APPENDIX B

Standard Management Requirements (SMRs) and Resource Protection Measures (RPMs)
For the Middlin Project Proposed Action and Action Alternatives

Concern/SMR #	**Task**	**Responsible Person(s)**	**Due Date**
Soils/Fish/ Hydrology (1)	**Implement Best Management Practices (BMPs):** These practices are required to meet the regional policy and to be consistent with the provisions of the 1981 Management Agency Agreement between the State Water Resource Control Board (SWRCB) and the Forest Service as the designated Water Quality Management Agency (WQMA) on National Forest Service Lands**. See SMR 20 for special provisions for the Lahontan WQCB jurisdiction.** Site-specific BMPs and management requirements, unit layout, careful implementation and monitoring of BMP implementation are the primary means of minimizing impact in this project area. Some of the BMPs in this list are applied during the preliminary project design stage and therefore are not referenced directly in the SMRs below. 1.1 timber sale planning process 1.2 timber harvest unit design 1.3 erosion hazard for timber harvest unit design 1.4 designated protection areas on sale area maps 1.5 limited the operating period of timber sale activities 1.6 protecting unstable lands. 1.8 streamside management zone designation 1.9 tractor-loggable ground 1.10 tractor skidding design 1.12 log landing location 1.13 timber sale erosion prevention and control measures 1.14 special erosion –prevention-disturbed lands 1.16 log landing erosion control 1.17 erosion control on skid trails 1.18 meadow protection during timber harvesting 1.19 stream course and aquatic protection 1.20 erosion control structure maintenance 1.21 accepting erosion control measures 1.22 slash treatment (prescribed burn) 1.24 special "C" provision 2.1 travel management planning and analysis 2.2 general guidelines for the location and design of roads 2.3 road construction and reconstruction 2.4 road maintenance and operations 2.5 water source development and utilization 2.6 road storage 2.7 road decommissioning 2.8 stream crossings 2.9 snow removal and storage 2.10 parking and staging areas 2.11 equipment refueling and servicing 2.12 aggregate borrow areas 2.13 erosion control plans (roads and other activities) 5.1 soil disturbing treatments on the contour 5.2, 5.3, 5.6 limitations on tractor operations 5.4 revegetation of surface disturbed areas	Planner, Contracting Officer,	Proposed Actions, Contract Development, Implementation

Concern/SMR #	**Task**	**Responsible Person(s)**	**Due Date**
	5.7 pesticide use planning process 5.8 pesticide application according to label directions and applicable legal requirements 5.9 pesticide application monitoring and evaluation 5.10 pesticide spill contingency planning 5.11 cleaning and disposing of pesticide containers and equipment 5.12 streamside and wet area protection during pesticide application 6.2 water quality and formulating fire prescriptions 6.3 prescribed burning and protection of water quality 7.1 watershed restoration 7.3 protection of wetlands 7.4 Forest and Hazardous Substance Spill Prevention Control and Countermeasure (SPCC) Plan 7.8 cumulative off-site watershed effects		
Soils / Fish / Hydrology / Sensitive Plants / Wildlife / Cultural (2)	**Implement Contract Clauses:** The following Contract Provisions will be included in the project Timber Sale Contracts, with corresponding contract provisions in Service Contracts, to protect potentially affected resources. B6.24 – *Protection Measures Needed for Plants, Animals, Cultural Resources, and Cave Resources.* C6.24# - *Site Specific Special Protection Measures* Any archaeological sites not evaluated prior to logging will be considered as being eligible for the National Register and will be protected. *C6.313# - Limited Operating Period* If management objectives cannot be met by implementing the limited operating periods (LOPs), a qualified biologist will be consulted to determine more specific areas and kinds of activities that may be pursued. The biologist may recommend removing the limited operating seasons if sufficient information is provided by additional surveys or new information. If new TES animal or plant species are listed or discovered, or nesting TES species are found within 0.25 miles of project activities, a limited operating period appropriate for the species will be implemented based on the recommendation by a qualified wildlife biologist. *C6.341 – Prevention of Oil Spills* *C6.35 – Cleaning of Equipment* Purchaser shall ensure that all equipment that has operated off roads in areas infested with noxious / invasive-exotic weeds, that is being moved onto National Forest Land is free of soil, weeds, seeds, vegetative matter or other debris that could hold or contain seeds. (see TNF Weed S&G booklet). Clean equipment that is operating off roads before it moves from an infested area within the project to another area (within or outside the project). *C6.41# – Felling, Bucking and Limbing.* Treat fresh cut conifer stumps ≥ 14 inches with borax to restrict the spread of Annosus root disease caused by the fungus *Heterobasidion annosum*.	Prep Officer, TSA, Hydrologist, Soil Scientist, Botanist, Fisheries Biologist, Wildlife Biologist	During Contract Prep, Logging, and Fuels Management Operations

