Massachusetts Department of Conservation and Recreation
Bureau of Forest Fire Control and Forestry
Forest Management Proposal
Name: Erving Red Pine

Date Posted:	**January 21, 2015**
End of Comment Period:	**March 7, 2015**

Region:	Central
Recreation District:	**CT Valley**
Forest Management District:	**Eastern CT Valley**
State Forest:	**Erving State Forest**
Closest Road:	**Rt.2**
Town	**Erving**

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Overview:

The Erving Red Pine Management Project is located in the town of Erving, MA. It is located north of Rt.2 and the Millers River and is near the headquarters of Erving State Park (see attached locus map). It is also the former site of a CCC camp (Civilian Conservation Corp camp). This is an excellent site for forest management because:

- It fulfills management approaches for Woodlands as directed by the Forest Futures Visioning Process (2010) and subsequent Management Guidelines (2012).
- An opportunity to manage crowded red pine plantations(*Pinus resinosa*) and allow more light, water, and nutrients to residual native vegetation, such as eastern white pine(*Pinus strobus*), and red oak(*Quercus rubra*).
- An opportunity to diversify the vertical structure of the forest on a relatively large scale.
- An excellent opportunity to demonstrate new silvicultural methods.
- An opportunity to improve wildlife habitat.

The Erving State Forest Red Pine Management Project plans to:

- Demonstrate uneven age and multi-age silvicultural systems including expanding gap irregular shelterwood method with openings up to 1/3 acre in maturing oak and hemlock (*Tsuga canadensis*) stands.
- Demonstrate patch clearcuts and shelterwood methods with openings up to 5 acres with reserves/green tree retention in red pine/white pine stands with no advanced regeneration.
- Demonstrate harvesting techniques and best management practices that protect forest productivity, soil, and water resources.

Stand Description:

The project consists of two stands, which were delineated using information derived from Sewell Vegetation layer in ArcGIS. Stand 1 is located north of Rt. 2, west of Orange State Forest, and east and south of Stand 2 and private land to the west (see attached project map). It is a 207 acre even age RP/WP (red pine/white pine type forest) stand that is well stocked with large trees mostly red pine, white pine, and red oak. There is also a smaller amount of Norway spruce (*Picea abies*), red maple (*Acer rubrum*), American beech (*Fagus grandifolia*), white oak (*Quercus alba*) and sugar maple (*Acer saccharum*). The age of the trees is approximately 76 years old. There are areas of white pine advanced regeneration scattered throughout the stand. The stand contains an area with concrete and stone foundations that was the site of a CCC camp. There is also a maintained field and gravel bank (see attached project map). The topography of the stand is lower hill top in the north of the stand with a southerly aspect with slopes that vary from 3-50 percent that slope towards Rt. 2. The stand also contains two streams. The soils on the stand are 109F Chatfield-Hollis complex with 3-8 percent slopes rocky and well drained, 112B Canton-Chatfield-Hollis complex with 3-8 percent slopes rocky and well drained, 119F Chatfield-Canton complex with slopes of 25-50 percent rocky and well drained, 229F Windsor and Merrimac with 25-60 percent slopes and excessively drained, 245B Hinckley sandy loam with 3-8 percent slopes and excessively drained, 245C which is the same as 245B except it has slopes of 8-15 percent, 421B Canton fine sandy loam with 3-8 percent slopes very stony and well drained, 421C which is the same as 421B except with 8-15 percent slopes, 421D which is the same as the previous two soils but has 15-25 percent slopes, 441C Gloucester sandy loam with 8-15 percent slopes very stony and somewhat excessively drained, and finally 441F which is the same as 441C except with 25-45 percent slopes.

Stand 2 is located north and west of stand 1, east of private land, and Mountain Road borders it to the north (see attached project map). It is a 34 acre even age RO/HK (red oak and hemlock type forest) that well stocked with large trees, mostly red oak, hemlock and smaller amounts of red maple, black birch (*Betula lenta*), and white pine. The age of the trees is approximately 76 years. The stand contains one stream. The topography of the stand is a slight slope to the south west and steeper slopes along the stream with east and west aspects. The soils on the stand are 112B, 119F, 229F, and 421C which are described above in stand 1. The remaining soils are 260B Sudbury sandy loam with 3-8 percent slopes and moderately well drained, 386B Essex sandy loam with 3-8 percent slopes very stony and well drained,427B Newfields fine sandy loam with 3-8 percent slopes extremely stony and moderately well drained.

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 site history (land use; agriculture/logging) vegetation cover) suggest that stand 1 has a low soil productivity and forest complexity indicating that even age methods of regeneration may be appropriate, and stand 2 has a medium soil productivity and forest complexity, indicating that uneven age methods of regeneration may be appropriate.

