration of coniferous forest habitat for wildlife species, and will also provide for long-term protection of the local community in the event of another wildfire. Past history including after the Angora Fire indicates that grasses, forbs, and brush will rapidly re-occupy the site and that the open conditions created by the fire and from the proposed action will not preclude vegetative recovery.

Comment #4: I support leaving roads available for future access, but the majority of the roads should be covered with logs or other material to reduce bike and foot traffic to a minimal trail width (2 feet).

Forest Service Response: During development of project design it became apparent that the Forest Service needed to be sensitive to maintaining and improving public access to the National Forest and properly restoring roads and trails where needed. A comprehensive road and trail system has been developed for this project. Roads and trails are designed and located to provide both forest management access and public recreation access to this area. Upon completion of the project, the road system will be managed as maintenance level 1 for administrative use (EA Sections 1.3.4, and 2.3.1 Roads and Trails). In order to provide administrative vehicular access there is no proposal to cover roads with logs or other material and narrow them down to 2 feet. According to project map (Figure 2-4) some trails would link in with the more primitive level 1 administrative roads. There will also be some roads that are converted to trails. Important to note is that all temporary roads and road decommissioning/restoration in the project will involve a component of surface covering by logs or organic material.

Comment #5: I am not convinced that tax dollars should be spent on this project. You should let nature take its course in restoring the burned area.

Forest Service Response: During scoping of the Proposed Action we received some public comments that suggested the area should be able to recover naturally without initiating active management. The No-Action Alternative within the EA describes what would happen if no active management took place and discloses the effects of taking no action vs. the proposed action.

Comment Letter D – Kathleen Whatford

Comment #1: The previous contractor working on Forest Service land showed no regard for impacts to local residents. Some issues included improper sanitation, staging of equipment near houses, inadequate dust abatement, speeding, etc. The Forest Service must provide adequate enforcement of all contractual requirements.

Forest Service Response: We understand your concern regarding the need to conduct activities in a manner that minimizes impacts to local residents, and attains a level of conduct commensurate with local, state and federal law. The Forest Service presence on contracted activities includes a contract administrator and/or inspector(s) daily and onsite to ensure contract requirements that are consistent with the project EA are met. In order to partially address public concerns about impacts to local residents we have clarified conditions for operation in project design features (EA section 2.3.2) and these are in addition to what was included under the Angora Hazard Tree Project and contract. For example we added in design feature #3 which specifies criteria for hours of operation, contractor camping and sanitation, and equipment staging. Design feature #39 includes dust abatement through road watering or other methods. The recent experience with dust abatement in the Angora Hazard Tree project has shown that road watering was conducted more often than the minimum requirements described in Forest Service Handbook 2409.15. In addition, chipped materials were added to the road surface entrance on NFS lands adjacent to neighborhoods so that vehicles would be driving on a chipped surface that is watered regularly rather than a dirt surface. This level of dust abatement proved effective in minimizing dust while vehicles entered and exited neighborhoods on county/city streets.

Comment #2: There has been an increase in uncontrolled snowmobile use in the burned area. With the opening up of more accessible areas, more snowmobile increase should be expected, and this has not been analyzed in the EA.

Forest Service Response: Snowmobile use is consistent with the current Forest Service policy that allows for access to this area during the winter, as long as it occurs within established guidelines and requirements for approved areas of use and snow cover (Lake Tahoe Basin Management Snowmobile Guide 2002). Snowmobile use is open to the majority of the project area and along neighborhoods. Snowmobile use is closed for access in the extreme southwest portion of the project area. Snow cover must be at least 6” and any contact between the snowmobile and the ground is prohibited. Violations of snowmobile use regulations will be enforced and public reporting of violations is also appreciated.

Comment #3: There were inadequate erosion control measures during the Forest Service work last summer and fall. The rain event in October 2009 led to sedimentation impacts.

Forest Service Response: The LTBMU will implement projects to the standards specified in the contract. These call for erosion control measures and BMPs described in the contract and EA. In summary, the EA describes the need to have critical erosion control measures in place prior to any storm that could result in sedimentation. In addition, design features are now more specific to potential sedimentation issues such as: anticipation of storm events, installation of water bars and using better retrofitted stream crossings. As a result of the October 2009 rain event we modified our approach to large storm events and added design feature #1, and revised design features #7 and #32. Additionally, we acknowledged through our BMPEP monitoring report for 2009, the need to improve our project soil and water quality measures.

Comment #4: There is a lack of public trust regarding the proposed treatments at Seneca Pond due to poor communication. The Forest Service worked on the pond several years ago and now there is a change in direction. The Forest Service should provide more opportunities for public input on this action.

Forest Service Response: Refer to Forest Service response to comment C-2. The Forest Service acknowledges that restoring Seneca Pond to a wetland is not wanted by some residents. The Forest Service offered multiple opportunities for public input into this proposed action, which included initial input on restoration opportunities (May – June 2008); public scoping of the Proposed Action (began on February 11, 2009) including 1 public meeting, mailings, and media articles; 30-Day Comment Period of the pre-decisional EA (March 2010). The feedback we received from the public was to leave it alone or restore it. Section 1.9 of the EA details the public involvement process from Proposed Action development to pre-decisional EA comment period.

Comment Letter E – Nick and Margo Carrell

Comment #1: The commenters are concerned that the restoration of Seneca Pond to a wetland complex will result in a loss of habitat for water fowl and other species that occur there.

Forest Service Response: One purpose of the project is to improve riparian habitat condition through restoration of Seneca Pond to a wetland. The EA acknowledges the loss of waterfowl habitat may occur if the area of open stagnated water is decreased where ducks prefer deeper pond areas for feeding and swimming. However, Seneca Pond is not a primary breeding and rearing habitat. There are other primary habitats in more open meadow/lake settings (i.e. South Shore of Lake Tahoe).

Comment Letter F – Mike Vollmer, Tahoe Regional Planning Agency

Comment #1: It is difficult to clearly understand the overall benefits of the roads and trail proposal. The following tables would be helpful:

- a spreadsheet identifying what exists before the project in terms of miles of classified roads, unclassified roads, classified trails and unclassified trails and how all those different roads and trails will be re-designated, re-classified, restored and decommissioned;
- A map of the 7.7 miles of temporary roads.