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	C6.4200# Ground Based Skidding & C6.315# Sale Operations Schedule Unless otherwise agreed in writing, skid road pattern shall be agreed in advance of felling and main skid roads shall be flagged on the ground in advance of felling. For landings that service more than 15 acres of harvest, Purchaser shall stage-log by felling, skidding and removing of included timber in two or more separate operations to limit landing size. Road decommissioning would include actions to reduce compaction as needed, dispersing water flows with waterbar or drainage placement, and providing cover with mulch (preferably with materials from the surrounding setting). Needed main skid trails shall be constructed in advance of skidding. Main skid roads will be spaced no less than 75 feet apart, except when converging, to minimize soil compaction. Additional skid trails may be agreed upon when soil conditions permit as described below. Harvesting operations will be confined to designated main skid roads until soil conditions are dry. Dry soil is defined as soil when sampled from a specified depth below the surface and placed in the hand and squeezed, the hand shows no significant moisture stains. When soil is dry, Purchaser may use additional skid trails agreed upon by Forest Service and Purchaser. Specific harvesting equipment restrictions relating to dry soil are as follows: 1) Equipment rated as low-ground-pressure, which is defined as equipment applying an average ground pressure of 8.0 or less pounds per square inch design load, is restricted to main skid roads until the soil is dry to a depth of 4 inches. 2) Equipment rated as high-ground-pressure equipment which is defined as equipment applying an average ground pressure of 8.0 or greater pounds per square inch design load, is restricted to main skid roads until the soil is dry to a depth of 10 inches and while minimizing damage to residual trees. 3) The operation of tracked equipment within stream and meadow RHCAs shall only be allowed when soils are dry to 10 inches. Exceptions will be allowed in specific locations, in which the hydrologist or soil scientist determine that equipment access when soils are dry to less than 10 inches would not cause resource damage. *C6.424 – Arches and Dozer Blades* Restricts the use of dozer blades and the use of pull type arches, in stands of residual timber on other than constructed tractor roads or landings. Variance of this restriction is accomplished by written agreement with the purchaser that residual timber will not be materially damaged by such use. *C6.5 – Streamcourse Protection (as determined by the Interdisciplinary Team (IDT))* This provision describes the normal precautions and treatment needed to protect streamcourses from damage due to purchaser's operations. Stream courses and their respective protection limits are shown on the sale area map and/or reflagged on the ground.		

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	C6.6 – Erosion Prevention and Control *C6.602 – Special Erosion Prevention Measures* On designated areas, implement contract provision for mulching of skid trails using slash, rice straw or wood chips, whichever is available. Mulch will be used on skid trails located on soils with a very high EHR and on skid trail crossing in RHCAs (designated skid trails and ephemeral and intermittent stream crossings) and on endline drag channels that exceed 4 inches depth on greater than 5% slopes in RHCAs and 10% slopes on adjacent uplands where endlining is required. This requirement may be modified after an on-site inspection by the District soil scientist or hydrologist. If slash is used for mulch, the Fuels Officer will be involved prior to and during implementation. *C6.6060 – Tillage of Temporary Landings.* Temporary landings will be tilled in accordance with contract provisions C6.6060. *C6.607# – Tillage of Main Skid Roads and Tractor Roads* *Skid Trail and Landing Rehabilitation*. Deep tilling (subsoil with a winged subsoiler) of landings and the first 100 feet from the landing's primary skid trails. Subsoiling other skid trails in highly compacted areas will be evaluated on a site by site basis. The need for the tilling of skid trails would be reviewed by a soil scientist or hydrologist, and the sale administrator, and would be restricted to areas on slopes less than 25%, where residual trees would not be excessively damaged (root tearing leaving areas open to disease) and on those trails that do not contain excessive rocks unless otherwise agreed with the watershed specialist. *C6.608# – Tillage of Temporary Road*. In addition to meeting the requirements of B6.63 and B6.631, all temporary roads used by the Purchaser shall be tilled, unless otherwise agreed in writing. *B6.65 – Skid Trails and Firelines.* Waterbars to be spaced according to soil EHR. *B6.67 – Erosion Control Structure Maintenance* To maintain waterbars, waterbar outlets that do not exit on naturally vegetated ground or on ground with enough organic material (such as mulch or slash) or rocks to disperse flows will have outlets armored. *C5.31# - Road Maintenance T-Specifications* *B6.61 – Meadow Protection* The objective of this provision is to protect the integrity of meadows and their sensitive soil conditions. Provision is made for agreement on specific techniques to achieve the protection objective. BMP-1-18.		
Soils / Hydrology (3)	**Emphasis for Riparian Habitat Conservation Area (RHCA) Protection:** Contract administrators and operators will be educated on the importance of minimizing impact while working within the RHCA. Units in RHCAs having known areas with restricted operations regarding sensitive sites will be identified for review	Prep Officer, TSA, COR Hydrologist, Soil Scientist	During Contract Prep, Logging, and Fuels Management Operations

