Massachusetts Department of Conservation and Recreation

Silviculture Prescription
County Road Ash Salvage

Massachusetts Department of Conservation and Recreation
Bureau of Forestry

Central Berkshire District
October Mountain State Forest
Washington, MA

Prepared by:

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Overview:

The County Road Ash Salvage Forest Management project is located along County Road which is the main access point on the east side of October Mountain State Forest. This project will salvage white ash (Fraxinus americana) that is infested or imminently will be infested with emerald ash borer (EAB) within 200 feet of the road for a length of 1.56 miles and consisting of 73 acres.

This prescription is based on the Berkshire Road and Trail Ash Removal - Forest Management Proposal that was vetted and approved in the spring of 2017. As outlined in the proposal this 73 acre project will include forested and wooded areas within a 200 foot buffer of roads and parking areas for the salvage of ash. By proactively salvaging ash at this location the DCR will save considerable amounts of tax dollars associated with individual removals, provide a safer experience for staff and visitors, and recover the lumber, firewood and pulp which would otherwise be lost. (http://www.mass.gov/eea/docs/dcr/stewardship/forestry/manage/forest-product/berkshire-ash.pdf)

The conditions that led to selecting this project for forest management are:

- Emerald ash borer has infested the project area causing mortality in the overstory white ash trees.
- Public safety concerns due to declining/dead ash trees along County Road and the associated parking areas.
- This project will provide a cost savings to DCR and the Town of Washington by removing current and future hazards while there is a salvage value to the ash trees. Once dead, these trees will become a financial and safety liability.

The County Road Ash Salvage Forest Management Project proposes to:

- Salvage dying white ash trees while retaining and protecting other native/planted overstory species.
- Reduce the costs and safety concerns due to the dying white ash trees along access roads and parking areas.
- Use proceeds for road and trail improvement.
- Demonstrate harvesting techniques and best management practices that protect and enhance the aesthetic values associated within road side buffers.
- Fulfill management approaches for Parklands as directed by the Forest Futures Visioning Process (2010) and subsequent Management Guidelines (2012) including
    - Vegetation management necessary to protect public health and safety, public interests, public assets and/or restore or maintain recreation sites following significant natural disturbances or destructive insects or diseases.
    - Hazardous trees or excessive fuel loads that pose significant risk to public safety may be removed.

The County Road Ash Salvage Forest Management Project is 73 acres in size, and will be completed with a single entry. This prescription covers the entire project area.

Site Data:

Property Information: The proposed project area consists of approximately 73 acres of which 49 acres have a high percentage of ash while 24 acres are Norway spruce plantations with low levels of ash (Map: 1). Throughout the project area the dominant tree species that were observed are white ash, sugar maple (Acer saccharum), red maple (Acer rubrum), white birch (Betula papyrifera), black cherry (Prunus serotina), American beech (Fagus grandifolia), quaking aspen (Populus tremuloides) and Norway spruce (Picea abies), red spruce (Picea rubens), firs (Abies), tamarack (Larix laricina) and hemlock (Tsuga canadensis). Small amounts of white pine (Pinus strobus), hop hornbeam (Ostrya virginiana) and basswood (Tilia americana) also populate the stand. The white ash has been in decline for many years prior to the infestation of the emerald ash borer (EAB). Currently the rate of mortality has increased as has the number of dead trees falling into the roads.

Geology and Landforms: This project area is in the southeastern portion of the Town of Washington. The project begins are the town line between Washington and Becket and moves west along County Road to the causeway across the lower portion of October Mountain Lake. This portion of County Road is flat with little elevation change in the road from start to finish. The average elevation is 1850 feet.

