Massachusetts Department of Conservation and Recreation
Bureau of Forest Fire Control and Forestry
Forest Management Proposal
Name: Schoolhouse Lot

Date Posted: September 4, 2013
End of Comment Period: October 18, 2013

Region:	**West**
Recreation District:	**Lakes**
Forest Management District:	**Central Berkshires**
State Forest:	**October Mountain State Forest**
Closest Road:	**School House Road**
Town	**Washington**

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Overview:

The Schoolhouse Lot Forest Management project is on the western portion of the October Mountain State Forest (see Locus Map) along the Schoolhouse Trail. It comprises of approximately three hundred acres of northern hardwoods and hemlock/hardwoods forest types.

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

- Significant portions of the project area have been affected by abiotic (ice) and biotic (beech bark disease) agents and the overstory trees are beginning to decline.
- Due to the loss of overstory cover there is a danger of heavy sprouting of American beech and subsequent loss of tree diversity.
- Desire to maintain softwood (hemlock, spruce and fir) component in Hemlock/Hardwood stands.
- This project area offers an excellent opportunity to demonstrate and fulfill objectives for DCR Woodlands.
- This project will provide an opportunity to repair poor road and trail conditions that are leading to erosion of trails, sedimentation in Washington Mountain Brook and rutting in wet soil conditions.
- This project will provide an opportunity to curtail and repair damage by illegal off-road vehicle use in the borrow pit adjacent to Schoolhouse Reservoir.

The Sherlock Lot Forest Management Project proposes to:

- Demonstrate group selections for regeneration in Northern Hardwood and Hemlock/Hardwood forests for regeneration of shade tolerant and mid-tolerant species.

- Prevent proliferation of American beech with beech bark disease complex.
- Demonstrate harvesting techniques and best management practices that protect forest productivity, soil and water resources.
- Repair and/or relocate portions of Schoolhouse Trail and Schoolhouse Loop Trail.
- Replace bridge over Washington Mountain Brook.
- Control access and restoration to the borrow pit adjacent to the Schoolhouse Reservoir.
- Fulfill management approaches for Woodlands as directed by the Forest Futures Visioning Process (2010) and subsequent Management Guidelines (2012)

Stand Description:

- **Stand Information:** The proposed project area consists of approximately 300 acres of northern hardwood and hemlock/hardwood forest types. Throughout the project area the dominant tree species that were observed are white ash (Fraxinus americana), sugar maple (Acer saccharum), black cherry (Prunus serotina), red maple (Acer rubrum), American beech (Fagus grandifolia), quaking aspen (Populus tremuloides), yellow birch (Betula alleghaniensis), white birch (Betula papyrifera), Eastern hemlock (Tsuga canadensis) and red spruce (Picea rubens). This project area has been shaped in recent years by beech bark disease (http://na.fs.fed.us/spfo/pubs/fidls/beechbark/fidl-beech.htm), white ash die back (http://www.ces.ncsu.edu/fletcher/programs/nursery/metria/metria01/m112.pdf), recent history of forest tent caterpillar outbreaks (http://www.na.fs.fed.us/spfo/pubs/fidls/ftc/tentcat.htm) and the ice storm of 2008 (http://en.wikipedia.org/wiki/December_2008_New_England_and_Upstate_New_York_ice_storm).

  The DCR Management Guidelines of 2012 stated that forest stands will be "classed . . . and considered for silvicultural treatments that generally fit their productivity, structural complexity (or potential thereof) and diversity". An analysis of the Schoolhouse Road site history (land use; agriculture/logging) and conditions (soil types, productivity; vegetation cover) suggests a high level of complexity indicating that uneven age methods of regeneration may be appropriate in the core of the unit (northern hardwood stands).

  There are individual forest stands within the major forest type that range from less than one acre to 40 plus. In many cases these smaller forest types will be lumped together for operational needs into larger stands as this project progresses. The three major subtypes are as follows.