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	with contract administrators and operators. Contract maps will be reviewed prior to bid to ensure sensitive areas are adequately represented on the map or on the ground. BMP 1-1, 1-4, 1-9, 1-18 and 1-19.		
Soils / Hydrology (4)	**Equipment Operations (Ground skidding (GSE), tractor and grapple piling equipment, and mastication):** Equipment will minimize turning that results in ground disturbance. Upland Ground skidding equipment or tractors will be used on slopes no greater than 30% with short pitches up to 200 feet on up to 35% slope. Short pitches over 35% slope may be agreed to on a site-specific basis, after appropriate interdisciplinary review. All skid trails over 30% will be mulched. RHCAs Within RHCAs, all equipment operations should be limited to slopes ≤ 20% if the slope is directly above, and runs continuously down to a stream channel. If the slope is > 20%, but does not slope directly into the creek, the 30% rule with no short pitches to 35% as stated in the previous paragraph should be followed. Do not track up and down drainage pathways and minimize all equipment movement through swales. When equipment is operating inside RHCAs, minimize ground disturbance with short perpendicular entries into the RHCA. Backblade any berms created by equipment that could concentrate water. Within RHCAs all bare ground resulting from equipment operations will be mulched. Soils All equipment operations will not operate over soils such as Aquoll Boroll soils or Cryumbrepts-wet. For units with existing compacted soils nearing threshold, site assessment will be conducted to determine if additional areas are appropriate for sub-soiling to reduce compactions. This applies to Unit 6604016, and is a standard management requirement beyond the contract clauses. BMP 1-9, 1-10,1-13, 1-17,1-19, 5-2, 5-3, 5-6.	Prep Officer, COR , TSA & Soil Scientist	Project Design, Unit layout, Contract Prep, and During Logging and Fuels Management Operations
Soils / Hydrology (5)	**Tractor Piling:** No tractor piling will occur in the RHCA except at pre-designated landings. BMP 1-9, 1-10,1-13, 1-17, 1-19, 5-2, 5-3, 5-6.	Prep Officer, COR , TSA & Soil Scientist	During Sale, Design, Prep, Logging Fuels Management Operations
Soils / Hydrology, Noxious Weeds (6)	**Mulch and Ground Cover Sources:** Where mulch is needed for ground cover and slash or wood chips are not available, certified weed free straw or rice straw will be used. Gravel Sources: Utilize road surface gravel from weed free sources. Pre-inspect gravel sources for the presence/absence of noxious weeds prior to utilization of gravel from those sources.	TSA, COR , & Soil Scientist, Botanist	During & Post Thinning and Road work.
Soils / Hydrology (7)	**Benched logging systems:** Avoid benched skid trails, landings, and temporary roads. No benched temporary roads or landing needs were identified during the IDT process. If, during operations a need for a bench system is identified, then appropriate specialists will be consulted and the necessary mitigations will be implemented. BMP 1-1, 1-12, 2-6, 7-1, 7-8, 5-2, 5-3, 5-6.	Prep Officer & TSA, COR.	During Layout & Logging

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Soils / Hydrology (8)	**Skid trails:** • Keep skid trail grades as gentle as possible, avoid straight up and down the slope skidding over distances greater than 200 feet. • Temporary ephemeral stream crossings for skid trials will use brush mats, dips, or corduroy. • Crossing materials will be removed as soon as possible following the treatment within the units, and will be implemented by October 15 of that year. • All crossing materials on seasonal channels that consist of additional fill will be removed immediately after use when operating after October 15 of that year. Skid trails in RHCAs: Main skid trails will be located outside of the RHCA, wherever possible. Avoid locating skid trails parallel to streams when working within RHCAs. Do not track up and down drainage pathways and minimize all equipment movement through swales. Avoid locating skid trail parallel to streams when working within RHCAs (RHCAs extend beyond the TKOs as described in the HFQLGFRA ROD). BMP 1-2, 1-9, 1-10,1-13, 1-16, 1-18, 1-21, 5-2, 5-3, 5-6.	Soil Scientist, Hydrologist, and TSA, COR .	During Logging, Fuels Management Operations
Soils / Hydrology 9)	**Tractor and Mechanical equipment Keep Out (TKO) requirements, All Mechanical Operations:** Do not operate equipment in seasonal wet areas, unless dryness is approved for operation by a soils scientist or hydrologist only after it is determined to meet the dryness criteria under *C6.4200* (Specific harvesting equipment restrictions #3) (SMR 2). See **Attachment 1** of this document regarding soil moisture and equipment operability. • RHCAs Within the RHCA adjacent to perennial streams and special hydrologic features, a variable TKO will be provided based on hydrologic features and under consultation with the District aquatics biologist/ hydrologist/soil scientist during unit layout and contract administration. • Seasonal drainages not having features that require increased TKO will implement a 25 foot TKO. Widths will increase along incised channels and where the slope to the channel increases. • Fens, springs and streams with riparian vegetation a minimum 25 foot TKO from riparian vegetation will be maintained. The TKO will be increased where hydrologic features merge or drainage become complex. Tractor operations will be excluded from the meadows according to the TKO identified in the field. Fens and springs in in Units 6354112 and 6604016 will be marked with a 25 foot flag and avoid TKO to prevent tractors from operating within 25 feet. The TKO will be flagged on the ground based on hydrologic features as prescribed above. BMP 1-2, 1-9, 1-10,1-13, 1-16,1-17, 1-19, 5-2, 5-3, 5-6.	Soil Scientist, Hydrologist, Aquatics Biologist, and TSA, COR .	During Layout, Logging, and Fuels Management Operations
Soils/ Hydrology (10)	**Seasonal wet areas, meadows and springs:** Do not operate equipment in seasonal wet areas, unless dryness is approved for operation by a soils scientist or hydrologist only	Wildlife Bio, Hydrologist, Soil Scientist,	Project Design, Unit layout, Contract Prep,