Soils: There are several soil types mapped within the salvage portion this project area; PmC, LtE, PoB, and TuC. These types can be considered the same for forestry use. The soils are loamy, moderately deep, well drained, considered moderate to excellent for forest growth, low risk for erosion, and have few equipment limitations. (Excerpts from "Soil Survey of Hampden County Massachusetts", NRCS 1995)

Climate: The project location lies in an area of mild summers and moderate winters with year round precipitation possible. Winds generally come from the west. Although major weather events can happen in any given year, the chances of hurricanes, tornadoes, ice storms or other large scale disturbance events are seldom but do occur. The figures below (Table 1) are excerpt from the National Weather Service 2012 Climatological Report for Pittsfield, MA. The climate period used to determine normal value is 1981 through 2010.

Table 1:

	2012 Annual	2011 Annual	Normal Annual Value	Normal Winter	Normal Spring	Normal Summer	Normal Fall
Annual Maximum Temp	58.4	56.5	55.3	31.7	54.3	76.7	57.9
Annual Minimum Temp	39.2	37.4	35.4	15.4	32.9	55	38
Annual Mean Temp	50	50.2	48.3	23.6	43.6	65.8	48
Total Precipitation (in)	36.36	59.46	45.38	8.6	11.44	12.74	12.6
Days with >= .01 Precipitation	144						
Average Wind Speed	6.1						

Hydrology and Watershed: The project area falls entirely within the Housatonic Watershed. All rain fall within this project area drains directly into or through wetlands linked with intermittent streams into the School House Reservoir. From here the water flows down Washington Mountain Brook to the Housatonic River in the town of Lee and through the 16 inch water supply line directly to the Lee Water Treatment Plant. The entire project area and much of

the October Mountain State Forest falls within the Outstanding Resource Water (ORW) area delineated by the Massachusetts Surface Water Quality Standards, 314 CMR 4.00. This project will have no negative affect on the watershed.

Currently there are four known intermittent streams which flow across the project area four locations where adjacent forested wetland encroach into the project area. There may be several small seeps, intermittent streams and small forested wetland areas located throughout the areas that are not currently mapped. There are no anticipated forested stream crossing for this project and there will be no harvesting within wetlands. All streams will have a filter strip meeting or exceeding standards of the "Massachusetts Forestry Best Management Practices".

Disease and Insects: The current threat to this project area is the emerald ash borer (EAB). Damage from these insects can be seen both in the project area and in the surrounding landscape. This insect can cause rapid collapse of the associated stands.

Emerald Ash Borer (EAB) was first found in Michigan and Ontario in 2002. It was introduced from Asia and has few natural predators here to control populations. EAB has spread from Michigan and is now located throughout the northeastern part of the United States and Canada. This insect feeds exclusively on ash trees and has destroyed millions trees across its range already. EAB is generally attracted to trees which were previously weakened or stressed.

The EAB has a one year life cycle in which each female lays 30-60 eggs on average with maximum of 200 in some cases. After the eggs are deposited in bark the larvae chew into the tree and begin feeding on the phloem of the tree. The following year the adult will exit the tree through a D-shaped hole and begin feeding on foliage to continue the cycle.

The first infestation found in Massachusetts is located approximately 5.8 miles from this project area in Dalton, MA. It is generally accepted that there is no way to stop or effectively control EAB.

Wildlife Habitat Conditions: The NHESP "Massachusetts Natural Heritage Atlas 13th Edition" shows that Priority Habitat adjacent to the project area in the outflow wetland complex of October Mountain Lake. Consultation with NHESP has determined there are not concerns or restrictions. No other listed plants have been identified in the field to date. Care will be taken to properly report and address the needs of any listed plant or wildlife species if found on the site.

No listed animals or critical habitat were noted upon the initial site visits. Large mammals noted through observed signs were moose, deer and coyote. Small mammals noted were turkey, squirrel and chipmunks. The proposed project area is a small portion of the total land in these forest types in the immediate vicinity.

Due to the deteriorating nature of the white ash there will be an abundance of large diameter course woody debris (CWD) as the dead trees fall down. There were also a large amount of live wildlife trees observed in the field. These included large trees of various species with large cavities, rotten portions, large dead branches and broken tops.

