

**Massachusetts Department of Conservation and Recreation  
Bureau of Forest Fire Control and Forestry  
Forest Management Proposal  
Name: Oakham State Forest – Stonewall Lot**

**Date Posted:** February 26, 2016  
**End of Comment Period:** April 10, 2016

**Region:** Central  
**Recreation District:** Central Highlands  
**Forest Management District:** Mid State  
**State Forest:** Oakham State Forest  
**Closest Road:** Spencer Road, East Hill Road and Flint Road  
**Town:** Oakham

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**Overview:**

Oakham State Forest is comprised of two separate parcels in Oakham, Massachusetts. The smaller parcel consists of ±85 acres with access being from Sanders Road. The larger parcel consists of ±550 acres and is accessed from Spencer Road, East Hill Road and Flint Road. Management is being proposed at this time for the larger parcel only, there are no management projects being proposed for the smaller parcel at this time. This proposal includes a management approach which will treat the entire larger parcel of Oakham State Forest with multiple timber sales over a four to five year period.

Oakham State Forest was acquired parcel by parcel beginning in 1916. The landscape surrounding and within the state forest was dominated by agriculture including sheep grazing, dairy and crop production. The state forest itself was home to at least four independent homesteads. In the early 20<sup>th</sup> century, what makes up the current Oakham State Forest was virtually void of trees and beginning to regenerate into a forest from abandoned agricultural practices. The project area encompasses four “Reforestation Lots”, where in some locations red pine (*Pinus resinosa*), white pine (*Pinus strobus*) and Norway spruce (*Picea abies*) were planted on lands that were heavily cut over, overgrazed or had been subject to repetitive fires.

There is a significant history of active forest management on this property since 1920. Early timber stand improvement work began in the late 1920’s which lasted into the 1960’s. More recently, forest management took place in the 1980’s with firewood thinnings and one timber sale.

As stated in the "Landscape Designations for DCR Parks & Forests: Selection Criteria and Management Guidelines", Oakham State Forest is designated as a Woodland. This project is being proposed at this time for the following reasons:

- 1.) The forest stands at Oakham State Forest are approaching 100 years in age and are even aged. Forest structure is uniform and consists of mature trees. There is a lack of vegetative diversity, structural complexity and resiliency to natural disturbance.
- 2.) The plantations which remain on the property are in poor condition, have stagnated in growth and are beginning to decline.
- 3.) Access to the proposed project area is excellent, with opportunities to improve and repair interior forest roads and provide gate installations through in-kind services.
- 4.) The state forest has an extensive history of past silvicultural treatments.

The goals and objectives of this proposed project include the following:

- 1.) Demonstrate uneven aged management (single tree and group selection) to prepare a mature forest containing several forest stand types to enhance and promote vegetative diversity, structural complexity and forest productivity.
- 2.) Demonstrate even aged management (shelterwood method) to prepare an even-aged, mature forest, including plantations of non-native Norway spruce and native white pine, to regenerate a diverse mixture of native species.
- 3.) Demonstrate harvesting techniques and best management practices that protect and enhance forest productivity, soil and water resources.
- 4.) Use in-kind services to improve the existing infrastructure at the state forest.
- 5.) Provide an opportunity to educate the public on forest resource management.
- 6.) Provide an opportunity to support local businesses that rely upon obtaining work from forest management.

### **Stand Description:**

For the purposes of this proposal, Oakham State Forest contains four basic forest stand types, totaling ±550 acres. They include ±32 acres of softwood plantations, ±234 acres of white pine-oak, ±282 acres of mixed oak and a ±3 acre red pine plantation. The property is underlain by several soil types. They include the Bucksport and Wonsqauk mucks, Merrimac fine sandy loam, Paxton fine sandy loam, Woodbridge-Paxton association, Ridgebury-Whitman association, Charlton-Chatfield-Hollis association and the Charlton-Chatfield association. Approximately, 79% of the soils listed above are moderately well drained to somewhat excessively well drained as well as moderately suited to well suited for harvest operability. The remainder of the soil types, which mostly underlie wetlands, are poorly to very poorly drained and are poorly suited for harvest operability.

Average forest stand age throughout the property is between 95 and 105 years in age. The lowest elevation, on the far northwestern side of the property is 770 feet and the highest elevation on the property is on two separate hilltops at 1,000 feet.