Forest Service Response: The existing mileage of classified and unclassified roads is shown in Table 2-1. After project implementation the total mileage of classified roads and trails is shown in Table 2-3. The net change in coverage is the difference in Tables 2-1 and 2-3. As described in the EA the new classified transportation system is being brought up to Forest Service standards and there are 0.3 miles of road and 1.4 miles of trail being located out of SEZs as an outcome of implementing the proposed action. A map of the estimated location of temporary roads and landings is provided in the Final EA (Figure 2-4).

Comment #2: It is unclear how the “dry to moist at the 4-8 inch depth” criteria were developed. Please clarify the basis for and application of design feature #2 (page 2-13)(March EA). The condition of the surface layer (0 to 4”) should not be ignored in determining if soil moisture is suitable for operations.

Forest Service Response: Operability at 4-8” was chosen because it is tied to Forest Service Regional monitoring protocols and because it is often the zone of greatest compaction. Recent monitoring results support the use of this determination of operability because bulk density and Ksat measurements demonstrate that soil porosity is within the Regional standards and in some cases not significantly different from pre-project values. Design feature # 5 assumes operable dry conditions. The concern about surface soil applies to conditions where the surface of the soil is wetted, but dry (operable) soil exists below 4”. Relatively rapid infiltration rates in Tahoe Basin soils and in the project area result in relatively uniform wetting such that the surface 4” are highly unlikely to be saturated when operable conditions are present at 4-8”. In addition, most Tahoe Basin soils do not have enough clay content to make smearing and puddling a concern, and most impacts to the surface 4” are ameliorated by freeze/thaw action

Comment #3: Please provide the most current version of the SEZ rating system (see design feature 12(a) – March EA). We are concerned that the rating system does not account for ground cover conditions during project operations.

Forest Service Response: The current version of the SEZ rating system is modified by including design features #15 d, e, and f as described in the EA, Appendix B. The rating system does not account for ground cover conditions during project operations because soil moisture is a bigger factor in compaction than presence of surface organic material. The current version of the SEZ rating system was modified for post-wildfire conditions where burn severities are mostly moderate or high (see appendix B). Where slash is available CTL equipment would operate on a slash mat as cover during treatment. In addition, re-growth of vegetation, especially in SEZs is providing ground cover. We expect slash and vegetation conditions in the Angora SEZs to be similar to those in the Heavenly SEZ demonstration project. The Heavenly SEZ demonstration project occurred in post wildfire conditions that are similar to this project within portions of its treatment area.

Comment #4: The EA does not establish an equipment exclusion zone adjacent to perennial or intermittent streams, nor does it establish a 25-foot buffer. These buffers

should be established and flagged prior to project implementation. Please provide the scientific foundation for how a 25-foot buffer would adequately protect water quality.

Forest Service Response: Refer to response to comment G-13 (Doug Cushman, Lahontan Water Board). Mechanical equipment exclusion buffers for streams and SEZs are described in design features 16-21 and vary depending on CTL or WT treatment and stream type. In all cases these design features establish a buffer of 25 feet and greater depending on the application of it. These buffers in combination with other design features and BMPs applied to the project are designed to protect water quality while addressing needs for reducing heavy fuel loading that is present along some streams/SEZs and that are not feasibly treated by hand crews. The following description of design features clarifies buffers and the rationale for their application in the project:

Design feature #16 identifies 25 feet as an equipment exclusion zone for CTL treatment adjacent to perennial and intermittent streams. The 25 foot buffer was shown to be successful in preventing sediment delivery in the Heavenly SEZ Demonstration Project, which involved intensive soil and water quality monitoring measures.

Design feature #17 identifies additional buffers for all mechanical equipment treatment based upon slope steepness, proximity to perennial channels, and soil cover. This design feature is intended to address specific conditions that are present on the ground rather than applying an arbitrary buffer.

Design feature #18 is similar to #17 in respect to slope and cover and is specific only to WT treatment. The minimum buffer for WT treatment from perennial channels is 50 feet. As shown from 18a, the minimum buffer for WT treatment from intermittent channels is 25 feet. These minimum buffers would increase based on steeper slope, less soil cover, and may require additional buffer distances based on recommendations from LTBMU watershed specialist. From past monitoring of projects these minimum buffers have shown to be effective in preventing sediment transport to stream channels. Site specific conditions will dictate the buffer applied on the ground that is related to this design feature.

Design feature #19 is included to treat SEZs by hand where WT treatment equipment cannot reach from outside of the SEZ (using ~25 foot equipment reach outside of SEZ to remove log/material that is inside SEZ) and CTL treatment is not applied. The design feature states in the first sentence "Ground based equipment in WT treatment stands would not operate in SEZs." This design feature is intended to both be a buffer from the stream and work outside of the SEZ with WT treatment. Design feature #17 may be applied in this situation to fit site specific conditions if the SEZ adjacent to the stream is narrow and slope steepness is a factor.

Design feature #20 acknowledges that ground based equipment using WT methods would not occur in exclusion buffers unless a temporary or permanent crossing is required. In this situation equipment would need to cross a channel in order to treat fuels where there are no other feasible access points. At a minimum BMP 1-19 Streamcourse and Aquatic Protection will be applied in the crossing design to ensure that water quality objectives for crossing are met.

Design feature #21 states in the first sentence that “To achieve desired fuel loading in SEZs within units, trees may be end-lined out of the SEZ after consultation with a watershed specialist.” This design feature still applies a 50 foot stream buffer for any hand pile burning and prohibits ground disturbance from within 25 feet of perennial or intermittent channels. Additionally #21 describes criteria for ensuring ground cover and raking berms that may result in sediment delivery.

Comment #5: The EA does not document that Cut-to-Length equipment would operate on “slash mats” during operation within SEZs.

Forest Service Response: Where slash is available CTL equipment would operate on a slash mat as cover during treatment. Refer to response to comment F-3 (modified SEZ rating system/treatment). The EA has been revised to make this clear. Design feature #15 provides additional means to achieve post-operation desired conditions for ground cover.

Comment #6: Please clarify design feature #37 (March EA), which states that dust abatement will occur “as needed”. How would the need be established?