  - Beech Birch Maple – Approximately 100 acres, is in a traditional mixed northern hardwood type. These stands are located in the PmC, BmE, LtE, Tuc, and PoB soil types (see next section on soil description). This forest type will be broken down into individual stands for management purposes based on dominant tree species, topography and soils to assist planning in proper management decisions. The current size class in this forest type range from medium to large diameter trees. The density of the northern hardwood stands is generally a high but there are some gaps in the forest canopy mostly caused by white ash mortality and weather events. Throughout the project area white ash has been in decline for several years. It is anticipated that the emerald ash borer (EAB) will kill the remaining stressed trees as the insect spreads from the northern part of the forest. The stand age is approximately 90-110 years old.

- Sugar Maple - Approximately 120 acres of the project area are stands dominated by sugar maple. These stands generally consist of more than 50% of the basal area in sugar maple with other northern hardwood species as associates. These stands are located in the PmC, BmE, LtE, Tuc, and PoB soil types (see next section on soil description). This forest type will be broken down into individual stands for management purposes based on dominant tree species, topography and soils to assist planning of proper management decisions. The current size class in this forest type ranges from medium to large diameter trees. The density of the sugar maple stands is generally a medium to high but there are some gaps in the forest canopy mostly caused by white ash mortality and weather events. Throughout the project area white ash has been in decline for several years. The stand age is approximately 90-110 years old.
- Hemlock/Hardwoods – This forest type is found along the lower elevations of the project area and comprises of PoB and PmC soil types. These stands are typically adjacent to Schoolhouse Reservoir and associated streams with wetlands that drain to them. This forest type represents approximately 80 acres of the project area. These stands are approximately 50 percent hemlock with red spruce, black cherry, white ash, red maple and sugar maple as associates. The estimated age is 90-110 years old.

- **Topography:** This proposed project area is located in the southwestern portion of October Mountain State Forest adjacent and south of the Schoolhouse Reservoir. The project is bounded by Schoolhouse Reservoir to the north, Washington Mountain Brook to the east, and an unnamed brook to the west. The southern boundary will consist of a portion the Schoolhouse Circle Trail and an intermittent stream that flows east to Washington Mountain Brook. The east, west and northern sides of this area rise in elevation from a low of 1700 feet at the Schoolhouse Reservoir to the southern portion of the project area where the top of the hill is an elevation of 2050 feet.

  Located along the brooks mentioned above there are associated wetlands and beaver ponds. There are also other seeps, intermittent streams and small forested wetlands areas located throughout the project area. Further description of these features is in the wetlands section below

  The project area has slopes facing west, north and east which range from less than five percent to as much as 40 percent on approximately less than two acres. Portions of this area are covered in sporadic rocks and boulders.
- **Soil:** There are five soil types associated with this project area, ranging from very poorly drained flat bottom types to excessively drained upland soils. As with topography the forest composition changes with the soil types. The five types are described below (excerpts from "Soil Survey of Berkshire County Massachusetts", NRCS 1988).
  - PmC - Peru-Marlow Association: (129 ac) This map unit consist of very deep, moderately well drained Peru soils and very deep, well drained Marlow soils. Peru soils are typically on the lower parts of slopes or in slightly concave areas and Marlow soils are on the upper parts of slopes on in convex areas.
  - PoB – Pillsbury Loam: (48 ac) This is a nearly level to gently sloping, very deep, poorly drained soil on foot slopes of drainage ways and in slightly concave areas of glacial till uplands.

- LtE – Lyman-Trunbridge Association: (47 ac) This map unit consists of shallow, somewhat excessively drained Lyman soils and moderately deep, well drained Tunbridge soils. These soils are on the mountainous uplands.
- BmE – Berkshire-Marlow Association: 38 ac) This map unit consists of very deep, well drained Berkshire and Marlow soils. The soils are on the sides of hill and mountains.
- ToC – Tunbridge-Lyman Association: (18 ac) This map unit consists of moderately deep, well drained Tunbridge soils and shallow, somewhat excessively drained Lyman soils. These soils are on the sides and tops of hill and mountains.

- **Previous Silvicultural Treatments:** There are no known previous silvicultural treatments in this area.