Stand 1 is a ±32 acre even, single aged mixed softwood plantation. It is located in five separate sections on the property (see Harvest Maps). In each section Norway spruce is present; however there are also varying densities of white pine and red pine throughout. Some sections are dominated by white pine but are absent of red pine and others contain all three species evenly. Northern red

oak (*Quercus rubra*), white oak (*Quercus alba*), black oak (*Quercus velutina*), scarlet oak (*Quercus coccinea*), red maple (*Acer rubrum*) and white ash (*Fraxinus americana*) have grown into the stand and in some cases are sawtimber size. In areas where Norway spruce is dense, there is little to no regeneration present in the understory. Other areas contain sparse and scattered amounts of red maple, white pine, oak, birch (*Betula spp.*), and cherry (*Prunus spp.*) seedling, saplings and poletimber. The overstory trees are almost exclusively sawtimber sized and are beginning to decline in vigor due to stagnation. The stocking level is currently high. Most of the stands sections have been treated entirely in past silvicultural treatments. Recent treatments include the first stage of a shelterwood in 1981 and a commercial thinning in 1984 and 1987.

Stand 2 is a ±234 acre even, single aged white pine-oak stand. It is located in four separate sections on the property (see Harvest Maps). The dominant overstory trees are white pine and red oak. White oak, black oak, scarlet oak, white ash, red maple and Eastern hemlock (*Tsuga canadensis*) are present in varying numbers and densities also. Stand and tree vigor is fair to good at this time. On average, overstory trees are sawtimber in size. Scattered occurrences of white pine, oak, birch, cherry, red maple, hemlock and American beech (*Fagus grandifolia*) regeneration are present. Stocking is currently high. Portions of the stand that were treated in the past contain areas of larger diameter trees at a lower density. Areas that were not treated recently are more densely occupied by poorer quality, smaller stemmed trees. Recent treatments include the first stage of a shelterwood in 1981 and a commercial thinning in 1984 and 1987.

Stand 3 is a ±282 acre even, single aged mixed oak stand. It is located in seven separate sections on the property (see Harvest Maps). The dominant overstory species are red oak, black oak, scarlet oak and white oak. White pine, red maple and white ash are present in varying numbers and densities also. Stand and tree vigor is fair to good at this time. As with stand 2, areas that have had recent forest management contain areas of larger diameter trees at a lower density than areas that have not been treated, which contain a high number of poorer quality stems at a denser spacing. Recent treatments include the first stage of a shelterwood in 1981 and a commercial thinning in 1984 and 1987.

Stand 4 is a ±3 acre even aged red pine plantation located on the eastern side of the property. Red pine is the dominant overstory species. Currently, tree density is very high and stand condition is poor. The plantation has stagnated in growth and is in a declining state. There are no signs of diplodia tip blight or red pine scale at this time. The stand is beginning to fall in on itself and natural mortality is evident with several dead standing trees present. Tree size is mostly sawtimber with some poletimber present. Regeneration includes scattered amounts of American beech, red maple, birch, cherry, hemlock and oak to a lesser extent. There is no evidence of any past silvicultural treatments in this stand.

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

#### **Aesthetic:**

Oakham State Forest has road frontage on East Hill Road, Spencer Road and Flint Road. There are also several interior forest roads within the state forest. All aesthetic considerations will be made to legal recreational users of the state forest. Slash over 1" in diameter will be lopped to under 2 feet in height above the ground. Larger trees along the edges of trails and roads will be retained if they

appear healthy and wind firm. As mentioned in the DCR Management Guidelines for roads and trails, hazard trees will be harvested along the truck roads and skid trails. Harvester operation will be limited to times when ground conditions are stable. Directional felling to protect residual trees, wetlands, woods roads and trails will also be implemented. All trails and roads impacted by the forest management operations will be restored to their prior conditions. All required best management practices (BMP's) set forth in the most recent edition of the "Massachusetts Forestry: Best Management Practices Manual" shall be implemented across the proposed project area, including those regarding buffers, filter strips and slash. It is unknown at this time if any of the main, paved town roads are designated "scenic by-ways".