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	after it is determined to meet the dryness criteria under SMR 2 *C6.4200* (Specific harvesting equipment restrictions #3). Equipment will only operate on dry soils as defined by the LWQCB. See attachment A of this document. BMP 1-2, 1-9, 1-10,1-13, 1-16,1-18, 1-19, 5-2, 5-3, 5-6.	TSA or COR.	and During logging and Fuels Management Operations
Hydrology/Aquatic Biology (11)	**Special Marking Prescriptions in RHCAs** **Fish bearing perennial streams:** In treatment units bordering fish bearing perennial streams, a special marking prescription will be implemented from the streambank to 100 feet within the treatment unit. In this area, leave trees will be designated at a closer spacing and components of variable spacing will be applied for larger trees. Along well-defined seasonal drainages, spacing may be variable; however, overall spacing will be decreased from upland treatment. **Group Selection**: No groups will be placed in RHCAs (see SMR 4).	Soil Scientist, Hydrologist, Botanist and TSA	During Layout and Logging
Soils / Botany/Hydrology (12)	**Utilize existing landings where possible:** Needed landings were identified during the IDT planning process. In cases where the TSA needs to consider an additional landing or location within an RHCA consult with the hydrologist and other resources prior to implementation. Locate all new landings off of main public travel corridors. No new landings will be located within an RHCA unless deemed necessary by the interdisciplinary team; when feasible preferably choose landings outside of the RHCA. All landings in RHCA will be subsoiled and mulched unless a hydrologist/soils scientist determines it is not necessary. If construction or relocation of a landing within an RHCA appears to be necessary, consult with the appropriate resource specialist to ensure potential impacts are mitigated. BMP 1-2, 1-9, 1-10,1-12, 1-13, 1-16, 1-19, 2-2, 2-7,7-8.	Soil Scientist, Hydrologist, Fisheries Bio, and TSA	During Logging and Fuels Management Operations
Soils / Hydrology (13)	**Landing locations** shall be carefully planned to minimize the number needed, and will consider site-specific factors such as topography, watershed and other resource protection concerns, and contract operational needs. Where site-specific resource protection concerns are not otherwise limiting, the number of landings should not exceed 1 landing per 30 acres. To minimize the number of landings, utilize roads for skidding unless site conditions rule this out due to possible safety or resource protection concerns. Needed landings were identified during the IDT process. In cases where the TSA needs to consider an additional landing or location within an RHCA consult with the hydrologist and other resources prior to implementation. In Unit 6454003, do not use the landing on FS System Road 0089-065-10 where the intermittent stream crosses the road. Use the landing located to the east, but after removing the berm that is causing water in the channel to flow across the landing, and replacing it with a new properly designed berm prior to skidding. Avoid using the southern portion of the eastern landing where a drainage initiates. Existing landings outside of RHCA would be preferentially used.	Prep Officer, Soil Scientist, Hydrologist, Fuels Officer, & TSA	During Project Design, Contract Prep, Logging, and Fuels Management Operations

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	BMP 1-2, 1-9, 1-10,1-12, 1-13, 1-16, 1-18, 1-19, 2-2, 2-7,7-8.		
Soils / Hydrology (14)	**Road Management:** Coordination with O&M Roads Manager Before pulling equipment from the sale area, the SA will coordinate a review period with the Operations and Maintenance Roads Manager to ensure road features (drainage, surface, etc.) achieve road management objectives. Road Dust Abatement Water and road palliatives (magnesium chloride) will be used on major transportation routes for dust abatement. Water will be preferred except on roads where distance limits practical application of water. Magnesium chloride may be used as a dust palliative. Due to the length of road to be maintained the timber sale will appraise for the use of magnesium chloride to aid with dust abatement on Sierra County 860 road. Application will be in accordance to T Spec 806. Magnesium chloride cannot be applied within a 25-foot buffer from any flowing water; this includes culverts or bridges that are currently flowing water. Permanent Roads • Erosion control for road drainage will be provided as needed. • Maintain an out-sloped road surface wherever possible. • Provide drainage improvements where needed. • Utilize drivable dips and out sloped road surfaces where feasible. • Avoid disturbing cut and fill slopes as much as practicable. • Where culverts need to be replaced due to damage during operations, ensure that the culverts are placed at grade, provide for aquatic passage, and ensure road fill placed over a culvert segment is minimized (coordinated with the Roads Manager). • Road maintenance (grading and surfacing) shall not cause interruption hydrologic connectivity of the existing drainage network (maintain all existing drainages). • Follow water source SMR 15 Ephemeral Stream Crossings on temporary roads Crossings will be designed to provide measures to pass flows, and may include extra protection measures, such as gravel, culverts or drainage controls when needed. Typically, the flow volume through these crossings is low and there is a low risk of significant precipitation during the operating period. Wet weather clauses are included to limit operations in inclement weather, when soils deform or compact, and road rutting and deformation become significant. Temporary crossings will be removed the same season they are installed, and removal will occur no later than October 15th of the season of installation. • Temporary roads crossing ephemeral drainages will be designed to pass flow using drainage dips, waterbars or culverts when needed. Removal of temporary roads on ephemeral drainages will include re-establishing drainage passage, mulching, and pulling outside berms to restore	Prep Officer, Soil Scientist / Hydrologist, TSA, Operations and Maintenance, Roads Manager, culturist	Prior, During, & Post Logging and Fuels Management Operations

