Massachusetts Department of Conservation and Recreation

Silviculture Prescription
Sykes Mountain Lot

Massachusetts Department of Conservation and Recreation
Bureau of Forestry

Central Berkshire District
October Mountain State Forest
Pittsfield, MA

Prepared by:

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Approved by:
Management Forestry
Program Supervisor _____ Date: October 8, 2019
William N. Hill, CF

Overview:

The Sykes Mountain Lot Forest Management project is on the northern portion of the October Mountain State Forest (see Locus Map) along Sykes Mountain Road which is accessed from New Lenox Road in the City of Pittsfield. It comprises approximately 218 acres of Northern Hardwood-Conifer Forest (mixedwood) stands.

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

- Portions of the project area have been affected by biotic agents such as emerald ash borer, beech bark disease, black knot and sugar maple borer.
- Significant portions of the project area have been repeatedly affected by abiotic agents (primarily ice storms) with major damage from the December 2008 ice storm.
- Will provide an opportunity to demonstrate regeneration/maintenance of mixed wood stands.
- This project will provide an opportunity to repair drainage and erosion issues on Sykes Mountain Road.
- Desire to capture monetary value of white ash trees prior to mortality due to EAB.
- This project area offers an excellent opportunity to demonstrate and fulfill objectives for DCR Woodlands including management for potential climate change.

The Sykes Mountain Forest Management Project proposes to:

- Demonstrate adaptive management in retaining/regenerating mixedwood forest types.
- Demonstrate/experiment with climate adaptation techniques.
- Demonstrate harvesting techniques and best management practices that protect forest productivity, soil and water resources.
- Repair drainage and erosion issues along portions of Sykes Mountain Road.
- Fulfill management approaches for Woodlands as directed by the Forest Futures Visioning Process (2010) and subsequent Management Guidelines (2012) including the maintaining structural and species diversity, providing positive benefits to wildlife and adapting forestry techniques in light of climate change and carbon stocks management.
- Use the Northern Institute of Applied Climate Science (NIACS) decision making process to aid in the preparation of this project by creating a Climate Change Adaptation Plan.

Site Data:

Stand Information: The proposed project area consists of approximately 218 acres of Northern Hardwood – Conifer (mixedwood) Stands where composition and dominate species varies throughout the project area. The dominant tree species that were observed are hemlock (Tsuga canadensis), white pine (Pinus strobes), sugar maple (Acer saccharum), red maple (Acer rubrum), yellow birch (Betula alleghaniensis), white birch (Betula papyrifera), black birch (Betula lenta), white ash (Fraxinus americana), black cherry (Prunus serotina), and American beech (Fagus grandifolia). Individuals of red oak (Quercus rubra), red spruce (Picea rubens), American elm (Ulmus americana), Hickories (Carya), service berry (Amelanchier laevis), butternut (Juglans, cinerea) and Tamarack (Larix laricina) were seen in or near the project area.

Historically this area was cleared for agricultural, surface mining and homesteads. Prior to the 1960's there was considerably more pine, spruce and hemlock in the mix. Due to previous management practices the species composition became widely variable, creating a mosaic of hardwood and softwood dominated stands. The current size class in this forest type ranges from small to large diameter trees with an estimated average of 12 inches but ranging from 6-30 inches. The stocking (density) of the forest in this project is generally high but there are natural gaps in the forest canopy

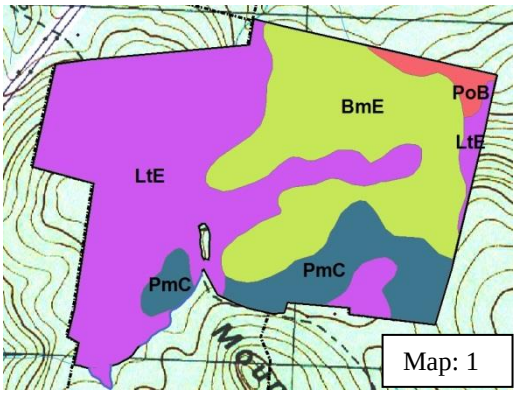
mostly caused by ice and wind damage. Throughout the project area white ash has been in decline for several years and is currently infested with emerald ash borer (EAB). There are considerable amounts of dead ash trees both standing and down, it is anticipated that the EAB will kill the remaining stressed ash trees. Beech Bark Disease is also having a negative effect within this forest. The stand age is approximately 80-100 years old.