**Recreation:**

Oakham State Forest contains miles of forest roads and trails which are utilized for many recreational uses. Legal uses of the state forest include hiking, skiing, snowshoeing, hunting, horseback riding, geocaching, mountain biking as well as snowmobiling on authorized trails. A snowmobile trail that is maintained by the Coldbrook Snowmobile Club utilizes a portion of the forest road shown on the Harvest Maps. Consideration will be given to minimize conflict with recreational users. During winter months some interior forest roads will be cleared of snow to allow for truck traffic. The snowmobile club will be notified prior to the start of operations. This area will be temporarily closed during active harvest operations to protect the safety of the public. Signs will be posted along main roads and trails indicating closed areas.

**Wetlands:**

All required BMP's set forth in the most recent edition of the "Massachusetts Forestry: Best Management Practices Manual" shall be implemented across the proposed project area, including those regarding filter strips and buffers on wetlands, streams and potential vernal pools. The current DEP wetlands layer shows an array of wetland resources in the vicinity of and within the proposed project area (see Harvest Maps). There are several wetland resource areas located within the proposed project area. They include forested wetlands, shrub wetlands, a marsh and a few intermittent streams and wet seeps. There are no certified vernal pools located on the property. Any potential vernal pools will be buffered as if they were certified. Significant planning will be taken to avoid stream and wetland crossings as well as to minimize any impacts to any wetland resource areas within or abutting the proposed project area. There will be no harvesting in wetlands.

**Cultural Resources:**

As stated above, Oakham State Forest contains four "Reforestation Lots", three of which are included within the proposed project area. They are the Jones Lots and the Fullam Lot. These properties were purchased between 1908 and 1927, while the Reforestation Act was active. Portions of the plantations on these lots are still present to this day. There are many stone walls throughout the property; both interior stone walls as well as stone walls which serve as portions of the property boundary. Many of the interior forest roads are lined with stone walls intermittently. Four cellar holes (foundations) were mapped during the field work for this proposal. The area surrounding these foundations contain an elaborate layout of stone walls that indicate the extensive use of these homesteads which supported the individuals who occupied them. It is likely that many more cultural features relating to past land use will be found with more field time spent on the

property. Artisan wells, barbed wire fencing, piles of stones and other stonewalls could be encountered and will be mapped and buffered.

### **Rare and Endangered Species**

A review of the Natural Heritage and Endangered Species Program (NHESP) atlas shows that there are no habitat restrictions located within the project area. NHESP will review the project prior to any harvesting to determine if any limitations or modifications will be required.

### **Wildlife**

This parcel of Oakham State Forest is a common place for users to hunt deer and turkey. The availability of hard mast from the several oak species present on the property is beneficial for many species of wildlife. Minimal signs of wildlife were observed during the field reconnaissance in preparation of this proposal. Despite the signs of deer presence on the property, minimal browse damage was observed at this time.

In accordance with the "Landscape Designations for DCR Parks & Forests: Selection Criteria and Management Guidelines", the following wildlife habitat considerations will be implemented:

- 1.) Retention of at least 1 to 3 large diameter trees (where possible >18" dbh) and 4 live 10"-12" dbh trees per acre that have the potential to serve as cavity and den trees and future snags.
- 2.) Retention of all dead snags and stubs in harvest area as safe operating conditions allow.
- 3.) Retention of on average one of the oldest, largest diameter, well-formed dominant trees (where possible > 18" dbh) per acre in harvest area to serve as legacy trees.
- 4.) Maintain a minimum of 256 cords per acre of coarse woody material within the harvest area

### **Sale Layout and Harvesting Limitations:**

There will be several potential landing sites within the property to support the amount of timber sales planned for in this proposal (see Harvest Maps). Providing multiple options to the harvester will allow for better access and resource protection at the state forest. Planning for landing locations will be essential to minimize disturbance to the site as well as to keep aesthetic considerations in mind. Interior forest roads will serve as the primary skid roads. Secondary skid trails will be created when necessary to access parts of the project area that do not already have access and also to minimize skid distance. It is likely that a herring-bone like pattern will be used in these areas. Skid trails will be properly stabilized to prevent erosion and sedimentation with the use of water bars and/or slash where necessary. Roads and trails which are within the project area will be graded and stabilized upon completion. Trees will be cut up to the edges of roads and trails to lessen hazardous tree presence where necessary.

