Massachusetts Department of Conservation and Recreation
Bureau of Forest Fire Control and Forestry
Forest Management Proposal
Name: South River 2014

Date Posted:	**January 21, 2015**
End of Comment Period:	**March 7, 2015**
Region:	West
Recreation District:	**Mountain**
Forest Management District:	**Western CT Valley**
State Forest:	**South River**
Closest Road:	**Bardwell Ferry Road**
Town	**Conway**

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Overview: The South River State Forest is located in the town of Conway along the Deerfield River south of Bardwell Ferry. It was transferred to DCR (DEM) in 1965 as part of a land swap with a major utility company and prior to that it was held in private ownership. The forest was managed for timber, fuelwood and Christmas trees in cooperation with the Commonwealth of Massachusetts Forestry program which provided management services to the previous landowner since the 1950's. This site was selected for a vegetation management project in order to continue with projects that were started over fifty years ago and complies with the DCR Management Guidelines for Woodlands. The Ecosystem Services section of these guidelines provides a number of goals that would be met by this forest management project including the protection of forest productivity with the state of the art sustainable forestry, sustainable production of renewable wood products and the ecological restoration of degraded natural community types. There are red pine and Norway spruce plantations that are in need of attention due to declining health and vigor. Hemlock trees are showing advanced signs of Hemlock Wooly Adelgid and Hemlock Elongated Scale infestation which will quickly kill the host trees. Emerald Ash Borer has been found nearby and this would allow white ash trees to be removed prior to infestation. This forest is even-aged in structure as a result of past historical use for pasture. A conversion to an all-aged structure would increase the number of age classes represented in the forest and increase the resiliency to catastrophic natural events such as hurricanes and tornadoes. It is with these reasons in mind that a variety of silvicultural techniques can be demonstrated and applied to restore plantations to native species, salvage dead and dying trees, create new age classes, control invasive species and provide benefits to wildlife.

Stand Description: The sale area is approximately 100 acres in size and is comprised of 6 different forest types.

Type 1 (18 acres) is a white pine forest divided into 2 even-aged stands. The dominant overstory tree species is moderately large diameter White pine most likely started on abandoned field approximately 100 years ago. Shade tolerant species such as American beech and sugar maple are found in the understory with occasional black birch and white ash in the areas that receive more sunlight, such as the edge of roads and in areas with gaps in the canopy. The soil type is glacial outwash which is very well drained and comprised of various sizes of sand and gravel. The terrain is flat to gently rolling and tends to run along the contours of the topography. Tree quality is fair to good and many of the white pine exhibit the multiple leaders common to white Pine Weevil infestations in the early stages of stand development. There is evidence of past harvests in this stand and documentation from the previous owners notes numerous timber harvests conducted in the 1950s and 1960s.

Forest type 2 (3.0 acres) consists of 2 stands of small diameter red pine plantation approximately 50 years old that is in poor health and showing signs of heavy mortality. This forest type is adjacent to the white pine stands and is found on similar soil types and terrain. There are no signs of past treatment and this is supported by the large amount of stems per acre and small crowns.

Forest type 3 (3.0 acres) consists of 2 stands of Norway spruce plantation. One stand is a small diameter pole-sized stand that was planted on 6'x6' grid and has too many stems competing for available growing space. It may have been planted for Christmas trees as the number of trees per acre suggests a maximum yield per acre of trees. This will work well when the desired outcome is an 8 or 10' tree but will be much too crowded to allow for proper crown and root development beyond this height. The second stand is larger in diameter but appears to have had some past harvesting activity and sufficient mortality to allow native species such as Eastern hemlock and Black birch grow into the stand. Tree health and vigor appears to be good in this section as the residual spruce have received sufficient sunlight as compared to the section that had received no treatment. Soils and terrain are the same as the White and red pine stands.

Forest type 4 (40.0 acres) consist of large diameter even-aged Sugar maples with associate species of Black birch, White ash and Hickory. The soils found here are moderately drained stony loams with slopes up to 30%. These are some of the best growing sites on the forest and it is evident from the tree form, size and overall vigor. There is some White ash mortality that occurred several years ago and is present in the form of dead large diameter stems scattered throughout the forest type. A past timber harvest was conducted here approximately 30 years ago to remove poor-quality stems and increase the growing space for the high-quality residual trees. This type is well-stocked with full canopy closure and very little vegetation in the understory consisting mostly of beech, grape and suppressed Sugar maple.