Infrastructure and Recreation: County Road which begins at an intersection with Route 8 and McNerney Road in Becket is a secondary road of asphalt, stone and oil and gravel that is maintained year round for vehicle traffic to the border with the Town of Washington which is also the boundary line for the October Mountain State Forest. From this point County Road is maintained by the Town of Washington for non-winter vehicle traffic and is gravel. The closest

private dwelling (seasonal camp) is located at the town/state forest line and is approximately 1/2 mile from the first landing area for this project.

County Road is one of the main entrances into the State Forest. During non-winter months it provides access to the October Mountain Lake Day Use Area as well as several ATV parking lots, trail heads for the Appalachian and other local trails and hunter access. Most years in winter months County Road is blocked for vehicle use and is groomed as a snowmobile trail and is open for snowmobiles, snow shoes, and cross country skis.

Coordination with the Town of Washington Tree Warden will be sought for designation of hazard trees within town jurisdiction. Slash laws identified in the most recent edition of the Massachusetts Forestry Best Management Practices will be followed. Harvesting during dry or frozen conditions will prevent rutting, minimize soil disturbance, and maintain aesthetics. A rubber tired forwarder will be required to prevent damage to the road surface.

The Appalachian Trail traverses south to north through the project area near Bald Top Hill. This project will follow guidelines set forth in the "Memorandum of Understanding Guidance Document for the Appalachian National Scenic Trail in the Commonwealth of Massachusetts" established in 2003. Due to the trails location within a Norway spruce plantation few trees are expected to be affected by this project. DCR will notify the ATC and AMC prior to cutting trees within the primary zone.

Cultural and Archeological Feature: There are several known historic foundations of varying condition within the proposed project area that will be protected from disturbance during operation and will be treated according to guidelines set forth in the "Bureau of Forestry – Cultural Resource Management Protection Standards & Guidelines". During the initial reconnaissance no stone walls were found. If any additional historic/cultural features are found they will be left intact and protected during this project.

Stand Description:

Northern Hardwoods: These areas in general are heavily stocked and would be considered a high "A" level based on local stocking charts. This type consists of approximately 10-40% ash, with varying amounts of sugar maple, red maple, black cherry, American Beech that dominate the overstory, with yellow birch, hemlock, red spruce, fir and hophornbeam present in smaller amounts. Trees in these stands are generally sawlog size and larger due to previous harvesting (commercial and home fuelwood) with pole and small sawlog size trees mixed throughout. Table 2 below is a summary of MA DCR Continuous Forest Inventory (CFI) data describing the northern hardwoods forest type within the Central Berkshire Forestry District.

	All species	Red Maple	Sugar Maple	Beech	Birch	Hemlock	White Ash	Cherry	Red Oak	White Pine	Spruce (all)	Other
Basal area (square feet/acre)	115	22	20	16	15	12	11	7	6	2	2	13
Stems per unit area (stems / acre)	170	29	28	35	27	17	11	7	3	1	3	7
CCF Volume (CCf/ac)	31.3	6.1	5.6	4.3	3.5	2.3	3.3	2.3	1.9	0.7	0.5	0.8
Board Foot Total (mbf/ac)	9.00	1.72	1.64	.79	0.80	0.63	1.19	0.85		0.33	0.15	0.90

Table 2: Summery MA DCR CFI data of Northern Hardwood forest type data for the Central Berkshire District.

	All species	Red Maple	Sugar Maple	Beech	Birch	Hemlock	White Ash	Cherry	Red Oak	White Pine	Spruce (all)	Other
Seedlings and Saplings per unit area (stems / acre)	3091	472	159	1592	294	42	86	134	61	20	64	167

Table 3: Summary MA DCR CFI data of seedlings and saplings in Northern Hardwood forest type data for the Central Berkshire District.