Wetland resource areas will be delineated with flagging and subsequently with painted double stripes. All wetlands will be buffered with a 50-foot no cut area. All wetland resource areas as well as no-cut areas will be buffered by double striping. This will indicate that machinery should not operate within the buffer and trees should be felled away from the buffered area. It is unknown at this time if stream or wetland crossings will be necessary, but planning efforts will minimize impacts to wetland resource areas to the extent necessary.

A cut to length logging system will be the primary logging method utilized. There will be no whole tree harvesting for these proposed projects. Hand cutting with use of a skidder or forwarder will also be permitted.

Timing of operation is dependent upon stable ground conditions. An open dialogue with the local snowmobile club that utilizes the trail through Oakham State Forest will be necessary maintain snowmobiler safety. Some portions of interior forest roads may need to be plowed and sanded for access by tractor trailer trucks. An attempt to minimize conflict between legal uses of the state forest will be made when appropriate. Signs will be posted which will close the area during active logging hours.

Use of in-kind services to improve interior forest roads will be made. This may include, gravel spreading, grading, brushing back roads and the installation of gates.

### **Silviculture:**

The silvicultural treatments proposed below are consistent with the management guidelines for Woodlands as outlined in DCR's "Landscape Designations for DCR Parks & Forests: Selection Criteria and Management Guidelines". Use of the "Goodwin and Hill Forest Productivity and Complexity Model" rated the majority of stands 1-4 as low to moderate. This classification lends itself to both even and uneven aged management methods. These stands will be reviewed for future treatment between 10-15 years after harvesting.

#### **Stand 1 - Softwood Plantation**

This stand will be treated with the even aged shelterwood regeneration method. The objective is to thin the overstory to allow increased sunlight to the forest floor. This will provide enough light to establish regeneration in areas where it is absent as well as to partially release existing advanced regeneration. The poorest quality, non-native trees will be the focus for removal. Mixed oak and other hardwood species in various size classes will be maintained for species diversity and structural complexity throughout the stand sections.

#### **Stand 2 – White Pine – Oak**

This stand will be treated with an uneven aged silvicultural system. Group selection up to 1½ acres will be implemented with single tree selection in between groups. Trees with poor vigor and growth habit will be targeted for removal. The desired future condition of this stand is to create an uneven aged forest stand which exhibits a diverse mix of native species as well as increased forest complexity and structure over time with subsequent entries. The amount of light that will reach the forest floor by using single tree selection and group selection will create the growing conditions which will support the growth of a variety of tree species. This includes shade intolerant species such as cherry and birch, mid shade tolerant species such as oak and pine and shade tolerant species such as hemlock.

#### **Stand 3 – Mixed Oak**


This stand will be treated with two separate silvicultural systems. In areas which contain high densities of smaller diameter poor quality stems, an uneven aged approach will be utilized. These areas will undergo group selection up to 1½ acres with single tree selection in between groups. The desired future condition of this stand is to create an uneven aged forest stand which exhibits a

diverse mix of native species as well as increased forest complexity and structure over time with subsequent entries. The even aged shelterwood regeneration method will be applied in areas that contain larger diameter trees at lower densities. This will increase sunlight to the forest floor to partially release advanced regeneration as well as create conditions for regeneration to become established under the partial shelter of the residual overstory. The desired future condition of this stand type will be to regenerate the stand with a diversified mixture of native tree species. The amount of light that will reach the forest floor by using single tree and group selection will create the growing conditions which will support the growth of a variety of tree species. This includes shade intolerant species such as cherry and birch, mid shade tolerant species such as oak and pine and shade tolerant species such as hemlock. The shelterwood method will encourage the growth of mid shade tolerant species to grow, such as white pine and oak.

#### Stand 4 – Red Pine Plantation

This stand will be treated with the even aged shelterwood regeneration method. This treatment will focus on removing a portion of the overstory which contains mature and stagnated red pine. This plantation is a high risk area for infestation from disease and insects. By removing a portion of the overstory, light will access the forest floor and both partially release advanced regeneration present and also allow regeneration to become established in areas absent of regeneration. The desired future condition is a forest stand that contains a mixture of native tree species.