Forest Service Response: The purpose of dust abatement is to control road surface loss, provide for road user safety, and minimize impact to adjacent resources and neighborhoods. This design feature has been clarified (EA, Design Feature #39). Dust abatement would be followed according to Forest Service Handbook 2409.15. Specific dust abatement procedures would be defined at the project contracting phase. In addition, the recent experience with dust abatement in the Angora Hazard Tree project has shown that road watering was conducted more often than the minimum requirements described in Forest Service Handbook 2409.15. In addition, chipped materials were added to the road surface entrance on NFS lands adjacent to neighborhoods so that vehicles would be driving on a chipped surface that is watered regularly rather than a dirt surface. This level of dust abatement proved effective in minimizing dust while vehicles entered and exited neighborhoods on county/city streets.

Comment #7: Design feature #43 (March EA) is too vague in its specifications, and does not provide for a replicable methodology for determining acceptable operating

conditions (i.e. 85% of the area). The subjectivity of this section needs to be reduced by providing more objective field standards, as #43a and #43b (of pre-decisional EA) are.

Forest Service Response: The 85% standard applies to the active area of a unit and is estimated in the field. Note that design feature numbering has changed in the final EA. These types of estimations are commonly made by field going personnel. This design feature (#45 in Final EA) was revised for clarity and specificity and relates to the following design feature subparts in the following way: #45a applies specifically to frozen soil operations for all veg/fuels treatment activities and the intent is to exclude road vehicular use from its application (this is addressed in 51 and 53). #45b; specifically addresses over-snow conditions (as opposed to frozen in 45a) for treatment activities that are off of roads. Design feature #53 covers both frozen and over-snow conditions for road use. It applies “85%” as a standard specific to the road (as differently applied from #45, “using total active area”) in order to protect the road surface, drainage structures, and overall administrative investment of the road.

Comment #8: Design feature #49 (March EA) is too vague in its specifications, and does not provide for a replicable methodology for determining acceptable operating conditions (i.e. 85% of the area). The subjectivity of this section needs to be reduced by providing more objective field standards, as #43a and #43b are.

Forest Service Response: This design feature (now #51) is revised to be more consistent with Forest Service policy for the BMP evaluation program. Please note that the primary purpose of this design feature is to limit damage to the road, as stated in the first sentence. Note that the last sentence specifies avoidance of any rutting that would result in sediment delivery to a water body.

Comment #9: There is a lack of a clear and measureable standard to determine the “go-no go” conditions for winter operations. Design measures 43(c) and 44 (March EA) should be deleted and replaced by a more clear design measure. We do not understand how it might be possible that winter operations on top of 4-5 inches of snow would not have greater impacts than operations in a normal operating season. Please provide any science or other information (such as experience or results from other national forests) that supports this statement.

Forest Service Response: Design feature #45 is invoked when the first storm of the fall/winter season occurs as snow instead of rain and soil conditions are dry. This design feature is not intended for over-snow operations, but is intended to address conditions that are rare and have occurred in a recent project. As stated in the design feature, when monitoring of the surface soil (2-4”) indicates that ground disturbance

would be greater than expected during normal operating season conditions, operations would stop.

Comment #10: BMP 1-9 (Appendix A) identifies the Erosion Hazard Rating (EHR) system as one method. Please identify other methods that can be used, if available.

Forest Service Response: We are not proposing to use other ratings. The language found in the BMP handbook states that this is one method that can be used.

Comment #11: Can the Forest Service provide a map of the 27 existing landings in the area?

Forest Service Response: The final EA includes a map of estimated landing locations to be used in the project (EA, Figure 2-4).

Comment #12: BMP 2-16 refers to the "...rainy season..." and "...forecasted large precipitation event..." Please define these terms (e.g. October 15th).

Forest Service Response: This BMP has been refined for this project as design feature #1. Design feature #1 describes the large forecasted precipitation event as a storm resulting in 1 inch of rain in 24 hours, or prolonged periods of rain over a 48 hour period exceeding a total of 2.5 inches. The rainy season would include any rain events that wet the soil below 4" or October 15 (whichever comes first).

Comment #13: BMP 2-26 refers to "obliterated" and "decommissioned" roads. Please define these terms. In addition, this BMP states that roughly 3.5 miles of roads and trails would be decommissioned. The Proposed Action states that 7.7 miles of temporary road is proposed. Our expectation is that all temporary roads would be removed and restored.

Forest Service Response: This project will only includes decommissioning of classified roads and trails. (see Section 2.3.1 Roads and Trails). Road decommissioning is intended to remove a road from the landscape permanently for motor vehicle use. In some cases additional strategies may be used to discourage non-motorized use of the decommissioned roads or roads may be converted to trails. Trail decommissioning is used to discourage use along a route, generally to protect resources. All decommissioning (see Section 2.3.1 Roads and Trails) will include:

1. De-compaction to 8" to 10" in depth unless boulders or bedrock are encountered. On trails the surface tread is broken up or scarified depending upon equipment access.
2. Pull in berms. This work may include pulling up fill slopes to partially re-contour a route.
3. Camouflage and barricade the route with boulders and woody debris to discourage future use and naturalize the area.
4. Mulch with pine needles or wood chips to prevent rilling.

Temporary roads will be restored to the criteria defined in the EA (i.e. design features 36 and 37).

After mechanical operations are complete and where feasible based on soil type, temporary roads will be restored by using all of the following methods:

- a. providing ground cover, such as slash, wood chips or masticated material (spread no more than 6-inches thick).
- b. removing all temporary crossings and installing drainage structures as appropriate to prevent accumulating water on the decommissioned road surface.
- c. ripping, where feasible (based on soil rock content and absence of invasive weeds), when soils are moist or dry. Contract Administrator shall determine whether ripping is feasible.
- d. installing natural barriers such as large logs and rocks where necessary at the road entrance points to prevent continued use of road alignment.

All temporary roads would be returned to their original use and width under the ATMs (e.g. Forest Service trails used as temporary roads would be returned to trail width).

Comment #14: BMP 5-6 (paragraph 3) states that soil moisture would be evaluated at the 6-10 inch depth. Design feature 2 directs that it be evaluated at the 4-8 inch depth. Please address this discrepancy.

Forest Service Response: This discrepancy will be corrected to reflect evaluation at the 4-8 inch depth.