Aesthetic, Recreation, Wetlands, Cultural, Rare Species and Wildlife Considerations:

- **Recreation and Aesthetics**: County Road (Town of Washington owned) will be the main access to the landing area. Within the project area there is no state (DOT) or town owned roads. The borrow pit located on the south side of County road at the entrance of the Schoolhouse trail will be used as a landing. This area will be graded and restored upon completion of this project. In conjunction with this project an attempt to block illegal vehicle access to this borrow pit will occur. Restoration of eroded areas from this illegal traffic will also be a priority.

  The Schoolhouse Trail and Schoolhouse Circle Trail are located within the project area; both of these are currently considered ATV/Snowmobile/Multiuse trails and are not open to recreation vehicles over 1000 pounds. These trails are currently in poor condition due to natural and vehicle caused erosion in combination with a lack of maintenance. Since the Hurricane of 2011 this portion of the trail network has been closed due to the loss of the bridge over Washington Mountain Brook on the Schoolhouse Trail.

  In accordance with the "Landscape Designations for DCR Parks & Forests: Selection Criteria and Management Guidelines" trail restoration and relocation of these trails will be a priority. Relocation of sections currently in low lying wet areas as well as installing drainage to prevent further erosion will occur throughout the project area and beyond. A permit through the Town of Washington Conservation Commission will be sought to permanently keep in place the portable steel frame bridge used for this project. Keeping the bridge in place will allow for access to the trail network for legal uses and prevent the fording (driving through water) of the stream by illegal users.

  Along with ATV/Snowmobile access this portion of October Mountain is open to all legal passive recreation activities that are allowed on DCR properties including hunting, fishing, snowshoeing, hiking and birding. As directed in the Landscape Designations for DCR Parks & Forests: Selection Criteria and Management Guidelines" a 50 foot buffer where slash will be light and natural in appearance will be in place along the above mentioned trails.
- **Public Water Supply:** Bordering the northern portion of the project area is the Schoolhouse Reservoir. This Reservoir completed in 1960's is a water supply for the towns of Lee and Lenox and managed by the Town of Lee Water Department. The project area falls within both Zone A and Zone B of the Reservoir. Coordination will be sought with the Town of Lee Water Department to address concerns and recommendations as presented in the "Lee Source Water Protection Plan".

- **Streams and Wetlands**: There are several identified water resources on this proposed project area. They will all be treated at or above the minimum standards set forth in "Massachusetts Forestry Best Management Practices Manual". There will be no timber management in regulated wetlands.
    - Washington Mountain Brook will have one stream crossing at the existing location on the Schoolhouse Trail. This has been the location of several bridges in the past, the latest a small wooden bridge for snowmobile/ATV traffic was lost due to flooding during the hurricane of 2011. A portable steel frame steel bridge designed for highway use will be installed for this project. Permission to retain the bridge in place will be sought from the Town of Washington Conservation Commission. It is hoped that retaining the bridge will prevent bank erosion from illegal off road vehicle water crossings.
    - Washington Mountain Brook and the un-named brook with their associated wetlands which make up the eastern and western boundaries of this project area will have a variable width filter strip where equipment will not be allowed and will follow filter strip standards of the "Massachusetts Forestry Best Management Practices Manual" (BMPs) as needed beyond 50 feet. As suggested in the BMPs a 15 foot no-cut buffer adjacent to wetlands and streams will be in place as well.
    - Schoolhouse Reservoir will have a no-cut and no equipment buffer/filter strip for 50 feet from the high water mark to provide a visual buffer of the shoreline and to add an additional safe guard against erosion.
    - Approximately 500 feet of the Schoolhouse Trail will be relocated to prevent further damage to a bordering wetland. The current trail has become braided by users trying to avoid standing water. The existing section of trail will be blocked, restored and returned to a natural condition.
    - All additional upland drainages, intermittent streams, seeps and wetlands, and vernal pool resources currently mapped or identified within the project area will be mapped and protected to filter strip standards of the "Massachusetts Forestry Best Management Practices Manual".
    - It is anticipated that an occasional intermittent stream crossing may be needed within the harvest area for skidding off of the main trails. Any stream crossing will be designed using standards of the "Massachusetts Forestry Best Management Practices Manual" and "Landscape Designations for DCR Parks & Forests: Selection Criteria and Management Guidelines"
- **Cultural Resources:** Within the proposed project area one stone foundation has been found along the Schoolhouse Loop Trail. This stone foundation site and any others found within the project area will be protected from disturbance during any operation and will be treated according to guidelines set forth in the "Bureau of Forestry – Cultural Resource Management Protection Standards & Guidelines". During reconnaissance no stone walls were found. If any walls are found they will be left intact during this project.