District Forester:



Date:

2/10/16

Field Operations Team Leader


Chi Hui for  
BOB GRAHAM

Or Park Supervisor:

Date:

2/10/16

Regional Director:

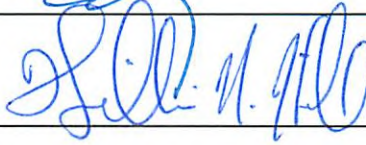


Date:

2/11/16

Management Forestry

Program Supervisor:



Date:

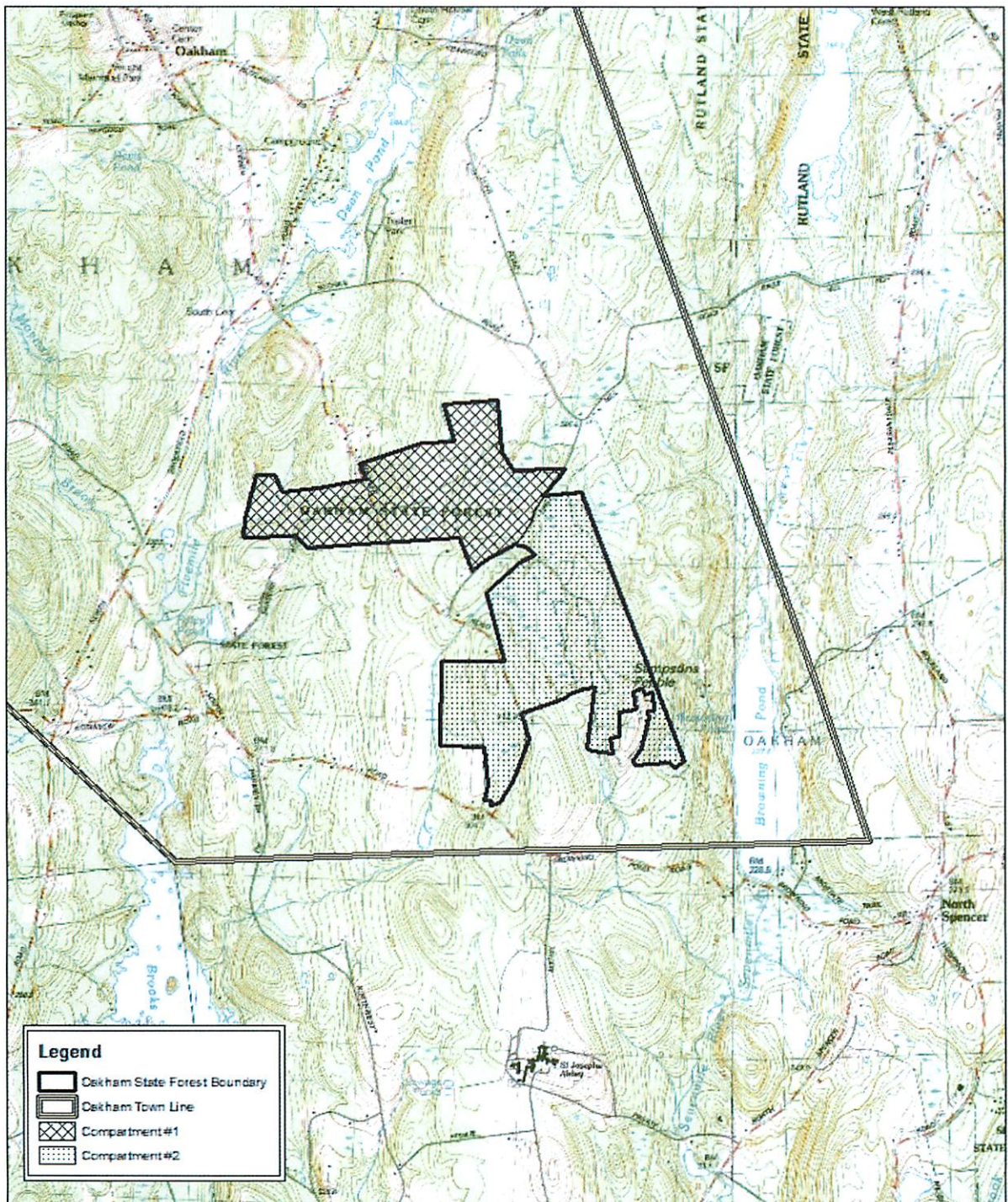
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Attached: Topographic map showing project details. Locus map showing project location within regional context.