Comment Letter G – Doug Cushman, Lahontan Regional Water Quality Control Board

Comment #1: The commenting agency re-iterates the need for the Forest Service to obtain all appropriate permits for proposed activities and ensure compliance with appropriate state and local regulations (including CEQA) and encourages the Forest Service to work with the Water Board staff to ensure CEQA compliance.

Forest Service Response: The Forest Service appreciates the comment and will continue to work closely with agency staff to ensure full compliance with permitting requirements.

Comment #2: The Water Board expects (based on the description of the project) that it will result in an improvement in water quality, as it addresses erosion from road and trail surfaces, improves meadow and stream function, and improves riparian habitat via aspen enhancement.

Forest Service Response: The EA contains stream, meadow, aspen, and road/trail restoration activities that have the primary purpose of improving water quality and aquatic habitat.

Comment #3: The Water board reminds the Forest Service of its obligation to obtain all necessary permits or applicable exemptions with such agencies as TRPA, U.S. Army Corps of Engineers, the State Water Board, and the Lahontan Water Board.

Forest Service Response: The EA acknowledges permitting requirements in section 1.11.13.

Comment #4: The EA does not adequately disclose that all disturbed areas should be stabilized prior to October 15th unless a soil disturbance waiver is obtained. Please ensure that this deadline and required variance is included in all contracts or implementation agreements.

Forest Service Response: Comment noted, language will be added to the EA stating that grading exemptions will be required from TRPA and Lahontan. The Forest Service describes the normal operating period under section 2.3.2 Project Design features under *Fuel Removal and Vegetation Treatments*.

Comment #5: The EA should state that all buffer zones for perennial and intermittent streams are to be flagged prior to and maintained throughout project operations.

Forest Service Response: : It is a standard operating practice to ensure SEZ buffer flagging is in place during all project activities. An additional design feature is added to address this comment under section 2.3.2.

Comment #6: Design feature 2 (March EA) should be changed to state that soil moisture levels will be assessed to the 12” depth and that equipment operation will occur only when conditions fall into one of the “non-highlighted/”operable areas”.

Forest Service Response: Refer to response to comment F-2 (Mike Vollmer, TRPA).

Comment #7: Please provide a table that specifies the waterbar spacing referred to in design feature 4 (March EA).

Forest Service Response: Water bar spacing can be found in the Timber Sale Administration Handbook (Forest Service Handbook 2409.15). This information is available online at http://www.fs.fed.us/im/directives/dughtml/fsh_1.html and is found in FS contracts.

Comment #8: Design feature #6 (March EA): please clarify that operable winter conditions will only involve small isolated areas of visible soil.

Forest Service Response: The clarification being requested is described in design features #45 and 53.

Comment #9: Design feature 9 (March EA): please include the clarifying language stating “no live trees larger than 14 inches d.b.h. will be removed if they contribute to the stability of the stream bank.

Forest Service Response: Design feature #11 is in place to recognize large woods role and ecological benefit within stream channels. Imposing a 14” dbh, limits the ability to implement design feature #12. Design feature #11 has been re-worded to further clarify its purpose.

Comment #10: Design feature 11 (March EA) – We are concerned that allowing heavy equipment to operate on top of slash mats on sensitive soils under wet conditions will 1) lead to organic matter being ground into the soil surface and may not be able to be removed, and 2) the slash mats will inhibit re-growth of natural vegetation after the operations are complete.

Forest Service Response: This design feature (EA, #13) is a protective measure that has been used successfully in past projects. The intent is to enable crossing areas of limited extent where soil moisture is too wet for normal operations but most of the area does have operable conditions.

Comment #11: We are concerned about adequate protection of unclassified water bodies. Please add a design feature that states “timber harvest and vegetation management activities shall be excluded from within the channel zone, except for use and maintenance of existing roads and crossings.”

Forest Service Response: Conservation of SEZs with regards to vegetation/fuels management activities are specifically covered under design features 9-30. For ephemeral streams, design feature #13 addresses crossings and is further clarified by adding “avoid equipment operations in ephemeral channels, except where crossings are needed.”

Comment #12: Design feature 13 and 18(a) (March EA) – please clarify whether “other water bodies” includes ephemeral streams.

Forest Service Response: Design features 16 and 21 do not apply to ephemeral channels. The phrase “other water bodies” is a reference to the 2004 Sierra Nevada Forest Plan Amendment, which addresses standards for vernal pools, marshes, lakes, and ponds. With the exception of Seneca Pond, the project area does not have any of these naturally occurring water bodies. The EA proposes to restore Seneca Pond to a wetland. The phrase “other water bodies” has been taken out of design feature #16.

Comment #13: Design feature #15 (March EA) - We are concerned that equipment operations within areas of whole-tree (WT) yarding will result in fine sediment transport to water bodies. The equipment exclusion buffers for soil cover >75% are not consistent with the Water Board’s timber waiver waterbody buffer zones. We request that buffer zone distances be increased, or that additional mitigation measures be developed to prevent and control erosion.

Forest Service Response: Refer to response to comment F-4 (Mike Vollmer, TRPA). The LTBMU has invested extensive time and effort into developing equipment exclusion buffers that allow the most effective hazardous fuel treatments possible while also protecting water quality and aquatic resources. These buffers are based on a combination of science (e.g. erosion hazard rating), rigorous monitoring (e.g. Heavenly SEZ demonstration project) and professional field- tested judgment (e.g. enlarging WT buffers when prescription based on erosion hazard rating did not appear adequately protective). The Forest Service intends to adapt our operations if project monitoring indicates that our prescribed equipment exclusion buffers do not provide adequate protection.

Comment #14: Design feature 18(c) (March EA) – Please modify this design feature to state that berms from ruts created by end-lining shall be raked in, and that following completion of treatments in each unit, 90% of the disturbed soils will be covered by materials such as slash, wood chips, or masticated material to a depth of 2 inches.

Forest Service Response: The LTBMU has described the conditions under which endlining might cause accelerated erosion and has specified design features in adequate detail (design features 8 and 21). Past projects have shown that ruts created by endlining would not result in accelerated erosion or sediment delivery to a water body. Design features # 8 and 21 describe raking in berms, buffers, monitoring, and application of soil cover (needs will vary by site). Endlining occurred within the Angora Hazard Tree Removal Project and the use of raking along with application of soil cover has been shown to be effective in preventing accelerated erosion.