The understory of this stand is a diverse mixture of species and size classes; note Table 3 above. The species in the understory listed by prominence as observed are beech, sugar maple, white ash, black cherry and red oak with occasional softwoods. Shrub and herbaceous ground cover species noted throughout the stand were ferns, grasses, sedges, lycopodium, and rubus. There are several roadside populations of tiger lilies.

The CFI data noted above also estimates an average of 25 snags per acre through all size classes and species. It also estimates the average Central Berkshire District coarse woody debris volume at 742 cubic feet/per acre which is significantly above the minimum standards of 256 cubic feet/acre. All non-merchantable woody debris will be left on site while complying with the MA Slash Law (see Access/Logging System section below).

Norway spruce: From the 1990's until 2006 these plantations were managed with a variety of silvicultural practices. These past practices have left this type with varying overstory densities and understory compositions. One characteristic in common across the spectrum of past treatments is the occurrence of white ash; it is generally at low levels and closer to the road. Generally white ash will account for 10% or less of the overstory within 200' of the road. Table 3 below is a summary of MA DCR CFI data describing the spruce/fir forest type within the Central Berkshire Forestry District.

The same CFI data noted above estimates an average of 25 snags per acre through all size classes and species. It also estimates the average Central Berkshire District coarse woody debris volume at 2499 cubic feet/per acre. This average is reflective of Norway spruce plantations with significant mortality and is obviously significantly above the minimum standards of 256 cubic feet/acre. All non-merchantable woody debris will be left on site while complying with the MA Slash Law (see Access/Logging System section below).

	All species	Spruce (all)	Red Maple	Hemlock	Birch	Cherry	Sugar Maple	White Ash	Other
Basal area (square feet/acre)	130	73.1	20.1	15.5	7.3	7.1	2.0	0.5	4.4
Stems per unit area (stems / acre)	225	89	52	27	22	9	2	0.5	23.5
CCF Volume (CCf/ac)	36.2	19.8	6.4	4.2	1.8	2.4	0.5	0.2	0.9
Board Foot Total (mbf/ac)	11.13	7.6	1.01	1.33	0.34	0.61	0.16	0.07	.01

Table 3: Summary MA DCR CFI data of Spruce/Fir forest type data for the Central Berkshire District.

- Untreated areas the plantations consist of a dense overstocked canopy with little to no understory or ground vegetation.
- Previous strip cut areas have groups of dense overstory of Norway spruce with small amounts of shade tolerant understory species to openings of little to no overstory and

dense northern hardwood and spruce regeneration. Table 4 indicates District averages for this forest type.

- Shelterwood and thinned portions have a moderate to heavy stocking of Norway spruce in the overstory with dense northern hardwood and sporadic softwood regeneration.

	All species	Red Maple	Beech	Birch	Hemlock	White Ash	Cherry	Red Oak	White Pine	Spruce (all)	Other
Seedlings and Saplings per unit area (stems / acre)	3579	425	112	441	64	177	80	8	24	1605	643

Table 4: Summery MA DCR CFI data of seedlings and saplings in spruce fir forest type data for the Central Berkshire District.

Evaluation of Data, Silviculture and Projected Results:

Primary/Secondary goals: The primary goal of treatment is to ensure public safety through a salvage operation. This practice will help ensure a diverse and resilient forest as directed in the goals of the "Landscape Designations for DCR Parks & Forests: Selection Criteria and Management Guidelines". This is being accomplished by creating a well planned and balanced science based forestry plan.

Secondary goals of this project are to capture the value of damaged and/or diseased trees, prevent future costs/liability of individual tree removals, and to provide raw materials to the forest products industry.

Silviculture Methods: The salvage and pre-salvage of dead, dying and imminent mortality white ash and other dead/hazard trees from this project area will resemble a commercial thinning of varying residual density; this will remove approximately 10-40% of the stand. Healthy white ash trees 8" diameter breast height (DBH) and under will be retained at low densities where they do not pose a future safety issue. The results of this salvage (acting as a thinning) will provide the remaining trees with increased light and nutrients, as well as provide light to the forest floor promoting herbaceous species and seedling growth.