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

Aesthetic:

The trees marked within 50' of Mountain Road, Moss Brook Road and Rt.2 will be marked only on the forest side for aesthetic reasons. Slash will be treated according to the MA slash law requirements, plus interior slash will be maintained 2 feet or lower. Directional felling will be used to protect advanced regeneration and the CCC camp foundations. Landings will be graded and seeded with native vegetation.

Recreation:

Recreational activities in Erving State Forest include hiking, fishing, hunting, bird watching. The only impact to recreation will be the use of the woods roads to harvest products.

Wetlands:

Variable width filter strips will be established along the two streams, and temporary bridges will be used for any stream crossing. This will reduce short and long term impacts on these sensitive resources. The streams locations indicated on the map are approximate and were derived using USGS topographical maps.

Cultural Resources:

A former CCC camp was located in the southern section of stand 1(see attached project map). Concrete and stone foundations still exist and are of interest to the park and interpretive services, and therefore the harvest will remove trees from the foundation's area without harming them. All CCC resources will be marked with flagging in the field and mapped accordingly, any trees to be removed within these areas will be directionally felled away from all structures in an attempt to minimize disturbance to these cultural resources.

Rare and Endangered Species

A GIS review of the latest Natural Heritage and Endangered Species Program has found no Priority Habitat, Estimated Habitat, or certified vernal pools located in the project area.

Wildlife

A visual sighting of turkey as well as deer sign was noticed during the initial reconnaissance of the stands. Other mammals that might be present on this site are; black bear, raccoons, rabbits, squirrels, chipmunks, and porcupines. Amphibians expected to inhabit the area include; toads, frogs and salamanders. Reptiles expected to inhabit the site are turtles and snakes. A variety of birds inhabit the area including birds of prey. Habitat for wildlife will be maintained and enhanced by

retaining large diameter den trees (>18'dbh) at the minimum of one to three per acre, and smaller den trees 2-4 per acre, especially in riparian areas. Removal of vegetation in 1/3 acre variably shaped openings and occasional 5 acre variably shaped openings will create plant diversity and structure that will likely benefit a variety of wildlife species. According to the Department of Fish and Wildlife, openings of 5 acres provide substantial benefit for a suite of declining songbirds that are listed as species of conservation concern in the Massachusetts state wildlife action plan. Green tree retention within these larger openings will provide mast production, structural diversity, and relatively cool, moist micro-climates, all of which benefit an array of wildlife species. The harvest will leave the tops of the trees in the forest creating down woody debris which is beneficial habitat for small mammals, amphibians, insects, and for nutrient cycling.

Sale Layout and Harvesting Limitations:

The two stands will be harvested using landings located adjacent to the truck road (see attached project map). There will be no skidding on or across the truck road, and only vehicles with rubber tires will be allowed on the truck road. Stream crossings will use temporary bridges to eliminate damage and erosion to the stream banks. Variable width filter strips will be placed along the streams. A 50 foot no cut buffer will be placed along the east side of stand 1, as Orange State Forest is designated forest reserve.

There will be no restrictions on the type of harvesting equipment used. Whole tree harvesting (the removal of the trees including the limbs and tops) will not be allowed. Harvesting in the CCC area will require directional felling and use of equipment that will protect the foundations. Harvesting will not take place during mud season (March 15th-May 1st) and during high fire conditions unless written permission is obtained from the forester.

During the harvest the skid roads and truck road will have erosion maintenance performed as required. Landings will be cleared of forest products at the end of harvesting, then graded and seeded with native vegetation selected by the forester. Skid roads will be graded and seeded with native vegetation selected by the forester. All truck roads will be restored to pre-harvest condition.

Silviculture:

The silvicultural treatment of stand 1 will vary depending on the presence of advanced regeneration. A combination of two even age methods of regeneration will be used. Where there is advanced regeneration present, patch clear cuts up to 5 acres with reserves/green tree retention will be used. This will release the advanced regeneration (allowing the regeneration more light, water, and nutrients) and provide more desirable conditions for further native species regeneration, especially shade intolerant species like black and pin cherry, paper birch, and aspen. This will also benefit intermediate shade tolerant trees like red oak and white pine. Furthermore, the larger opening size will create conditions favorable for bird habitat, deer browse, and other small mammal habitat.

Where there is no advanced regeneration a two step shelterwood system will be used. This will involve removal of trees up to 50% of the forest canopy in the first step, during which individual

trees that are less healthy and have smaller crowns trees will be cut to favor remaining canopy trees with larger crowns and better form. The first entry will leave the residual trees spaced to allow light to the forest floor which will be necessary for the establishment of regeneration. The second entry will occur 10-20 years later and will include new openings and expansion of openings established during the first entry. These treatments will establish small groups of even aged forests, and at a larger scale a multiple aged forest.