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	overland flows. See "Temporary Roads" below for more design elements regarding ephemeral crossings. <u>Traffic Control During Wet Periods</u> Hauling on all roads would be restricted to the dry season when roads are stable. No Winter Hauling will be conducted, although some operations may continue past 10/15 to 11/30 if conditions permit as determined by the soil scientist/hydrologist and harvesting systems specialist. Hauling on all roads would be restricted to the dry season when roads are stable, or as per the 9/95 Wet Weather/Winter Hauling/Logging Guidelines if that option is implemented. (O&M Engineer - During Administration of the Sale) **Temporary Roads (including previously-tilled temporarily used roads):** • Temporary road design and location will follow the following principles: Temporary roads will follow previously-used road beds where available and appropriately located. • Use rolling dips and an out-sloped road template. • Only roads identified in the NEPA process will be reused. If additional roads are necessary, the district hydrologist will be notified and appropriate documentation and remedial action will be incorporated. • If it is determined that additional crossings are needed on temporary roads, they must be approved by the interdisciplinary team. • Limit the amount of temporary road construction by maximizing the skidding distance. • Minimize the length and width of the roads. Avoid unstable areas where there is potential for mass soil erosion. • During implementation of the proposed action or action alternatives, if vehicles stir up fines in dry streambeds or where needed for support during project activities, additional clean 1"+ gravel will be added to the crossing surface. • Excess materials would be removed after use. • Decommission all temporary roads. Temporary roads will be decommissioned by: appropriately draining the road, pulling berms and re-establishing the natural contour in necessary areas. Particular attention will be paid to roads within the RHCA or when crossing drainages. • Where needed, mulch will be applied to control erosion. • Subsoil temporary roads where determined to be necessary after review by a soils scientist or hydrologist. • Decommissioned temporary roads in RHCAs will be mulched to control erosion. BMP 1-2,1-19, 2-7, 2-14, 2-16, 2-19, 2-21, 2-22, 2-23, 2-26.		
Hydrology/Aquatic Biology (15)	**Water source** • Use an approved water source for obtaining water. Water drafting sites in the project area will be established on permanently flowing streams that have sufficient flow to avoid depletion of pool habitat. • • Where streams are the sole water source, drafting would	Prep Officer, Soil Scientist, TSA, Operations and Maintenance Roads Manager, &	Prior, During, & Post Logging, and Fuels Management Operations

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	be allowed until stream flows reach 2 cfs. Below 2cfs, drafting would only be allowed in previously developed off-site water impoundments and according to guidelines as outlined in the Tahoe National Forest Land and Resource Management Plan (TNFLRMP). • Install screens on water intake lines to prevent entrainment of biota. • Do not overfill tanks when collecting water as this can lead to increased sedimentation to the stream channel. • Do not back water trucks beyond the established access developed to access the water source. • If use of water source creates sediment movement on access route. Apply clean crushed gravel or other means to control sediment, and maintain water quality. BMP 1-19, 2-21, 2-22, 2-23, 2-24, 2-26.	culturist	
Application of Sporax ® (16)	**Applications of Sporax®** will follow all State and Federal rules and regulations, including product label requirements as they apply to pesticides and BMPs for pesticide use: • Sporax will not be applied to within 25 feet of surface water. • Sporax will be applied to all conifer stumps within 4 hours of felling. • Sporax will not be applied during periods of sustained rain. Prior to the Decision being signed, a Pesticide Use Proposal (FS-2100-2) for the application of Sporax needs to be completed and approved, and be present in the Project File and Contract. In addition, the Project File and Contract should include a spill plan tiered to the Forest Spill Plan. BMP 5-7, 5-8, 5-9, 5-10, 5-11, 5-12.	Contract Prep Officer, Sale Administrator	Prior to Contract Advertisement During Logging
Soils / Hydrology, (Fuels Management) (17)	**Ground cover requirements for all activities:** To protect against accelerated erosion and hydrophobicity, to maintain long-term soil productivity, and protect sensitive plants, the following guidelines should be applied during the planning and implementation of fuels treatments and timber management. **Downed Large Wood Requirements** Where grapple piling is proposed, consider maintaining some downed wood retention. Retain some large downed wood while meeting fuels objectives (small areas of heavier concentrations that are not continuous on the landscape) to compensate for areas that do not meet downed wood requirements across the greater landscape. Provide for downed wood retention of 3 large wood pieces (10' length and 20"dbh, where unavailable 12" dbh will suffice) per acre. In areas not meeting downed wood requirements, incorporate burn prescription measures and contract requirements to maintain existing downed logs (preference to spring burn prescription). Where tree mortality occurs following underburning and pile burning activities, and where tree mortality and site condition exceeds 3 snags per acre, consider falling selected snags to achieve the downed large wood requirements. Ground Cover - Monitoring	Soil Scientist, Fish Biologist, Hydrologist & Fuels Officer& Prep Officer/TSA	Logging, Post Logging, and Fuels Management Operations