Forest type 5 (25.0 acres) is a small sawtimber sized even-aged Northern hardwood stand consisting of black and yellow birch, sugar maple, red maple and white ash. Scattered Eastern hemlock, white Pine and Quaking aspen are also found in this forest type. The soils and topography is similar to the Sugar maple forest type only better drained and stonier. Tree health and vigor

appears to be good with the exception of the hemlock which appears to be suffering from one or more insect infestations including Hemlock Wooly Adelgid. This type is with full canopy closure and very little regeneration present in the understory.

Forest type 6 (11 acres) is an even-aged Hemlock- hardwood stand that has similar species as the Northern hardwood type with a larger component of Eastern hemlock. It is found on the northern slopes of the forest and extend from the top of the ridges down to the lower slopes along the Deerfield River. This particular forest type is approximately 10-14" average diameter with a closed canopy. The soils are stony loams and often tend to be rockier and poorly drained than the better soils found in the Sugar maple types. Tree health and vigor are variable here as the hemlocks are being attacked by the same insects found in the other types where hemlock is a component. The dead and dying hemlocks are allowing sunlight to reach the forest floor and begin the regeneration process. There appears to have been little previous silvicultural treatment in this forest type and it should be noted that barberry and grape will become a problem unless treated.

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

Aesthetic: The proposed project area is not located near any scenic byways and but is located near the Mahican-Mohawk trail which follows portions of the Deerfield River. This forest has no visitor facilities. The main entrance to the forest is an old woods road which is also a main snowmobile corridor. This road will be protected with buffers according to Chapter 132 and logging slash will also be treated according to the Slash Laws which prescribes allowable heights and distances. Buffers will not be used in the red pine stands due to the heavy mortality present in the stand and the overall hazard that would be presented should any residual trees be left behind. The American Chestnut Foundation, in cooperation with the Massachusetts DCR, has established an American chestnut orchard adjacent to the sale area which is being used to grow Chestnut Bight- resistant trees for eventual transplanting to the forests of Massachusetts. This area will be protected from any harvesting activities.

Recreation: This area is actively used by a wide variety of recreational groups. The local snowmobile club has an authorized trail over the main access road and on another secondary access road which they maintain on a regular basis. Hikers, snowshoers, mountain bikers, horse-back riders and cross-country skiers also utilize these maintained trails. The westerly portions of the trail/road system are poorly drained and subject to frequent damage from use during periods of wet weather. Hunters and birdwatchers also frequent the area. This forest is closed to ATV/off road vehicle use and has no other authorized roads or trails.

Wetlands: The project area is near the Deerfield River and has several small streams that flow northerly into the river. These streams are well defined drainages with deep channels. Filter strips will be used to protect the stream and banks from harvesting impacts. Vernal pools are present on the forest and near the proposed harvest area and these will be avoided by any harvesting activities. There are several stream crossings on the main access road and these will be crossed by existing permanent culverts. All regulations under Chapter 132 Forest Cutting Practices Act will be followed and the Massachusetts Forestry Best management Practices will also be used as a guideline.

Cultural Resources: There is one known cellar hole and well in the sale area which will be protected during harvesting activity. Stones walls are also found throughout the forest with portions in or adjacent to the proposed sale area and these will be avoided. Vegetation and land use patterns suggest that settlers used the flat plains above the river flood plain to cultivate crops and construct dwellings

Rare and Endangered Species: The proposed site falls within a Priority Habitat bubble primarily based on the Deerfield and Bear River with another bubble in a portion of the sale. Consultation with the Natural Heritage and Endangered Species Program (NHESP) will be required to determine what limitations or modifications will be required to conduct the timber sale.