  Through the initial walks through this area several charcoal pits have been found. These are a very common feature throughout the region. They date back to the 1800's when the charcoal industry thrived in the Berkshires to fuel the many iron furnaces of the region.
- **Rare and Endangered Species:** According to the NHESP "Massachusetts Natural Heritage Atlas 13th Edition" there is no priority or estimated habitats located in the proposed harvest area. There is however a 700 foot section along the Schoolhouse Trail which is on the

fringe of a NHESP priority habitat polygon. The standard guidelines for the species of concern in this location allow for the un-restricted use of existing roads. NHESP will be contacted for an official evaluation. No rare plants have been identified in the field to date. Care will be taken to properly report and address the needs of any state-listed rare plant or wildlife species if found on the site.

- **Wildlife:** No rare animals or critical habitat were noted upon the initial site visit. Large mammals noted by observed sign were deer, moose, bear and coyote. Small mammals noted were squirrel and porcupine. It has been observed in previous forestry operations nearby that large herbivore pressure is a minor concern.

  Due to the deteriorating nature of the forest types in this project area there is an abundance of large diameter course woody debris (CWD) and both live and dead wildlife trees (snags).

The statement below was provided by The Massachusetts Division of Fish and Wildlife:

The gradual, uneven-aged regeneration of these impacted stands through the series of partial harvests described below is unlikely to have any substantial impacts on wildlife in the short run. Wildlife species associated with mature forest habitat will likely continue to use these stands, and some will likely benefit from the food and cover resources provided in regenerating group cuts. As harvesting proceeds over time, the forest will include more young trees, but at the same time this forest will produce more mast (beechnuts, cherries, etc.) as crowns of released trees expand. And these stands will remain structurally diverse through retention of wildlife trees and woody debris. While the uneven-aged silviculture planned for these northern hardwood stands will not create extensive patches of young forest habitat that are preferred by declining shrubland and young forest birds, these stands will still provide vibrant and relatively consistent wildlife habitat over time. Extensive patches of young forest habitat are better provided on plantation sites, in oak-dominated sites, and in fire-adapted pitch pine/scrub oak sites. DCR is proposing some extensive openings during harvesting operations in these types of sites on other portions of the landscape. This range of intensity in forest management practices provides a rich variety of wildlife habitats at the landscape level.

Sale Layout and Harvesting Limitations:

The timber sale will use subdivisions or units of the project/contract area to effectively control logging operations. The timber sale contract implemented for this project area will extend longer than the standard two years.

- **Project Access:** Access to the proposed project area will be from either State Route 8 in Becket or County Road. At the boundary of October Mountain County Road enters the Town of Washington. From the town line access to the site will continue on County road for approximately two miles to the intersection of Schoolhouse Trail. The proposed harvest area begins approximately ¾ miles south on Schoolhouse Trail.
- **Landings:** This project will utilize an existing borrow pit as the primary truck landing. This site is currently an open field with encroaching vegetation along the perimeter and patches throughout. The lower portions of this borrow pit have sustained severe erosion from illegal off-road vehicles use.

A second interior landing will be created to convert products from tree length to log and firewood length to be transported by forwarder to the primary truck landing. This landing will be located at the intersection of Schoolhouse Trail and Schoolhouse Circle Trail.

- **Skid Road and Trails:** Both the Schoolhouse and Schoolhouse Circle Trails, which are approved ATV/snowmobile trails (currently closed), will be used as main skid trails. As per the "Landscape Designations for DCR Parks & Forests: Selection Criteria and Management Guidelines" coordination with the local Park Supervisor along with the snowmobile and ATV user groups will be sought while planning the restoration of these trails. There is no anticipated conflict during operation due to these trails currently being closed.