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	The following are used as a general guide that will be practically implemented and assessed using random implementation monitoring and focused monitoring of areas of concern, through the BMPEP monitoring program. If the minimum effective soil cover requirements are not being met (i.e. ground cover requirements are not shown to be effective in controlling erosion) management practices should be reviewed and adjusted as needed to achieve soil cover objectives, and mitigation measures such as mulching will be implemented as needed to reduce soil erosion. <u>Ground Cover Requirements Within the RHCAs</u> Mulching will occur over bare ground created by management activities within the RHCA with particular attention paid near the hydrologic feature. Upland areas of the RHCA will meet the General Ground Cover requirements within the RHCAs. • On soils with low to moderate erosion hazard ratings (0-25% slope), maintain 60% ground cover. • On soils with very high erosion hazard ratings (greater than 25% slope), maintain 70% ground cover. • In near stream zones for perennial streams and intermittent streams or seasonally wet areas with riparian and meadow features, approximately 70% ground cover will be required. Large patches of bare ground will be mulched. <u>General Ground Cover Requirements Outside of RHCAs</u> • On soils with low to moderate erosion hazard ratings (0-25% slope), maintain 45% ground cover. • On soils with high erosion hazard ratings (5-25-5 % slope), maintain 55% ground cover. • On soils with very high hazard ratings (greater than 50% slopes), maintain 70% ground cover. BMP 1-9, 1-13, 1-20, 1-21, 2-2.		
Hydrology / Fuels Management (18)	**Hand pile and burn:** No hand piling then burning of the piles would occur within the aspen restoration area, or within 25 feet of riparian vegetation and stream channels, or within meadows. <u>Burn Prescriptions in RHCA</u> • Design prescribed fire treatments to minimize disturbance of ground cover and riparian vegetation in RHCAs. • No ignitions for underburning would occur within 25 feet of riparian vegetation. Down wood will be adjusted based on site conditions to achieve riparian conservation objectives and ground cover requirements. • No hand piling or burning would occur within 25 feet from riparian vegetation and stream channels. • The fire prescription should target the lowest possible soil temperature increase for the shortest duration of time. • The fire prescription should target the highest duff layer moisture levels consistent with the fuel reduction and soil cover objectives.	Prep Officer, Soil Scientist, Hydrologist, Fuels Officer, & TSA	During, & Post Logging

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	• Avoid burning road drainage outlets, such as waterbars and rolling dips, and out sloped roads within RHCAs. If such areas do get burned, consider mitigations measures such as mulching to reduce soil erosion. • If fire from underburning threatens to burn riparian vegetation and aquatic habitat, and/or the above -ground cover objectives will not be achieved, then the fire would be extinguished using hand suppression techniques. If fire escapes prescription and becomes a threat, Minimum Impact Suppression Tactics (MIST) fire control techniques will be applied in riparian areas. • No ignition or pile burning within 50 feet of fens and springs. This distance may need to be increased depending on ground conditions to prevent burning through wetland features. BMP 6-2, 6-3		
Soils / Hydrology (19)	**Erosion Prevention Measures in activity areas such as landings:** Erosion control work is inspected prior to the end of the normal operating season to determine whether the work is adequate. Additional measures will be applied when needed to meet water quality standards. **Timing of Erosion Control Measures** <u>Vegetation Management:</u> All necessary erosion control measures for logging operations will be implemented as soon as possible after logging operations cease in the area and prior to runoff producing rainfall. All erosion prevention measures will be implemented by October 15th. For harvest activities continuing beyond October 15th , erosion control measures on active sites will be implemented at the first opportunity. <u>Roads:</u> Erosion control measures are implemented by the end of the normal operating season, (usually October 15 for this area) and kept current when road construction occurs outside that period. Stabilization of fills and completion of winterization is required by October 15. This includes the removal of temporary culverts, culvert plugs, diversion dams, or elevated streamcrossing causeways. It also includes installation and/or removal of crossdrains, energy dissipators, sediment basins, berms, debris racks, mulching, or other items needed to control erosion. Other preventive measures include the removal of debris, obstructions, and spoil materials from channels and floodplains. BMP 1-21, 2-22, 2-3, 2-9.	Prep Officer, Soil Scientist, Hydrologist, & TSA, O&M Roads Manager	During, & Post Logging
Soils / Hydrology (20)	**Portion of <u>Units 654137, 6354041, 6304008</u> within the LWQB Region. <u>Unit 6304008</u> is the only unit with water bodies present (2 ephemeral drainages)** In addition to the above measures additional attention will be applied to ensure the following: **100-Year Floodplains** No piling or burning of piles will occur in 100-year floodplains.		