Comment #15: Design features 33(a) and 42(a) (March EA) – We are concerned that excessively deep soil cover will inhibit vegetative recovery if it is extensive. We recommend that you modify this measure to call for an average of cover that is 2 inches thick, with allowance for occasional deeper pockets.

Forest Service Response: On temporary roads (36a) we are utilizing wood chips to prevent erosion. We expect that excessive cover at temporary roads is not an issue and we specify that cover is no more than 6 inches thick. At landings, wood chips are both disposal and surface erosion issues. In the instance that wood chips are needed for disposal at landings, design feature # 44c provides for the de-compaction and incorporation of chipped material. The process of chipping first and then de-compacting allows for higher rates of infiltration, restores organic debris to soil surfaces, and allows for organic decomposition in a shorter timeframe. This process is also intended to allow the sites to naturally re-vegetate.

Comment #16: Design features 29 and 30 (March EA) – Please modify these design features to state that stream crossing construction and removal will only occur when intermittent and perennial channels are dry, to the extent possible. If this is not possible, a temporary dewatering or flow diversion plan will be required. Also please require that all temporary crossings will be removed prior to October 15th (except for over-the-snow crossings).

Forest Service Response: Design features 32 and 33 (for intermittent and ephemeral channels) state that crossings would be constructed and removed when water is not flowing. De-watering or flow diversion will not be needed under these conditions. By definition perennial channels do not dry and are continually flowing. Therefore, these design features do not need modification. Grading season variances will be requested prior to October 15 and crossings would be removed prior to October 15 if a variance is not granted.

Comment #17: Design feature 43(c) (March EA) – This design feature needs to be clarified to provide more specificity to the site conditions and documentation procedures by which LTBMU personnel may modify the suitable conditions for over-the-snow operations.

Forest Service Response: The provision for “site specific conditions” has been removed. The intent of this design feature is to incorporate science and research that is currently in progress which may supply results during this project’s implementation.

Comment #18: Design feature 47 (March EA) – Please specify the mitigation measures and documentation procedures that would be implemented in order to allow for temporary stream crossings with inadequate snow or frozen soil conditions.

Forest Service Response: Site specific conditions are factored into the measures for which the contract administrator and watershed specialist approve equipment crossings. Each site will differ in its need for mitigation and this cannot be specified at this point. The outcome of prescribed crossing measures is described as not resulting in bank damage or water quality impairment or obstructed flows.

Comment #19: Design feature 48 (March EA) – Please provide an enforceable specification for depth and length of rock or organic material and be clear that the intent is to prevent the tracking of mud onto paved roads.

Forest Service Response: The depth and length of rock or organic material will be determined at each site specific location based on conditions. The outcome will reduce tracking of dirt or mud onto a paved road but will not prevent mud tracking. Where dirt or mud has been tracked on to a paved road it is commonly swept or moved back on to the road where it came from.

Comment #20: Design feature 49 (March EA)– Please specify that rutting is not to exceed 2 inches for more than 25 feet and that exceeding this amount will trigger corrective action such as road repair and stoppage of equipment use until remedied.

Forest Service Response: Please see the response to Comment #8 of Letter F.

Comment #21: Design feature 54 (March EA) – Please provide an enforceable specification for snow berm breaching that is related to road gradient and proximity to water courses/SEZs.

Forest Service Response: Spacing for snow berm breaching will be similar to spacing requirements for water bar construction and will generally be spaced at a minimum of 300 feet. The outcome is to space outlets so as to not concentrate flows during snowmelt. The design feature is modified to be clearer on its intent and application.

Comment #22: Many of the BMPs lack specificity and seem to allow for in-the-field decisions by LTBMU as to whether or not to apply BMPs. If this flexibility is deemed necessary by the Forest Service, you should provide additional requirements of LTBMU staff regarding documentation procedures at the time of the field evaluation and decision.

Forest Service Response: BMPs are Forest Service wide and applicable ones to this project are described in the EA. BMPs are modified by the proposed action and project design features. Procedures for documenting how and when design features/BMPs are applied are documented during contract administration in daily inspection reports.

Comment #23: We are concerned about the degree to which temporary roads needed for the project will be invisible on the landscape by post-project treatments.

Forest Service Response: See response to comment F-13. Temporary roads will be restored according to the specific methods described in design features #36 and 37.

Comment #24: We are concerned about the lack of disclosure about how roads in areas with very high rock content will be decommissioned. There is a lack of specificity about the analysis method and techniques that may be needed to decommission temporary roads to meet drainage and restoration objectives (i.e. amount of grading or earthwork, covering the disturbed roadbed with slash).

Forest Service Response: Methods for decommissioning roads and trails is described under the proposed action (EA, Section 2.3) under Roads and Trails. See response to comment F-13. Site specific decommissioning will be further described in construction documents during permitting. For temporary roads associated with Vegetation and Fuels management refer to response to comment #23.

Comment #25: The EA does not adequately disclose the source of the sod that will be used during the channel reconstruction work. Is there sufficient sod on-site? Please ensure that the EA addresses the impacts of sod harvesting.

Forest Service Response: Sod will be borrowed from various locations within the meadow and will be more specifically identified upon completion of channel design. Section 3.3.4, direct and indirect effects for Alternative 2 identifies the impacts of sod harvesting.

Comment #26: Design feature 60 (March EA) – Please remove the word “possible” from the last sentence. We recommend that stockpiles remaining after October 15th be winterized by covering them and placing coir logs at the base of the pile. Please specify that no material will be stored within 100-year floodplains or in SEZs.

Forest Service Response: Site specific locations that are appropriate to store materials such as fuel tanks, tools, stockpiled material, and other equipment will be determined directly with Lahontan during project permitting.

Comment #27: Unanchored large woody debris has the potential to become transported downstream after placement and result in unacceptable flow deflection and plugged culverts. The EA does not provide any design features to avoid or address these potential effects (i.e. anchoring criteria and methods).