Desired Future Conditions: This harvest should lead to a residual stands of high quality northern hardwoods and Norway spruce. The harvest will also reduce public safety and infrastructure damage concerns by removing both live and dead hazard trees. As the stand matures wildlife trees will become larger and provide more habitat opportunities. An example of post harvest tree spacing is pictured to the left.

Anticipated Future Treatments: There are no plans to harvest this area again in the future, however this stand should be examined in approximately 10 years to verify if the goals treatment were met.

Access/Logging System: This operation will utilize two landings located at the intersections of County Road with Lenox-Whitney Road and Finerty Pond Road. A forwarder without tracks or chains will be required to move forest products from stump the landing. Some travel on the County Road will be required to avoid stream and wetland crossings. The harvester will have to complete one section prior to beginning work on the next. The Forester and harvester will cooperatively decide which section to begin with, smaller road side landings within each section may be allowed depending on equipment needs.

The preferred method of harvesting this project will be accomplished through a mechanical harvester with a fixed head. Whole tree harvesting and skidding will not be permitted in this project area, all trees felled will be processed or limbed within the stand leaving slash treated in the felled location except where removal is needed in buffer areas. Slash will be removed for the 50' from the road edge and lopped to less than 2' in the remaining sale area.

Throughout the project area skid trails will be laid out to avoid adverse slopes, to avoid any water features found, and to reduce any negative aesthetics. Any unavoidable stream or wetland crossing will be designed at or above the standards of the most recent edition of "Massachusetts Forestry Best Management Practices".

Upon completion of all harvesting activity all landings will be free of debris, graded and seeded with "Berkshire Conservation Mix" grass seed and mulched with straw. Skid roads will be left in a stable state, graded with water bars installed according the most recent edition of "Massachusetts Forestry Best Management Practices", and seeded with "Berkshire Conservation Mix" grass seed and mulched with straw as needed. Any utilized stream/wetland crossing will be stabilized.

Wildlife Resources: Current snags will be retained where they do not pose a safety issue; however operators have the option to remove any snag that poses a safety hazard to themselves or equipment. Operators will not be required to utilize cull trees, if left behind they will add to the existing CWD. Limbs and tops (slash) will also be left in place to augment existing CWD and cycle soil nutrients through decomposition.

In-kind Services: Upon final tally of product the extent of in-kind services will be determined.

- Road and trail improvements within October Mt State Forest.

Project Marking Guidelines: Follow the directions below for marking instructions of sale and stand level features.