Concern/SMR #	**Task**	**Responsible Person(s)**	**Due Date**
	No new landings will be located in 100-year floodplains. No existing landings are located in 100-year floodplains No equipment will enter 100-year flood plains except at existing roads and crossings. **Mechanical equipment** No skid trails will cross classified drainages. Equipment will only operate on dry soils as defined by the LWQCB. **See attachment A of this document.** **Hand piles** Piles will not be located within 100-year floodplain of any watercourse. No more than 10% of the area within the Waterbody Buffer Zone shall be covered in piles. This condition means less than 10% of the Waterbody Buffer Zone area subject to vegetation management activities. **Water Bodies** Since the water bodies are only present in Unit 6304008 (8.3 acres) and a very small portion of 654137 (0.2 acres), and with implementation requirement SMR(4) under the RHCA heading, limits of tractor operations on slopes adjacent to drainages and the TKO of 25 feet ensures no entry into the water body buffer zone and meets criteria as identified by the LWQB. No equipment operations will occur in the Water Body Buffer Zones. No trees will be felled into any watercourse, or waterbody buffer. **Roads** The temporary road will not cross classified drainages. Magnesium chloride will not be used in waterbody buffer zones. Gravel and mulch will not be added within the 100 year flood plain. **No additional roads or stream crossings will be added.** **100-Year Floodplains** based on the definition in the 2009 LWQB timber wavier Attachment A are areas determined based on delineations completed or approved by the U.S. Army Corps of Engineers, the Federal Emergency Management Agency, or an individual qualified to make floodplain delineations. If these agencies have not completed formal delineations the Water Board staff may agree to the use of best professional judgment; field verification by staff may be needed. These areas include land adjacent to waterbodies that extend to the outer perimeter of lands which experience flooding or are inundated with water during 100-year flood events. At a minimum, dischargers shall designate the 100-year floodplain area to encompass the bed and bank of any ephemeral drainage course. If other indicators are present such as wet vegetation on terraces, or other high water indicators, such as stranded debris, these should also be taken into consideration. For cases of unconfined channels, other indicators may need to be considered.		
Sensitive Plants / Weeds / Fuels	**Sensitive Plants**	Botanist, Prep Officer,	Unit Layout, During & Post

Concern/SMR #	**Task**	**Responsible Person(s)**	**Due Date**
Management / Hydrology (21)	Place "Flag and Avoid" mitigations to prevent tractors from operating within 25 feet of the potential fens. These two fen areas should be posted with "tractor keep out signs". The fen areas are located in the western portion of Unit 6354112 and along the eastern side of 664016 just south of Lewis Mill Station. All occurrences of Sensitive Plants, including all found at a later time, should be flagged and no ground-disturbing activities should be implemented within the flagged areas. ▪ Monitoring should take place during project activities and directly after project activities culminate in the vicinity of sensitive plant occurrences to ensure protective measures are sufficient as described in the HFQLG Monitoring Plan. If impacts to a sensitive plant occurrence are detected, monitoring should take place according to the HFQLG monitoring plan to determine whether or not the occurrence is still extant (has not been extirpated) and to determine whether impacts will have lasting adverse effects.	Hydrologist, Fuels Officer	Logging, During Fuels Management Operations, During Watershed restoration Actions
Weeds (22)	**Weeds:** Known weed sites in close proximity to project area will be included on Timber Sale Administration Maps. Include known locations of weeds on Timber Sale Administration maps so that units with weed sites in close proximity can be monitored and possibly contaminated Place the NW (noxious weed) symbol on the Timber Sale Administration Map near Unit 664016 unit and require the cleaning of equipment that leaves the unit. Equipment can be washed before leaving the contaminated area. Use C-clause for cleaning of heavy equipment. Any equipment that is brought on site should be washed if it is coming from a known noxious weed infested areas. Clean equipment documentation should be performed as equipment arrives to on site. Any materials for erosion control including gravel or straw bales should be weed free certified (Although it is not proposed to bring in any materials at this time). Monitor for noxious weed invasion after piles are burned according the HFQLG monitoring plan.	Contract Prep Officer, TSA, Botanist, District Fuels Officer	Contract Prep, Post Harvest and, During Pile Burning and Prescribed Fire Treatment Activities, and Post Burning
Wildlife (23)	• Avoid treating trees adjacent to the wildlife guzzler in Unit 6354137.	Wildlife Biologist, Prep Officer, TSA	During Layout, Contract Prep and Logging
Cultural Resources (24)	Use a combination of mechanical and hand thin and removal methods on approximately 6 acres on Sardine Peak in Unit 6354041 to improve visibility and safety around the Lookout. Because the Lookout is eligible for the National Register of Historic Places, the district archeologist will work with the district silviculturalist for site layout. Piles created will be burned offsite.	Contract Prep Officer, TSA, District Fuels Officer, archeologist	During Layout, Contract Prep and Logging, During Pile Burning and Prescribed Fire Treatment Activities.
Scenic Quality (25)	Protect the Visual Quality Objectives around the Lewis Mill site		During Layout, Contract Prep