  From these trails primary and secondary trails will be used to access the stands. These trails will be laid out to follow grade to prevent and ease any erosion. All trails will follow the guidelines for skid trails of the "Massachusetts Forestry Best Management Practices Manual". The portions of Schoolhouse and Schoolhouse Circle Trails within the project area will be restored for current legal uses.
- **Wetland & Stream Crossing:** Washington Mountain Brook will have one stream crossing at the existing location on the Schoolhouse Trail. This has been the location of several bridges in the past, the latest a small wooden bridge for snowmobile/ATV traffic was lost due to flooding during the hurricane of 2011. A portable steel frame bridge designed for highway use will be installed for this project. Permission to retain the bridge in place to prevent future bank erosion from illegal crossing of off road vehicles will be sought through the Town of Washington Conservation Commission.

  It is anticipated that an occasional intermittent stream crossing may be needed within the harvest area for skidding off of the main trails. Any stream crossing will be designed using standards of the "Massachusetts Forestry Best Management Practices Manual" and "Landscape Designations for DCR Parks & Forests: Selection Criteria and Management Guidelines". Any wetland, seep, or stream crossing will be done during frozen or driest conditions and use temporary wooden bridge panels where feasible to protect hydrology and stream features.
- **Road and Trail Buffers:** There will be no harvesting along any town or State DOT owned road. As directed in the Landscape Designations for DCR Parks & Forests: Selection Criteria and Management Guidelines" a 50 foot buffer where slash will be light and natural in appearance will be in place along the above mentioned trails.
- **Equipment Limitations:** Currently there are no harvesting equipment limitations or restrictions within the harvest area, it will be determined upon further review and field work if any limitations or restriction are necessary for this project area. There will be a requirement of a Forwarder to transport logs and firewood from the interior landing to the primary truck landing.
- **Excluded Areas:** All identified wetland areas with associated filter strips mentioned above will be excluded from harvest and clearly marked. Equipment will also be excluded from areas of 40% or greater slopes.
- **Erosion and Sedimentation:** Unwanted movement of soil will be controlled by following recommendations in the "Massachusetts Forestry Best Management Practices Manual". All work will be limited to dry or frozen soil conditions. Restoration of existing trails will help mitigate current and future erosion of the Schoolhouse and Schoolhouse Circle Trails.

- **Site Restoration:** Upon completion of activity in the Project area all roads, skid roads and skid trails will be left in a stable state by grading and installing water bars as needed. All landing will be clear of debris, graded and seeded with "Berkshire Conservation Mix" and straw.
- **In-kind Services:** Proposed in-kind services to be attached to this project to date.
    - Repair and Restoration of bridge where Schoolhouse Trail crosses Washington Mountain Brook.
    - Installation of a gate and boulders to control access on Schoolhouse Road.
    - Restoration of illegal off-road vehicle damage in the borrow pits.
    - Equipment and materials to maintain/restore roads and trails within October Mountain State Forest.
    - Control of beech regeneration in areas of project of higher concentrations.
- **Proximity to Designated Forest Reserves:** There is no forest reserve located adjacent or near this project area. The reserve in the western portion of October Mountain is approximately one half mile away.
- **Sensitive Public Issues:** It is anticipated that this project will be supported by a broad range of user groups due to the repair/relocation of the road and trail network as well as the replacement of the bridge over Washington Mountain Brook. This work will reduce erosion along trails, replace muddy/wet sections of trail, and prevent sediment flow into the brook.

Silviculture:

- **Northern Hardwood and Sugar Maple Stands:** Silvicultural practices in these stands will demonstrate group selection harvesting of northern hardwoods to regenerate desirable shade intolerant and mid-tolerant species as well as control of undesirable beech regeneration. These stands will be managed for a high level of tree and understory plant species diversity. Forest management efforts will also be aimed at creating and maintaining vertical (tree heights) and horizontal (down woody material) stand complexity. This will be the first step in converting these even aged stands to un-even aged.
    - **Primary/Secondary goals:** The primary goal of treatment in these stands will be to ensure future diversity of tree, shrub and herbaceous layers. These stands are beginning to decline due to ice damage and insect damage, mortality due to disease, and a dense understory of beech. If left unchecked these stands will become dominated by diseased beech, with little diversity. If left unmanaged these stands will continue to lose structural and species complexity and diversity. Moving an even aged stand to a stand of varying age classes protects against large scale disturbances by providing a supply of young trees to replace older trees on a continuing cycle or in the event of a large scale disturbance.