The silvicultural treatment of stand 2 will use an uneven age system, an irregular expanding shelterwood. Openings of variable sizes up to 1/3 acre will release any advanced regeneration, and in areas of no advanced regeneration will create regeneration. The openings will be thinned on the edges to allow more light into the opening to benefit intermediate shade tolerant species such as red oak and white pine. Future treatments of new openings and expanding on existing openings will be at 10-20 year intervals. These treatments will establish a diversified species multiple aged forest.

District Forester: _____ **Date:** 12/22/2014

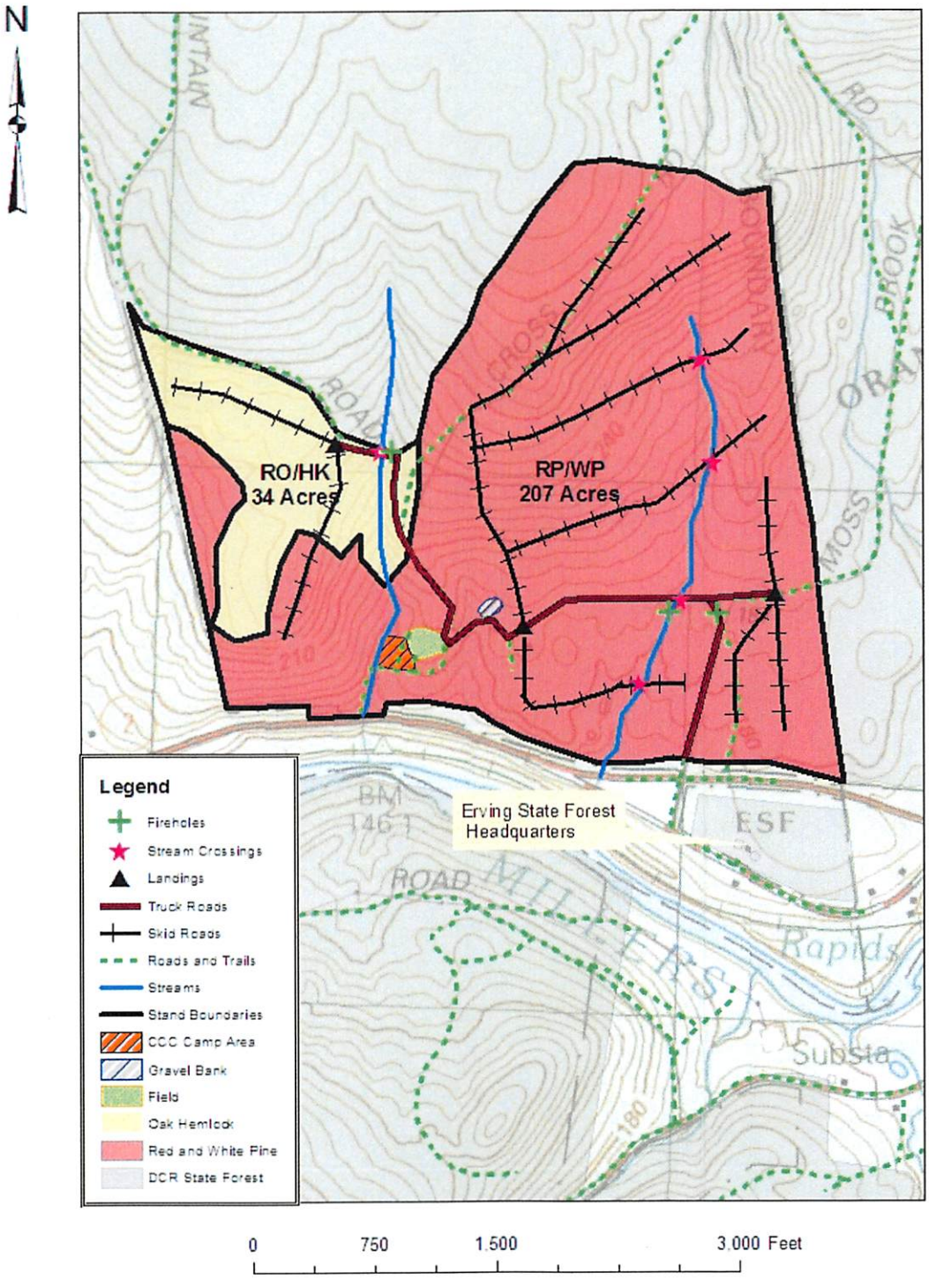
Field Operations Team Leader Or Park Supervisor: _____ **Date:** 12/24/14

District Manager
Regional Director: _____ **Date:** 12/29/14

Management Forestry Program Supervisor: _____ **Date:** 12/22/2014

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

ERVING STATE FOREST RED PINE MANAGEMENT PROJECT



ERVING STATE FOREST RED PINE MANAGEMENT PROJECT LOCUS MAP