Wildlife: This forest is home to moose, black bear, deer, fox, turkeys and an abundance of other species of birds and mammals. There is a small component of hard mast producing species such as Northern red oak, American beech and a variety of hickories. Black cherry is also present as a source of soft mast. This area is heavily used by hunters and it appears that regenerating hardwood should not be a problem. Three to five large den trees with cavities and sound, dead trees over 12" per acre will be retained as nesting and perch sites in accordance with DCR guidelines. Dead trees that pose a public safety hazard near roads, landings or trail will be removed. Coarse woody debris in the form of tree stems and large branches will also be left on the forest floor according the same DCR guidelines. The harvest activity will result in an increase of browse for foraging animals, an increase in micro-habitat for ground nesting animals and retention of nest trees and standing dead trees. It is also expected that mast producing trees will take advantage of the increased sunlight and growing space available to them.

Sale Layout and Harvesting Limitations: The forest products will be transported by a forwarder and this will result in the use of several small existing landings along the main forest road. The pine, spruce and hemlock stands will be harvested with a cut to length system and a cable skidder or dozer will work on the rougher terrain found in the other forest types. Secondary skid roads will be created from the main forest road and existing culverts will be used for the stream crossings. Temporary bridges will be used for any additional crossings and removed upon completion of the project. It is important that harvesting activities are carried out during periods of dry or frozen soil conditions in order to minimize ruts and overall soil disturbance. Water bars and other stabilization measures will be used to control erosion on the skid roads and trails. Potential in-kind services for this sale would be a steel gate to limit vehicle access to the western portion of the forest, a vegetation management project to control barberry and other invasive species, additional mowing for the American chestnut planting and forest road improvements to the main road system.

Silviculture: The primary goal of silvicultural work on this project is to begin the process of regenerating the forest. Secondary goals would be to salvage the Red pine and hemlock while it still has economic value, reduce the white ash component prior to the arrival of Emerald Ash Borer and increase the vigor of the over- stocked Norway spruce plantation as a demonstration project.

The white pine, type 1, will be treated using the Irregular Shelterwood method with an emphasis on expanding existing gaps. The desired future condition would be a white pine-hardwood stand with the understory being a mix of hardwoods and some white pine and the overstory consisting

primarily of large diameter white pine. Future harvests would remove portions of the overstory to release the understory. Chemical treatments would be used to control barberry and other invasive species and grape vine would be controlled by cutting as needed.

The red pine, type 2, will be treated by complete overstory removal and allowing regeneration from surrounding forest types to grow. Invasive species will be treated as needed. This treatment would be subject to agency approval by the Commissioner. The desired future condition would be a stand regenerating to native hardwoods and eventually developing into a Northern hardwood stand with an oak and hickory component.

The Norway spruce plantation, type 3, will be treated with a thinning to provide increased growing space for the best residual trees. The plantation will be thinned again in the future once the crowns close in and trees begin to compete for growing space. This would most likely be in 15 to 20 years.. The site appears to be suitable for Norway spruce and if the project results in the desired condition, then the type will be maintained as long as the trees remain healthy. The desired future condition would be a stand of healthy Norway spruce trees with an understory of native hardwoods and Norway spruce. The other stand of Norway spruce will be treated along with the hemlock stands.

The Northern hardwood and hemlock hardwood, types 3 - 6 will be treated using a combination of single-tree and small group selection with improvement cuts (commercial thinnings) throughout the type. These harvests will focus on removing white ash and Eastern hemlock and focusing growing space on the desired hardwood species such as sugar maple, yellow birch and black birch. There appears to be considerable variability in both of these types and it is expected that the thinnings will be a high priority to release good quality residual trees. Treatment of invasive species, beech and grape will also be a high priority as the growth potential will be severely limited if any of these problems are left unchecked. The desired future condition would be to see trees left with room to grow, invasive species under control and desirable regeneration occupying the growing sites. Future treatments would continue to favor the crop best quality trees and speed the forest type on its way to becoming an all-aged stand. The sugar maple type would be treated with a similar silvicultural system using small group and single tree selection. There appears to less understory trees in this type and treatments will be focused on the overstory and preparing the stand for regeneration. The desired future condition is to have an overstory of well-formed crop trees, an understory carpeted with sugar maple seedlings and a lack of invasive species, beech and grapevines. Future treatments would continue this approach leading to an all-aged type.