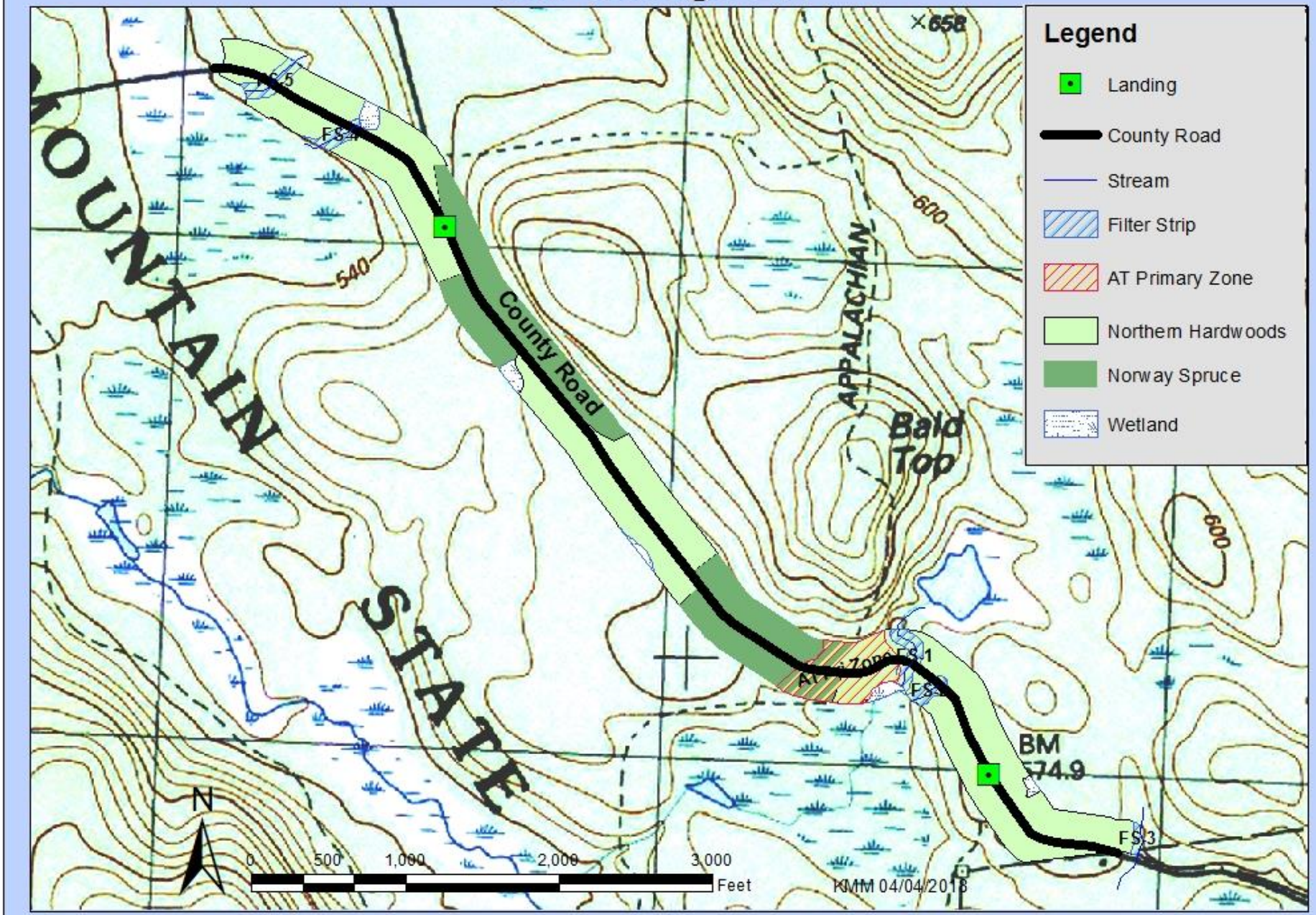
Sale Level:

1. Locate and paint with two yellow diagonal stripes the buffers and filter strips along all wetland and associated streams found on site.
2. Locate and paint with two yellow diagonal stripes the remaining wooded project boundary line. This will not be done where the project boundary is a road.
3. Flag temporary layout of the section access points and primary skid trails with orange flagging.
4. Flag temporary layout of any unavoidable wetland and stream crossing found with labeled flagging. Using Red paint mark and label each crossing upon completion of marking and any final adjustment to location.
5. General tree marking guide:

Marking type	Type of Tree	Tally Method	Mark Type
Leave Tree	Leave Tree	As needed	Red Horizontal Ring
Cut Tree	Cut Saw Log	Individual tally DBH & height	Blue Horizontal Line
Cut Tree	Cut Pulp/Cord Wood	Individual tally DBH - 1/10 height	Blue Dot
Cut Tree	Cut Live Cull Tree	No tally	Blue X
Cut Tree	Dead Tree Warning	No tally	Blue X

Remove all white ash greater than 8” DBH within the stand and dead/hazard trees where public safety is a concern. Retention small diameter (< 8”DBH) white ash within the stand where public safety is not threated is desirable. The road buffer may be reduced below the 50% basal area restriction for removal of white ash only, all other trees should be retained to ensure adequate stocking.

County Road
Ash Salvage Lot



County Road Ash Salvage - Locus Map
October Mountian State Forest