Previous Silvicultural Treatments: This project is located on the former Myers Parcel that the Commonwealth acquired in March 1997. This property had been owned and managed by the Myers family under Chapter 61 since 1971. According to the 1974 management plan much of the currently proposed project area was "heavily cut over" and in the sapling to pole size. In this plan prescribed treatments were weeding and improvement cuts for these stands, but it is not clear if this happened. The plan dated 1982 called for no treatments. The final 1992 plan called for patch and selective cutting in portions of the project area, but was not completed due to "Long skid, low product value & demand". The 1992 plan also describes the results of the harvests in the 1960's as cutting large amounts of pine and hemlock with little regeneration of those species.

Topography: This proposed project area is located in the Northern portion of the October Mountain State Forest located on both sides of Sykes Mountain Road. The project is bounded by state forest boundary in all areas except the western portion of the south line which is a forested wetland and associated stream. The highest elevation of approximately 1620' is located along the southern boundary and gradually lowers to 1320' along the northern boundary. Terrain ranges from flat near the top of the project area to slope of approximately 20% with an average slope of 10%.

Soil: There are four 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 four types are described below (excerpts from "Soil Survey of Berkshire County Massachusetts", NRCS 1988).

- LtE – Lyman-Trunbridge Association: (111 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: (74 ac) This map unit consists of very deep, well drained Berkshire and Marlow soils. The soils are on the sides of hill and mountains.
- PoB – Pillsbury Loam: (5 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.
- PmC - Peru-Marlow Association: (28 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.



Map: 1

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 forest changing 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.

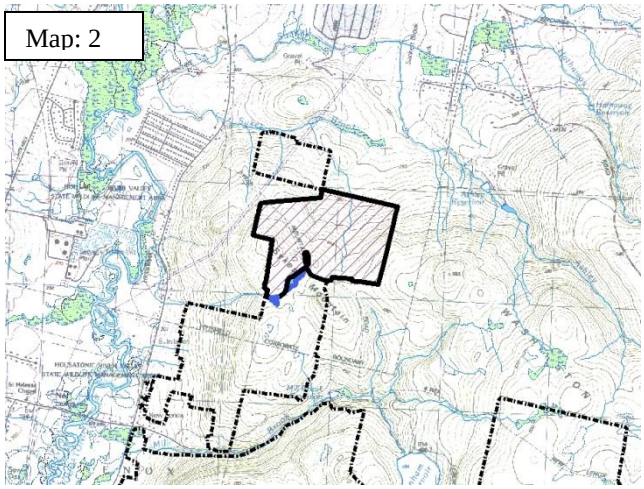
Table 1:

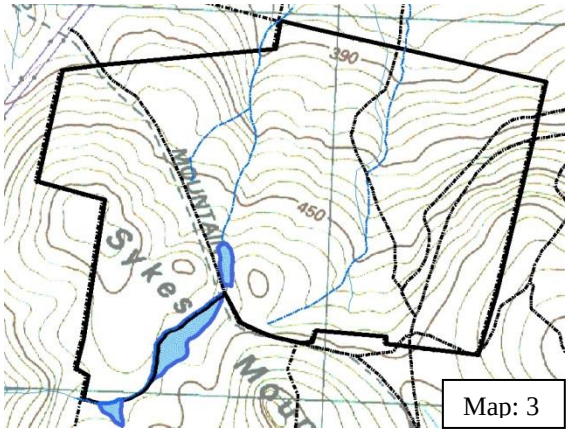
	2015 Annual	2014 Annual	Normal Annual Value	Normal Winter	Normal Spring	Normal Summer	Normal Fall
Annual Maximum Temp	56.1	54.0	55.3	31.7	54.3	76.7	57.9
Annual Minimum Temp	35.3	35.0	35.4	15.4	32.9	55	38
Annual Mean Temp	45.7	44.5	45.3	23.6	43.6	65.8	48
Total Precipitation (in)	40.63	44.17	45.38	8.6	11.44	12.74	12.6
Days with >= .01 Precipitation	130	141					
Average Wind Speed	6.6	6.7					

The most recent major event which damaged this project area was the ice storm of 2008. This event produced ice amounts of 0.5 – 1.5 inches thick on all surfaces causing extensive tree damage by breaking limbs and uprooting due to the ice's weight. This damage is still evident in the project area where many trees in the upper elevations with more than 50% crown loss have not recovered and broken branches and downed trees remain on the ground. There is also an area along the northern project boundary where a 2011 micro-burst wind event blew down 2-3 acres of the stand.