Forest Service Response: Currently, there is large wood unanchored in Angora Creek functioning in desired capacities. Such large wood has fallen into Angora Creek naturally (unanchored). Large wood placement would occur along segments of Angora Creek in order to mimic natural wood function as aquatic habitat and in-channel roughness. This will allow wood to adjust in concert with the channel during periods of high flow and associated high bed load yields. Refer to section 3.3 Watershed and Hydrology direct and indirect effects discussion of large wood placement.

Comment Letter H – Susan Stevenson

Comment #1: The commenter generally supports the project, but does not want to see the burned forest disturbed and the dead trees removed simply for aesthetic reasons. The burned forest is recovering with considerable plant and bird species. The commenter supports the renewal of sugar pines and other conifer species.

Forest Service Response: We understand the commenters concern regarding disturbing vegetation that has grown since the fire. There is no defined need to remove the burned trees for aesthetic reasons. One of the overall purpose and needs for this project is to conserve live trees after thinning activities in order to increase the resiliency of the remaining live trees from insects, disease, and drought stress (chapter 1.5.1 of the EA). The EA (chapter 3) discloses the range of environmental effects, both beneficial and adverse, that are expected from the Proposed Action on vegetation

recovery. We understand that there will be short-term effects as the regrowth of grass, brush, and forbs are disturbed again. In the long term, this disturbance will allow for a more rapid restoration of coniferous forest habitat for wildlife species, and will also provide for long-term protection of the local community in the event of another wildfire. Past history including after the Angora Fire indicates that grasses, forbs, and brush will rapidly re-occupy the site and that the open conditions created by the fire and from the proposed action will not preclude vegetative recovery.

Comment Letter I – Chad Hanson, John Muir Project of the Earth Island Institute

Comment #1: The EA failed to adequately consider the current scientific information on California Spotted Owl, Black-backed Woodpeckers, and montane chaparral habitat. We disagree with the conclusions of the impact analyses for these species and their habitat.

Forest Service Response: The EA (Section 3.6 and the Biological Evaluation) documents an extensive review of the applicable scientific research on all relevant species. The commenter provided one scientific article in his submittal that is relevant to this project-level analysis. This article is titled *Toward Meaningful Snag-Management Guidelines for Postfire Salvage Logging in North American Conifer Forests*. The Forest Service has carefully reviewed this information. The author states that current snag management guidelines designed for green forest management are not appropriate to address avian species that are dependent upon post-fire habitat, particularly woodpeckers. The Proposed Action is consistent with this author's opinion. The Proposed Action does not simply apply snag management guidelines for green forests. The Proposed Action includes snag management strategies and associated design features that are responsive to the needs of species that are dependent upon snags, such as the Black-backed Woodpecker. The project will provide an extensive amount of untreated burned forest habitat. In addition, large areas of wildlife snag zones (approximately 140 acres) are left untreated within the areas proposed for removal of dead trees.

The Proposed Action provides for retention of untreated burned forest habitat with the restoration of coniferous ecosystems and long-term protection of communities and both current and future wildlife habitat. The snag guidelines are not snag guidelines for "green forest" management. The project adequately addresses habitat needs and the EA adequately discloses the effects on the dependent species.

The EA discloses both the pre-and post-project amounts of habitat for all categories of management indicator species (see EA, Table 3.6-24). Of particular note is the amount of "snags in burned forests", which provides a portion of habitat for the black-backed woodpecker.

The EA documents a thorough and rigorous analysis of the current and projected status of the Black-backed Woodpecker and its habitat (EA, pages 3.6-63-3.6-70).

The EA also adequately discloses the effects of the changes in various vegetation and associated habitat as these changes pertain to the range of species viability. The habitat analysis is considered within the project areas as well as including habitat in proximity of and adjacent to the project area to reflect a more comprehensive analysis approach (Section 3.6.4).

Comment #2: The Forest Service needs to prepare an EIS to address the potentially significant impacts to wildlife species (California Spotted Owl, Black-backed woodpecker, Fox sparrow).

Forest Service Response: Section 3.6.7 (Analytical Conclusions) of the EA states “Due to the effect of the fire on PACs and project activities occurring over multiple years, spotted owl and goshawk nesting displacement and prolonged changes in foraging behaviors resulting from Alternative 2 will not cause adverse effects to reproducing spotted owls and goshawks. More permanent occupancy of nesting pairs within the fire area may occur in the long-term as project activities move to restore upland and riparian vegetation structure. Fuels treatments incorporate retention of both standing and down wood in order to maintain habitat structure for early pioneer species such as BBWP. No adverse effects would occur to sensitive status wildlife species from Alternative 2.” The commenter does not provide any relevant additional scientific information that has not been considered in this analysis. The Sierra Nevada Forest Management Indicator Species Amendment Final Environmental Impact Statement (FEIS) does not identify fox sparrow as an MIS for the Lake Tahoe Basin Management Unit, therefore a population viability analysis was not required or prepared. The Decision Notice and Finding of No Significant Impact discloses the findings and foundation for the decision. Current data from the Sierra Nevada indicate that the population distribution for the fox sparrow is stable (USDA Forest Service, 2008 - Sierra Nevada Forests Bioregional Management Indicator Species (MIS) Report).

Comment #3: The Forest Service failed to analyze the alternatives we suggested in our scoping comments; hence, the EA fails to analyze a reasonable range of alternatives.

Forest Service Response: During public scoping of the proposed action the commenter provided 2 suggestions for alternatives. One suggestion was to consider an alternative (termed “restoration alternative”), which included the following components: conduct no salvage logging, do not remove trees with green foliage, delay forest management activities to account for “flushing”, remove no large trees over 20 inches in diameter, decommission and re-vegetate all roads, and do not construct or reconstruct new logging roads.

Conduct no salvage logging: One of the project purpose and needs is to reduce long term fuel loading and improve forest health in the project area through dead tree removal and live tree thinning. The purpose and need is not designed for salvage logging. The no action alternative describes effects of not removing dead trees or conducting live tree thinning.

Do not remove trees with green foliage: In areas where tree density and ladder fuels do not meet the purpose and need for forest health, and where conifer thinning is required for aspen and meadow restoration, live tree thinning would occur. The no action alternative describes the effects of not conducting live tree thinning.

Delay forest management activities to account for “flushing”: The Angora Fire occurred in June 2007. We assume the commenter equates “flushing” with “bud break.” (opening of buds and the appearances of leaves or needles, i.e. the greening of the crowns). Bud break has already occurred; therefore trees that currently have brown needles are not expected to green up.