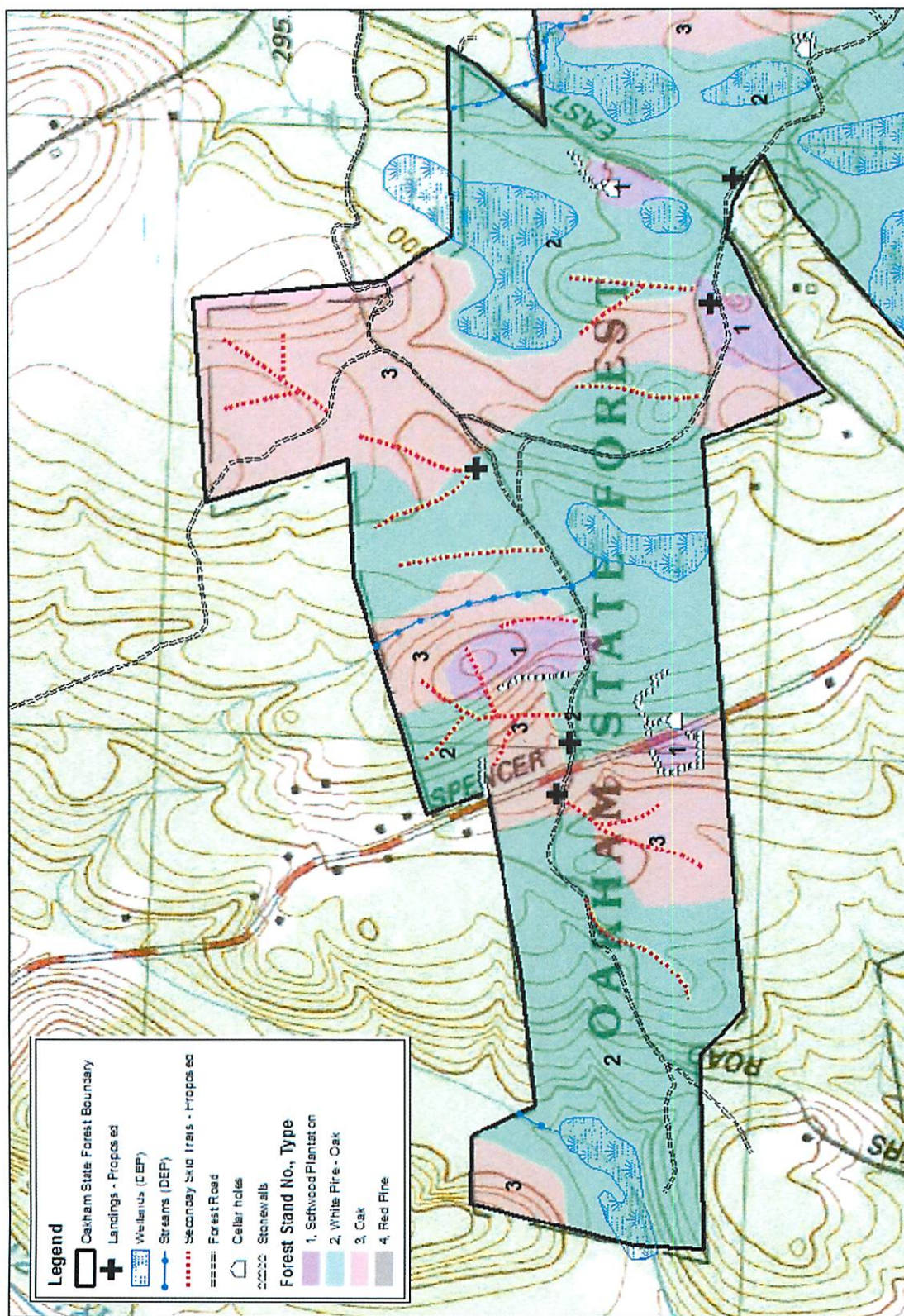
Oakham State Forest  
Stonewall Lot  
Locus Map

0 1,050 2,100 4,200 Feet



Map Prepared by Joelle Vautour - Mid State Management Forester - January 19, 2016