Hydrology and Watershed: The project area is located within the Upper Housatonic River Valley Area of Critical Environmental Concern (ACEC). This ACEC is especially important for containing public and private water supply, complex river ecosystems, important wetlands, and critical habitats for a wide variety of both common and rare plant and wildlife species. ACEC's provide increased protection for wetland resource areas, associated habitats and fisheries, biodiversity, public and private groundwater supplies, storm damage prevention or flood control functions, historic and archeological resources, scenic and recreational resources, and other natural resource values of the area. Therefore, in order to minimize any impacts on the site there will be no cutting within wetlands. In addition to the variable width filter strips located along each regulated stream, a 50 foot no cut buffer from wetland resources and regulated streams will provide additional protection to these valuable areas. Within the no cut buffer white ash may be removed if it is infested or will be imminently infested with EAB. White ash removed from the buffered wetland resources will be done without entering the buffer area with machinery. All stream crossings within the project area will use temporary bridges.

Map: 2





Along with wetland and streams located on the southwestern project boundary mentioned above, there are several additional regulated and unregulated streams located in the project area. Approximately 90% of the project area drains into connector streams flowing north entering Sykes Brook which then flows west across East New Lenox Road to the Housatonic River. In the remainder of the project area water flows directly west in unnamed streams across East New Lenox Road to the Housatonic River.

There are no mapped certified or potential vernal pools by NHESP. During initial site visits one potential vernal pool was noted, there may be other seasonal seeps, intermittent streams or small forested wetlands areas located throughout the project area not seen during initial site visits which could function as one. All mapped hydraulic features (wetlands, vernal pools, streams, etc.) and final access layout will be depicted in the Forest Cutting Plan and the Forest Products Sale Permit maps. This final sale lay out will be submitted to the DCR Ecologist for final comment prior to this project being bid.

Due to existing access and topography there is no anticipated intermittent stream crossing within this project area. Every effort will be made to avoid creating stream and wetland crossings if additional water features are found. All operations within regulated water features found in the area will at minimum follow the guidelines of the "Massachusetts Forestry Best Management Practices Manual"

Disease and Insects: There are past, current and potential threats to this project area including beech bark disease, white ash decline and emerald ash borer whose damage has been can or can be amplified by the crown damage and weakening of the trees during the 2008 ice storm.

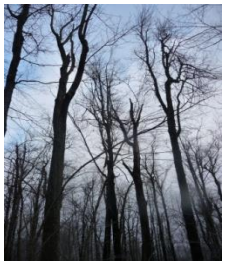
- Beech bark disease (BBD) was first found in Maine in the 1930s and has been spreading throughout the Northeast and beyond since then. It is believed to have come to the US from Europe through Nova Scotia. It has spread throughout the eastern United States and Canada.

BBD is a two stage insect/disease which starts when the beech scale insect attacks the bark leaving a path way for the Nectria fungus to invade and eventually lead to the death of the tree. BBD can attract other insects and diseases to hasten the declining tree into death. BBD reduces nut production negatively affecting wildlife which depends on it as a source of food. This disease will continue to re-infect the root sucker regeneration creating a continuous state of diseased beech in the stand.

There is evidence of resistance to the BBD in some individual beech. This is evident in dense beech stands were one or several stems appear vigorous and free of

BBD when all others are damaged. Potential resistant beech are generally maintained and promoted throughout the stand.

- Ash Decline or ash dieback is still fully not yet understood. It is believed to be caused by a combination of biotic and environmental conditions. This list of potential stresses includes ash yellows, air pollution, fungi, viruses, drought and insects. Ash decline is evident in most stands in the region where stands are overcrowded and with a high density of ash.



- 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 6.5 miles from this project area. It is generally accepted that there is no way to stop or control EAB.

Roads, Trails and Recreation: Sykes Mountain Road is an unmaintained road owned by the City of Pittsfield, which stretches between East New Lenox Road in Pittsfield to New Lenox Road in the town of Washington both of which are municipal owned roads. Vehicle access is from New Lenox Road. There are no private dwellings located along Sykes Mountain road however there are several foundations and adjacent stonewalls.

Sykes Mountain Road currently is in poor condition and only accessible by high clearance 4x4 vehicles or by foot due to erosion issues. Many water control features of the road have failed due to lack of maintenance subsequently the road has suffered significant erosion. Coordination with the City of Pittsfield will be sought in stabilizing the road both prior to and upon completion of the project to reduce effects of erosion. There are two other unnamed woods roads within the project area which traverse both State and City Property.

As per the "Landscape Designations for DCR Parks & Forests: Selection Criteria and Management Guidelines", there will be a 50 foot buffer along these two roads where no more than 50% of live basal area will be harvested and no slash with in 25' of the road will remain. The Massachusetts Slash Law will be observed beyond the 25' no slash zone.