Remove no large trees over 20 inches in diameter: In areas where tree density and ladder fuels do not meet the purpose and need for forest health, and aspen and meadow restoration, live tree thinning would occur. Not removing some trees over 20 inches in diameter will not meet purpose and need for reducing fuel loads and will not meet desired conditions for the Wildland Urban Interface Defense Zone. The analysis of residual fuel loadings if dead trees >16 inches were left (Project Record Document E20) revealed that fuel loadings would be 36 tons per acre (average) on ALL proposed treatment units which exceeds the desired conditions of between 10-15 tons per acre. The no action alternative describes effects of not removing dead trees or conducting live tree thinning.

Decommission and re-vegetate all roads, and do not construct or reconstruct new logging roads: NFS roads provide administrative access to the project area. Decommissioning all roads would not meet purpose and need of a sustainable transportation system that serves Forest Service administrative and recreational access needs.

In summary, we carefully considered the relationship between the suggested “restoration alternative” and Alternative 2. The determination was that the suggested “restoration alternative” did not entirely meet the purpose and need of the project. Specifically, those purpose and needs that state: 1. reduce the amount of dead and downed trees that resulted from the Angora Fire, 2. reduce the density of live trees in remaining conifer stands, 3. remove the live, dead, and dying conifers in two aspen stands approximately 6 acres in size in order to perpetuate and increase the vigor and health of aspen stands in the burned area, 4. improve the capacity of meadows to

recharge groundwater and trap sediment (via restoration in Gardner Mountain Meadow), and 5. provide a sustainable transportation system that serves Forest Service administrative needs.

Furthermore, we prescribe a variable retention of snags and downed wood by a) not conducting fuel removal activities within 1,168 acres of the project area and b) by delineating wildlife snag zones (220 acres) where fuels treatment prescriptions would range from no treatment (retain all snags) to retention of 40 snags per acre of the largest (greater than a 20-inch dbh) size class to retention of 15 snags per acre of the largest (greater than a 15-inch dbh) size class. Section 2.3.1 of the EA identifies the wood retention parameters for the wildlife snag zones, while Section's 3.6.3 and 3.6.4 disclosed the effects of Alternative 2 on wildlife species.

Another suggestion provided by the commenter was to consider an alternative, which comply with all provisions under the 2001 Sierra Nevada Forest Plan Amendment

The second alternative suggested by the commenter in their scoping comments was one "that fully complies with the 2001 Sierra Nevada Forest Plan Amendment (2001 Framework)." The commenter also implies that there is some legal requirement to do so. No such legal requirement exists. A November 4, 2009 Eastern District Court Ruling did not enjoin the use of the 2004 Framework as the guiding document. In fact the court stated, "...the 2004 Framework offers better long-term forest health, increased protection to species in the long run by improved forest management, reduced fire risk to people and communities, and economic benefits to stagnating forest industries in the form of increased treatment facilities." As detailed in the EA (Section 1.11.1) the project is consistent with the 1988 LTBMU Land and Resource Management Plan as amended by the 2004 Framework. There is no legal requirement to assess consistency with the 2001 Framework. An alternative was considered but not in detail which responds to your request from the 30-day comment period for analyzing retention of snags >15 inches (Section 2.1 of the EA). We ran the alternative at 16 inches as the alternative due to the fact that the FVS analysis already modeled calculations at this level.

The EA does explore a range of reasonable alternatives as described above and presented in Sec 2.2 Alternatives Considered in Detail and Section 2.1 Alternatives Not Considered in Detail. Included in the range of analysis are alternatives that were considered but not in detail. The rational for not including these alternative concepts is presented in the EA (Section 2.1).

Comment #4: The range of alternatives fails to include an alternative that does not involve the removal and sale of commercial products, thereby not complying with the recent ruling by the *Federal District Court for the Eastern District of California*.

Forest Service Response: As disclosed in the EA (EA, Section 1.11.6), the proposed action is not a commercial alternative, in that it does not depend upon the sale of any commercial products to be feasible and to meet the purpose and need. Therefore, the Proposed Action is consistent with the referenced federal court ruling.

The EA is consistent with land management directives found in the 2004 SNFPA which amended the 1988 LTBMU Forest Land and Resource Management Plan. In addition the EA is consistent with the recent ruling by the Federal District Court for the Eastern District of California (EA section 1.11.6).

Comment #5: The Forest Service did not post project specialist reports on their website or on the CDs that were mailed to the public. This constitutes a violation of NEPA.

Forest Service Response: It is not a requirement of NEPA to post project specialist reports on our website or on the CDs that were mailed. According to 36 CFR 215.5 (x), the legal notice of opportunity to comment must contain “Instructions on how to obtain additional information on the proposed action.” The scoping letter, legal notice, and the cover letter for the distribution of the EA during the comment period clearly state that all information is available upon request.

Comment #6: We disagree with the conclusions from the analysis regarding impacts to the California Spotted Owl. The analysis does not accurately reflect the current scientific information.

Forest Service Response: The EA provides a thorough analysis of the impacts to California Spotted Owl (EA, Section 3.6), which is based upon appropriate and relevant scientific information. The Project Record contains a list of current and relevant science that was used to help determine the level of effects to California spotted owl. The commenter does not provide any additional scientific information that is relevant for consideration. The project BE/BA and MIS report provides a full accounting of the analysis and the scientific information that was considered.

Comment #7: We disagree with the conclusions from the analysis regarding impacts to the Black-backed Woodpecker. The analysis does not accurately reflect nor provide proper citations to the current scientific information.

Forest Service Response: Alternative 2 provides for retention of untreated burned forest habitat with the restoration of coniferous ecosystems and long-term protection of communities and both current and future wildlife habitat. The snag guidelines are not snag guidelines for “green forest” management. The project adequately addresses habitat needs and the EA adequately discloses the effects on the dependent species.

The EA discloses the both the pre-and post-project amounts of habitat for all categories of management indicator species (see EA, Table 3.6-24). Of particular note is the amount of “snags in burned forests”, which provides a portion of habitat for the black-backed woodpecker.

The EA documents a thorough and rigorous analysis of the current and projected status of the Black-backed Woodpecker and its habitat (EA, pages 3.6-63-3.6-70).