# Oakham State Forest Stonewall Lot - Compartment #1 Harvest Map

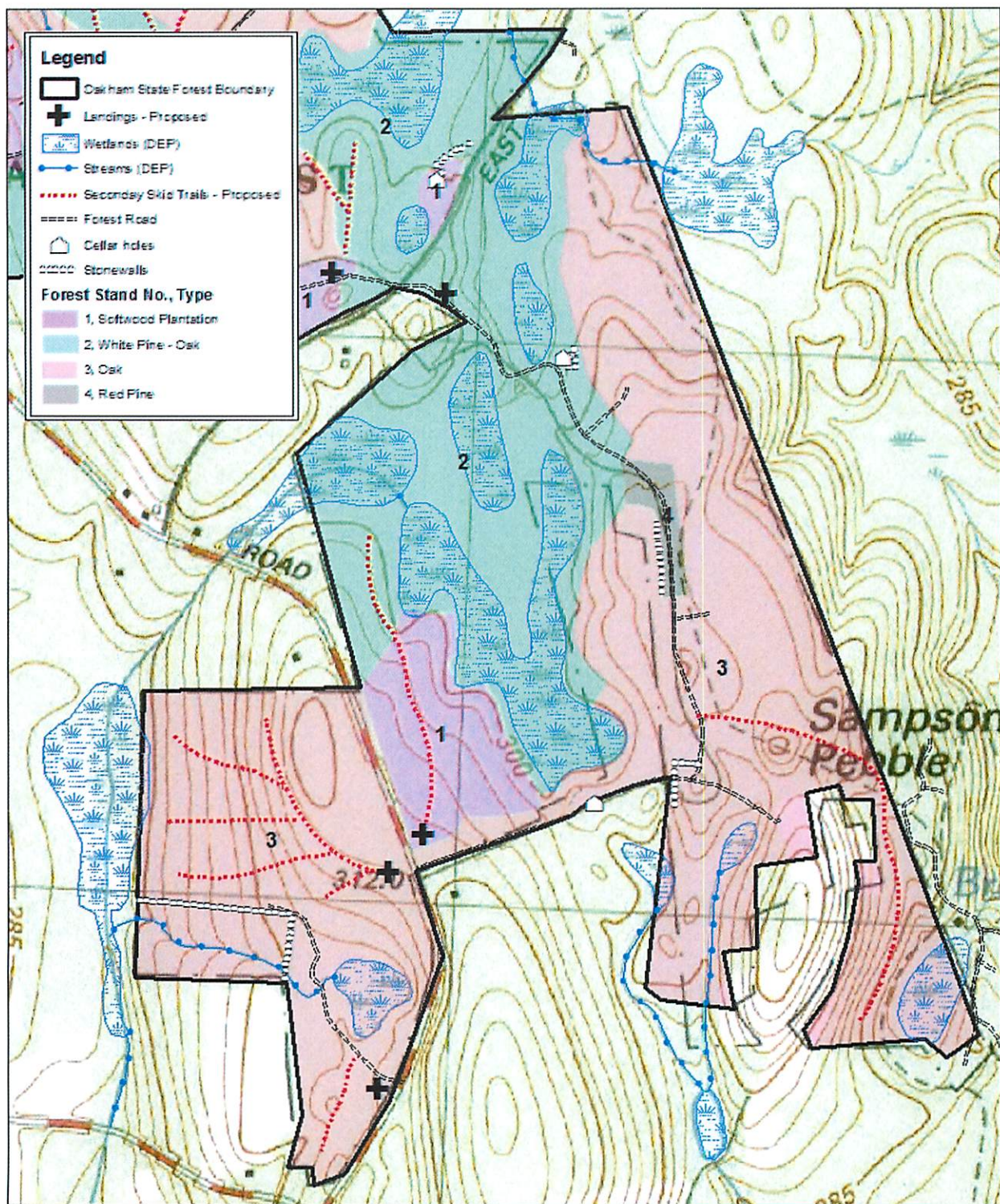


Map Prepared by Joelle Vautour - Mid State Management Forester - January 19, 2016



Oakham State Forest  
Stonewall Lot - Compartment #2  
Harvest Map

0 305 610 1220 Feet



Map Prepared by Joelle Vautour - Mid State Management Forester - January 19, 2016