      Secondary goals of this project are to capture value of low vigor, damaged and/or diseased trees while ensuring the potential for future growth and regeneration of desirable high quality wood products.
    - **Silviculture Methods:** A group selection method will be prescribed for these Northern Hardwood Stands. This will be the first step in a recommended 100 year cycle where in 20 year increments 20% percent of the area will be regenerated by harvesting 1/3 acre group opening. Within these group openings all trees over 5 inches in diameter and all beech above 4.5 feet in height will be removed leaving behind all desirable advanced regeneration. These groups will not exceed 20% of

the total manageable stand base in each 20 year increment. After each harvest in this method a new age class will be established. Chemical control of beech may be used in these stands to ensure other native species can emerge. No chemicals will be used within 100 feet of any wetlands, streams, or flowing water.

A commercial thinning may be used along skid roads and between these groups to provide additional light and nutrients to trees in the residual stand. This thinning will be applied in areas of these stands where size, density and quality of trees justify the need. Priority for trees to be removed will be based on quality (form, health and structural damage) and crown class (understory and intermediate). Where thinning will occur no more than 30% of the basal area will be removed.

- **Desired Future Conditions:** By establishing a new age class within the stands by harvesting the groups, the remaining stand will be more resilient to weather events, have a more diverse canopy layer, and provide for diversity in the understory and herbaceous layer.
- **Anticipated Future Treatments:** This stand should be examined in approximately 10 years to ensure adequate regeneration has been achieved in the group openings. It is anticipated that the next silvicultural treatment will occur 20 years after this current harvest and will expand and create new group openings to further regenerate the stand and add an additional age class.

- **Hemlock/Hardwoods:** Silvicultural practices in these stands will demonstrate group selection harvesting of hemlock/hardwoods to promote the regeneration of hemlock, spruce and fir. These stands will be managed for a high level of tree and understory plant species diversity. Forest management efforts will also be aimed at creating and maintaining vertical (tree heights) and horizontal (down woody material) stand complexity. This will be the first step in converting these even aged stands to un-even aged.
  - **Primary/Secondary goals:** The primary goal of treatment in these hemlock/hardwood stands is to retain the softwoods (hemlock, spruce and fir) as a major component to keep diversity of stand level types in the forest. Due to the even-aged structure of these stands the softwood component may be lost if partial regeneration of the stand is not performed.

    Secondary goals of this project are to capture value of low vigor, damaged and/or diseased trees while ensuring the potential for future growth and regeneration of desirable high quality wood products.
  - **Silviculture Methods:** A group selection method will be prescribed for these Hemlock/Hardwood Stands. This will be the first step in a recommended 100 year cycle where in 20 year increments 20% percent of the area will be regenerated by harvesting 1/4 acre group opening. These groups can be located to promote advanced regeneration or establish new regeneration. Group size was chosen to regenerate the shade tolerant hemlock, spruce and fir species. Within these group openings all trees over 5 inches in diameter and all hardwoods over 4.5 feet in height will be removed leaving behind the advanced softwood regeneration. These groups will not exceed 20% of the total manageable stand base in each 20 year increment.

    A commercial thinning may be used along skid roads and between these groups to provide additional light and nutrients to trees in the residual stand. This thinning will be applied in areas of these stands where size, density and quality of trees justify the need. Priority for trees to be removed will be based on quality

(form, health and structural damage) and crown class (understory and intermediate). Where thinning will occur no more than 30% of the basal area will be removed.

- **Desired Future Conditions:** This harvest is planned to continue the prevalence of the desired softwoods in the stands. These small groups will become populated by hemlock, spruce and fir, adding a new age class and thus more resiliencies against larger natural disturbances.
- **Anticipated Future Treatments:** This stand should be examined in approximately 10 years to ensure adequate regeneration has been achieved in the group openings. It is anticipated that the next silvicultural treatment will occur 20 years after this current harvest and will expand and create new group openings to further regenerate the stand and add an additional age class.