Concern/SMR #	**Task**	**Responsible Person(s)**	**Due Date**
	in Unit 6604016. Work with personnel at the station regarding group selection treatment placement.		and Logging
Historical & Cultural Resources (26)	**The district archeologist** will be consulted during layout of multiple units that have been identified during project reconnaissance. The areas of concern will receive hand treatment during logging or other modified treatments as approved by the archeologist. . The archeologist will be consulted regarding the location of fuel piles to be burned in Units 6754032 6804112 and 6804093.	Archeologist, Prep Officer, and TSA	During Layout, Contract Prep and Logging
Historical & Cultural Resources (27)	The **district archeologist** will flag areas in multiple Units that have been identified during project reconnaissance. These areas will be avoided during logging.	Archeologist, Prep Officer, TSA	During Layout, Contract Prep & Logging
Fuels / Air Quality (28)	The prescribed fire planner will **coordinate with the Air Quality Coordinator** to design the waste fire plan. Burning permits would be acquired from the Northern Sierra Air Quality Management District. The Air Quality District would determine days when burning is allowed. The California Air Resources Board (CARB) provides daily information on "burn" or "no burn" conditions. Burn plans will be designed and all fuel reduction burning will be implemented in a way to minimize particulate emissions. Prescribed fire implementation will coordinate daily and seasonally with other burning permittees both inside and outside the forest boundary to help meet air quality standards**.**	District Fuels Officer	During Pile Burning and Prescribed Fire Treatment Activities.
Soils / Hydrology (29)	**Watershed improvements to improve watershed hydrologic function. No proposed improvements occur within the LWQB jurisdiction.** ▪ Watershed improvements were assessed , identified and incorporated into the proposed action and action alternatives. ▪ All required state and federal permitting processes, such as CEQA, water quality and 404 permits would be complied with prior to implementation of stream and wetland restoration. The CEQA scoping, document development, noticing, and public review will occur prior to obtaining the necessary prohibition exemptions, as an addendum to the Waiver application to address the required basin plan findings and criteria.	TSA & Soil Scientist	During & Post hazard tree removal and Road maintenance work.

ATTACHMENT A
Operability of Soils Protocol

Protocol for determining operability of soils within the compaction zone*.

Soil Moisture % Increases Downward	Coarse Soils Loamy sands, fine sand loam, very fine sands, coarse sands	Light Soils Fine sandy loams, sandy loams, very fine sandy loam	Med. Soils (<35% clay) Sandy clay loam, loam, silt loam, sandy clay loam, clay loam	Heavy Soils (>35% clay) Clay loam, sandy clay, silty clay loam, clay
Dry soils	Dry, loose, single grained flows thru fingers	Dry, loose, flows thru fingers	Powdery, dry, sometimes slightly crusted but breaks down into powdery conditions	Hard, baked, cracked sometimes has loose crumbs on surface
Moist soil	Still appears dry, will not form a ball with pressure	Still appears to be dry; will not form a ball	**Somewhat crumbly, but will hold together from pressure**	Somewhat pliable; will form ball under pressure. At plastic limit.
Moist soil	Still appears dry, will not form a ball with pressure	**Tends to ball under pressure but seldom will hold together**	Forms a ball and is very pliable, sticks readily if high in clay.	Easily ribbons out between fingers, has a slick feeling. At plastic limit.
Very moist soil	**Tends to stick together slightly, sometimes forms a very weak ball**	Forms a weak ball breaks easily, will not stick. Plastic limit or nonplastic.	Forms a ball and is very pliable, sticks readily if high in clay. Exceeds plastic limit.	Easily ribbons out between fingers, has a slick feeling. Exceeds plastic limit.
Wet soils	Upon squeezing, free water may appear. Wet outline is left on hand. Nonplastic.	Upon squeezing free water may appear. Wet outline left on hand.	Can squeeze out free water. Wet outline left on hand.	Puddles and free water forms on surface. Wet outline left on hand.

Recommended not operable by USFS Regional Soil Scientist

Proposed additional restriction based on Bob Powers (USFS PSW Soil Scientist) comment