The project area is open to all legal passive recreation activities that are allowed on DCR properties. There are no formal recreational trails within the project area, however Sykes Mountain Road is still a public road owned by the City of Pittsfield. During winter months local snowmobile clubs maintain the roads as snowmobile trails.

Currently there is an issue with illegal trail building/riding by mountain bikes on State Forest, City of Pittsfield Watershed and adjacent private land owner's property. The extent of this illegal trail network will be evaluated as part of this project and recommendations from DCR Recreation and Trail Staff will be sought. By default these trails will not be buffered or protected within this project area.

Cultural and Archeological Feature: There are no known pre-contact sites within the proposed project. There are several foundations, one old camp site and stone walls within the harvest area and several foundations located off of state property. There is also a stone wall along the northern boundary. These known features as well as any other features 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".

Wildlife / 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. 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. Any invasive species will be documented and treated within the project area as well.

No rare animals or critical habitat were noted upon the initial site visit. Large mammals noted by observed sign were moose, turkey, deer 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 coarse woody debris (CWD) and both live and dead wildlife trees (snags). The portions of the harvest areas that undergo 70-80% canopy removal will provide substantial benefits for wildlife species noted in the state Wildlife Action Plan as being associated with young forest habitat (see Chapters 3-4 at https://www.mass.gov/service-details/state-wildlife-action-plan-swap).

Stand Data:

Forest Stand Attributes: This prescription will describe the conditions and treatments within the 218 acre project area. This project area may be broken up into three stands for silvicultural treatment based on features such as roads, trails or streams for administration purposes. Throughout the project area the forest type changes gradually from softwood to hardwood dominated overstory creating a mosaic affect. Due to the continuously variable overstory this project will be considered one forest type.

Stand Structure: All of these northern hardwood dominated stands are considered to be fully stocked. These stands are approximately 110 years old and due to abiotic (ice) and biotic (insect and disease) agents portions of the overstory trees are in decline. These single age class stands are beginning to break up due to the above mentioned disturbances and regenerate slowly to American beech.

- Northern Hardwoods (NH): This stand is over stocked with a combined overstory and understory basal area of 140 ba/ac and is considered to be an "A" level according to local stocking charts. Under the current condition the stand is overcrowded causing the already stressed trees to compete for the limited resources. Hemlock, red maple, sugar maple, black birch, white ash, and American beech dominate the overstory with yellow birch, white pine, black cherry present in smaller amounts. The over story has a quadric mean of 12.0 dbh and a medial diameter of 14.9 with measured trees reaching 30"dbh. (Table 5)

  The understory of this stand is dominated by American beech seedling and saplings of all sizes (1551 stems/acre). Other understory species include stripe maple, hemlock, red maple, sugar maple, birches and black cherry. (Table 6) In this stand American beech, ferns, hobble bush are the dominant ground cover species (all trees less than 4.5' in height, shrub and herbaceous species) that would affect regeneration of tree species. Barberry was also found within the project area, these individuals will be treated/killed prior to harvest. A list of other observed species is below. (Table 7)

  Throughout the stand there is an average of 24 snags per acre. White ash accounts for a large percentage of recent snags however snags range in both size and species composition throughout the project area. (Table 8) On average is 676 cubic feet of coarse woody debris per acre were recorded in inventory transects. Much of this total is a result of the 2008 ice storm and recent mortality of white ash and is still in the hard/sound category.

Table 5: Overstory (all measured trees greater than 5"dbh)

	All species	Hemlock	Red maple	Sugar Maple	Black Birch	White Ash	American Beech	Black Cherry	White pine	Yellow Birch	Other
Basal area (square feet)	140	39.5	36.7	13.8	11.9	10.5	10	7.1	2.9	2.9	4.8
Percentage of stand	100	28	26	10	9	7	7	5	2	2	3
Acceptable growing stock (percent)	81	87	83	90	84	55	76	87	67	83	75
Stems per unit area (stems per acre)	178	44.7	42.1	17.3	20.1	11.4	21.5	5.3	0.8	4.7	9.8
Quadric Mean Diameter	12.0	12.7	12.6	12.1	10.4	13.0	9.2	15.7	26.1	10.5	9.4
Relative Density	79	20	20	13	7	2	9	3	1	2	2
Sawlog Net Total (bd/ac)	9496.9	3446.4	2203.9	852.5	255.1	1059.2	252.5	722.3	522.3	57.0	125.8
Cords Gross Total (cds/ac)	40.8	10.4	11.7	4.1	3.2	3.4	2.4	2.5	1.1	08	1.3

Table 6: Understory (measured trees less than 5"dbh)

SPECIES	<1 ft	1-4.5 ft	4.5ft – 1"dbh	1"-5" dbh	TOTAL
Beech	248.78	256.10	673.17	373.17	1551.22