The EA also adequately discloses the effects of the changes in various vegetation and associated habitat as these changes pertain to the range of species viability. The habitat analysis is considered within the project areas as well as including habitat in proximity of and adjacent to the project area to reflect a more comprehensive analysis approach (Section 3.6.4).

Comment #8: The EA does not provide sufficient analysis to support the conclusion that the Black-backed Woodpecker population is stable.

Forest Service Response: The EA provides an analysis of the short-term and long-term effects to the Black-Backed Woodpecker (Section 3.6.4). Detailed information on habitat conditions at the Sierra Nevada bioregional scale can be found in the SNF bioregional MIS report (Project Record Document E67). These data include snags in both green forest and burned forest. 211,000 acres were severely burned in the Sierra Nevada between 2000 and 2007. The black-backed woodpecker has been monitored in the Sierra Nevada at various sample locations by avian point counts, spot mapping, mist-netting, and breeding bird survey protocols. Monitoring data indicate that black-backed woodpecker continue to be distributed across the Sierra Nevada; current data at the range-wide, California, and Sierra Nevada scales indicate that the distribution of black-backed woodpecker populations in the Sierra Nevada is stable.

Comment #9: The Forest Service must prepare a population viability analysis for the Black-backed Woodpecker that addresses the full Sierra Nevada planning area. The conclusions in the EA are inadequate based on this lack of a regional viability analysis.

Forest Service Response: This request is beyond the scope of this analysis. As stated in Comment #8, MIS are monitored at the Sierra Nevada bioregional scale. Information gathered at the bioregional scale is ongoing, will continue over multiple years and will support conclusions made about species status and trends.

Comment #10: The EA does not adequately analyze the effects of the project on montane chaparral habitat and the associated effects on the Fox sparrow. The amount of montane chaparral habitat has diminished in the Sierra Nevada as a result of fire suppression and establishment of conifer plantations after salvage logging. The Forest Service must prepare a population viability analysis that ensures population viability throughout the Sierra Nevada planning area.

Forest Service Response: The appropriate management indicator species (EA Table 3.6-23) have been evaluated. The proposed reforestation is in areas that were (prior to the Angora Fire) well-stocked mature coniferous forests, not montane chaparral habitat. Tables 9 and 10 of the BE/BA and (Tables 3.6-6 and 3.6-7 of the EA) disclose the current amount of montane chaparral habitat in both the treated and untreated portions of the project area and discloses that the amount of montane chaparral (MCP) habitat is expected to increase during the next 20 years as vegetation recovers, primarily in the untreated stands. The EA adequately discloses analyses for the habitat and population status and trend for the appropriate management indicator species. The preparation of a population status and trend analysis that encompasses the entire Sierra Nevada planning area is currently on-going as part of the Regional Bio Monitoring strategy for MIS identified for each Sierra Nevada Forest. Current data from the Sierra Nevada indicate that the population distribution for the fox sparrow is stable. The Sierra Nevada Forest Management Indicator Species Amendment Final Environmental Impact Statement (FEIS) does not identify fox sparrow as an MIS for the Lake Tahoe Basin Management Unit, therefore a population viability analysis was not required or prepared.

Comment Letter J – Kevin Bundy, Center for Biologic Diversity

Comment #1: The EA fails to adequately disclose the impacts of the project's greenhouse gas emissions on climate change.

Forest Service Response: Chapter 3.11 of the EA addresses greenhouse gases (GHG's). Chapter 3.11 reviews the role of GHG's in causing climate change, related concepts influencing GHG production and climate change, identifies sources of carbon release from Alternative 2 and discloses direct, indirect and cumulative effects from implementing project activities.

Comment #2: The EA does not address the impacts of the project on carbon sequestration.

Forest Service Response: Chapter 3.11 of the final EA addresses aspects of this and related projects where carbon sequestration would occur and/or be enhanced over time (i.e. reforestation of conifers and increasing the amount of riparian vegetation). Chapter 3.11 of the EA also discloses where CO₂ would continue to be “leaked” into the atmosphere from other sources and directly by continued fossil fuel burning.

Comment #3: The EA does not provide adequate analysis or evidence to support its conclusions regarding the project’s impacts to climate change from greenhouse gas emissions.

Forest Service Response: Chapter 3.11 of the EA includes an analysis of CO₂ that would potentially be produced from burning natural hazardous fuels (as biomass) versus natural gas to produce electricity. The EA also acknowledges that further carbon releases occur from the process of dead wood decay. Section 3.11.4 of the EA states “GHG emissions and carbon sequestration effects from individual fuel/veg projects in Region 5 are not significant issues that merit detailed quantification in NEPA documents.” This is due to such quantifications not being available or known.

Comment #4: The EA fails to disclose the potential impacts associated with the sale and disposal of biomass for either fuelwood or energy generation (including noise, air quality, greenhouse gasses/carbon emissions, and traffic).

Forest Service Response: Chapter 3.11 includes a disclosure of the amount of potential CO₂ from biomass production based on the acres of treatment, amount of natural wood material removed and the percentage of such material burned at a plant. The EA also discloses that there would be temporary release of CO₂ from equipment operations and hauling of biomass and trees. Chapter 3.8 discloses effects to air quality from project activities.

Comment #5: The EA does not analyze a reasonable range of alternatives, by characterizing the project as a noncommercial alternative, rather than evaluating it as likely to utilize commercial sale of biomass, fuelwood, and other wood fiber products.

Forest Service Response: On November 4, 2009 Judge Morrison C. England issued a Memorandum and Order requiring that fuels projects that are under the 2004 Sierra Nevada Forest Plan Amendment and were not approved prior to November 4, 2009 must include a detailed consideration of a noncommercial funding alternative. The

Angora Restoration Project is compliant with this order because the proposed action represents a noncommercial funding alternative as described in the Court Order. Implementation of the proposed action is not based, nor does it depend on, the commercial sale of wood fiber (e.g., saw timber, fuelwood, and/or biomass). The prescriptions for dead tree removal and thinning are based solely on fuels and forest health objectives as described in Chapter 2 of the EA and not on any value in the products removed. It is not an objective of the Angora Restoration Project to generate revenue (see EA, Section 1.5, Purpose and Need for Action).