District Forester: _____ **Date:** 1-7-15

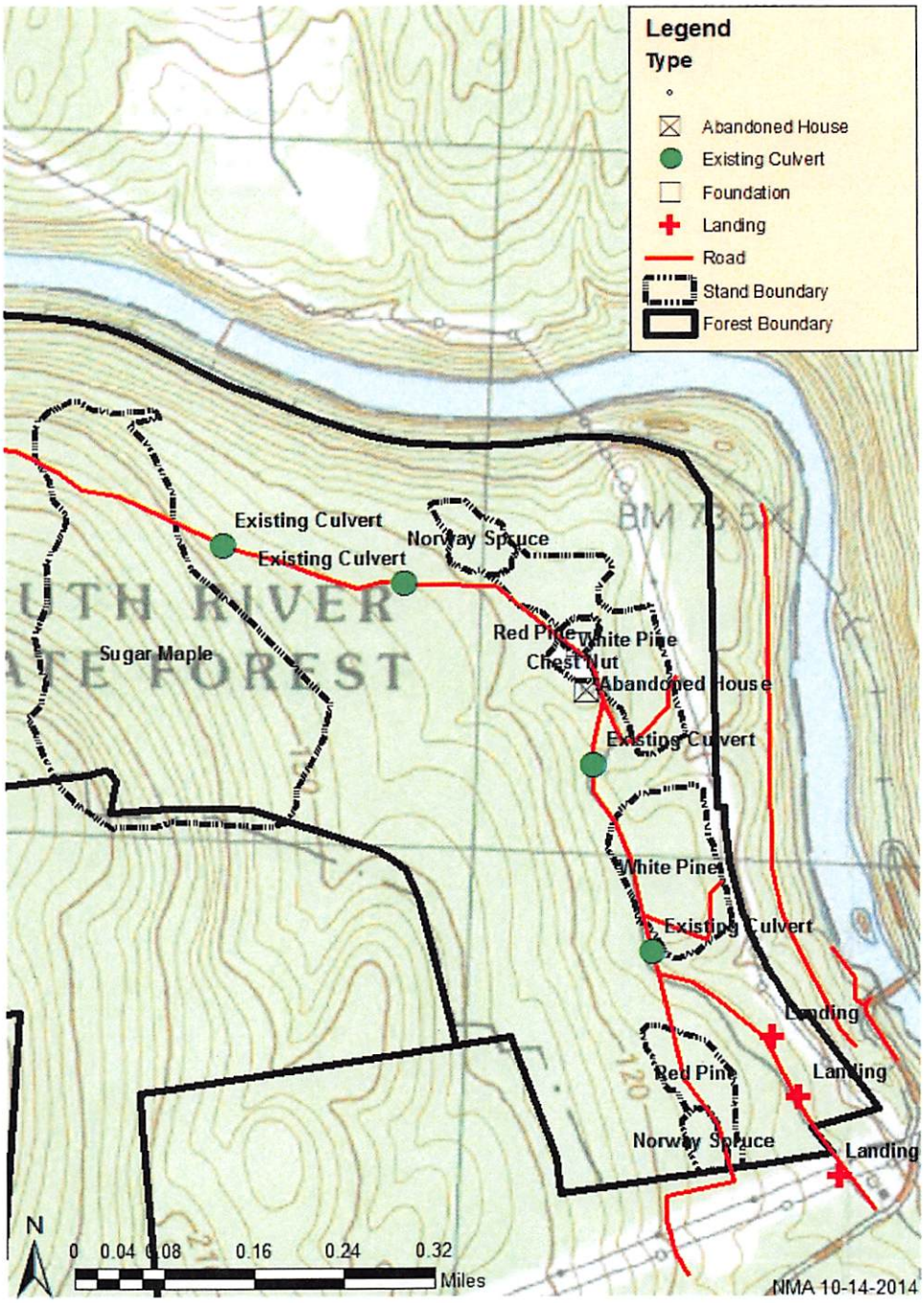
Field Operations Team Leader
Or Park Supervisor: _____ **Date:** 1-7-15

Regional Director: _____ **Date:** 1-7-15

Management Forestry
Program Supervisor: _____ **Date:** 1-7-15

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

South River State Forest Type Map
Conway, MA



South River State Forest Locus Map
Conway, MA