District Forester: _____ **Date:** 08-29-13

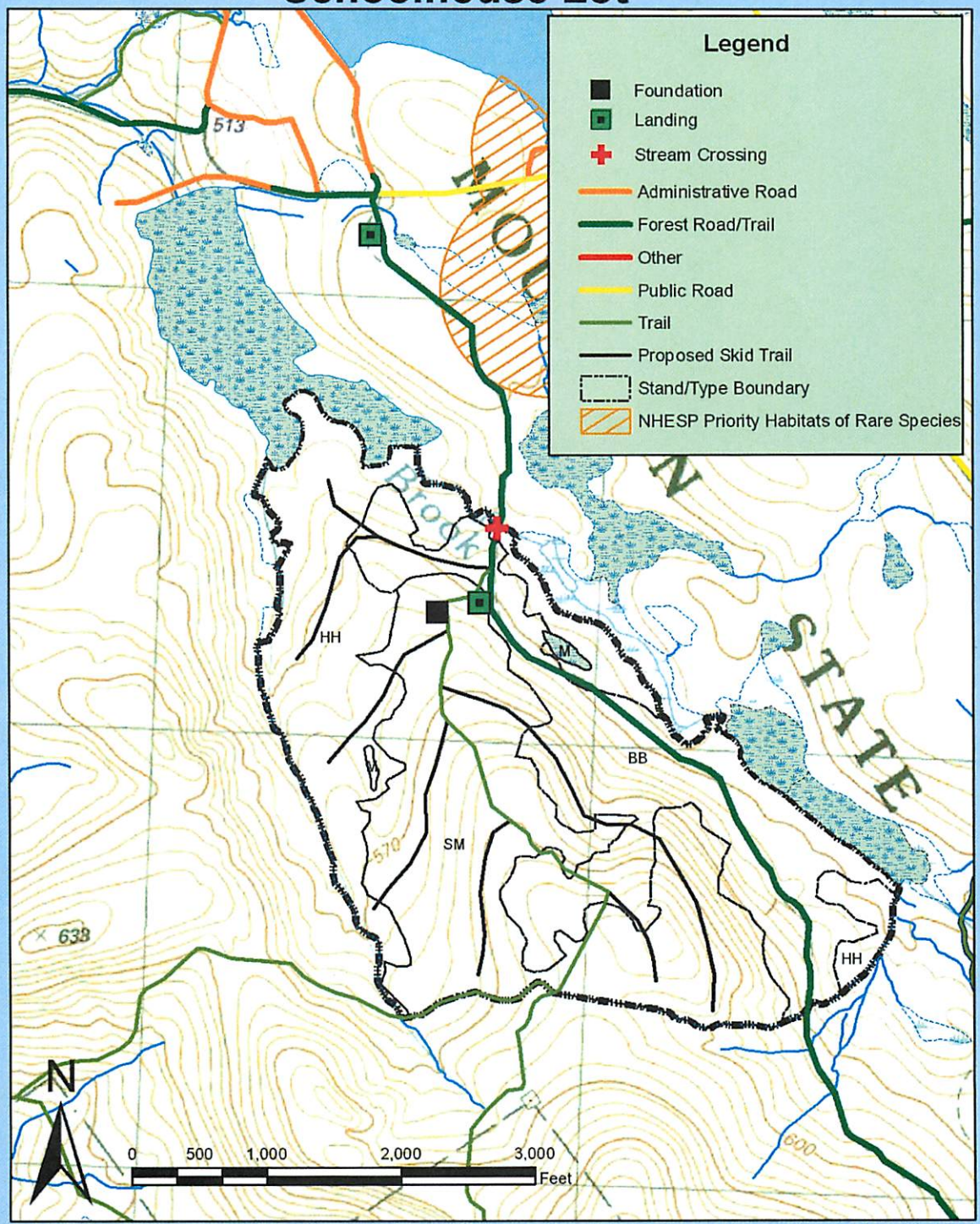
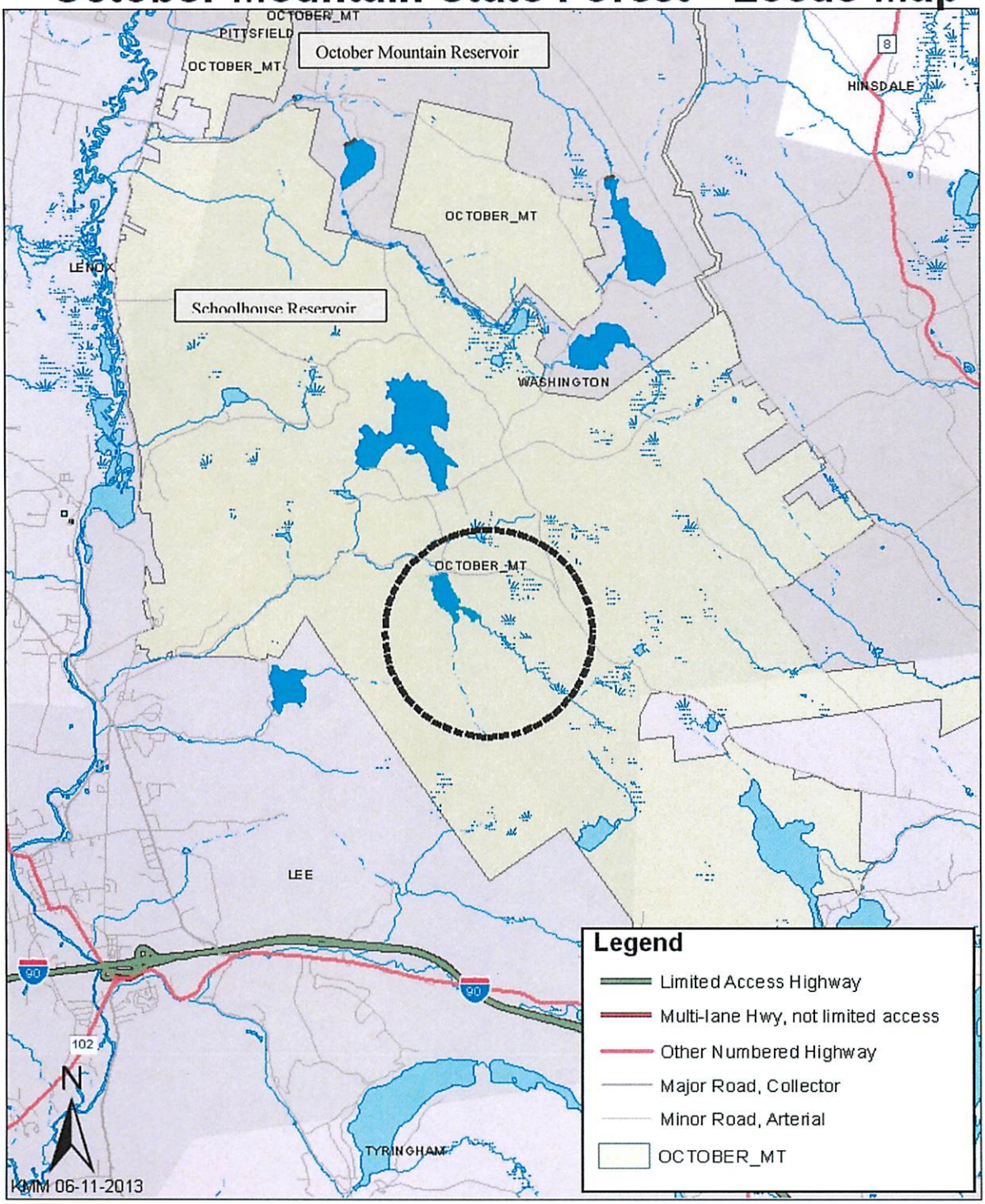
Field Operations Team Leader Or Park Supervisor: Pat D'amelle **Date:** 08-29-13

Regional Director: Robert S. Mellon **Date:** 08-29-13

Management Forestry Program Supervisor: _____ **Date:** 8-30-2013

Attached: Topographic map showing project details. Locus map showing project location within regional context.

October Mountain State Forest
Schoolhouse Lot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