Stripe Maple	36.59	14.63	160.98	204.88	417.07
Yellow Birch	0.00	14.63	29.27	36.59	80.49
Hemlock	43.90	0.00	0.00	14.63	58.54
Black Birch	21.95	7.32	14.63	7.32	51.22
Black Cherry	0.00	0.00	0.00	36.59	36.59
Red Maple	14.63	0.00	7.32	0.00	21.95
Sugar Maple	21.95	0.00	0.00	0.00	21.95
Other	7.32	0.00	14.63	14.63	36.58
TOTAL	395.12	292.68	900.00	687.80	2275.61

Table 7: Ground cover (all trees less than 4.5' in height, shrub and herbaceous species)

SPECIES	AVG. % COVER	# plots observed	% of plots observed
Ferns	0.83	20	55.56
Rubus	0.11	4	11.11
Grasses	0.08	3	8.33
Lycopodium	0.03	1	2.78
Sarsaparilla	0.06	1	2.78
Bar Berry	0.06	1	2.78
Hobblebush	0.06	1	2.78
Sassafras	0.22	1	2.78
Other	0.75	26	72.22

Table 8: NH - Snags

	All species	Hemlock	Red maple	Sugar Maple	Black Birch	White Ash	American Beech	Black Cherry	White pine	Yellow Birch	Other
Basal Area	14.3	3.8	1..9	.5	1	3.8	1.0	0	.5	.5	1.5
Tress/acre	24	4.5	5	.4	1.1	5.6	2.4	0	.2	.9	3.9

Evaluation of Data and Projected Results:

Primary/Secondary goals: Aided by the NIACS Climate Change Adaptation Plan strategies to mitigate climate change issues are incorporated this plan. Tactics to aid in the resistance, resilience and transition of this area are incorporated into the silviculture, project layout and harvesting techniques of this project.

The primary goal in the treatment of these stands is to retain the current mixedwood forest habitat type by promoting the regeneration of softwood species while adding structural diversity for wildlife species. To aid in resiliency and transition, minority hardwood species within the project area such as red oak, hickory, basswood and butternut will be retained and favored for regeneration. Based on previous treatment results, without intervention these stands will convert to hardwood stands dominated by beech. Secondary goals of harvesting in this area are to capture the value of current damaged and/or diseased trees and to pre-salvage and capture the value of white ash.

Silviculture Methods: These stands will be treated using an irregular shelterwood method, maintaining predominately softwood species in the overstory to promote their retention and regeneration. This project should be planned and executed during a good "seed year" for the dominate

softwood species, otherwise potential planting of native conifers may be needed to retain this forest type. Harvesting should also occur with little to no snow cover to allow for scarification of soils to provide an adequate seed bed for germination of softwood species. Generally between 20 and 80% of the volume within each stand will be harvested based on species composition, with lower volume removal generally occurring in portions of the treatment dominated by shade-tolerant hardwoods such as sugar maple and yellow birch, and higher volume removal generally occurring in portions of the treatment dominated by shade-intolerant hardwoods such as black cherry and white birch. Due to the mosaic patchwork of species distribution, geological features, and elevation changes, portions of this project area may not be treated.

For added wildlife value hardwood trees to be retained will be prioritized for mast production capacity (e.g., large crowned, wind-firm oak, cherry, hickory, butternut, and/or non-diseased beech trees, and potential den trees. To maintain species diversity it is important to prevent the proliferation of diseased American beech and therefore mechanical or chemical control of beech may be used in these stands where Beech Bark Disease is prevalent and harvesting will not create adequate light for competition from other species. Cut stump, "hack and squirt" or foliar spaying are techniques that have had favorable results in the past.

Desired Future Conditions: Ten years after this treatment it is anticipated that these stands will have greater diversity in size and structure. Regeneration in areas of heavier cutting should have a softwood species component equally competing with hardwood species. The expected outcome will have diverse forested conditions with a greater capability to withstand the issues associated with climate change – particularly intense weather events.

Anticipated Future Treatments: These stands should be looked at in approximately 5-7 years to ensure regeneration techniques have worked. If there is acceptable regeneration no further treatment is needed, if the density of beech regeneration becomes a concern, chemical control may be prescribed. If adequate softwood regeneration is not attained planting with thinning of hardwood regeneration may be needed.

Sale Layout and Harvesting Limitations:

The adaptation tactics from the NIACS Climate Change Adaptation Plan were used in the sale layout. This includes but is not limited to truck road maintenance, skid/forward road design, equipment / seasonal limitation, final closeout conditions and in-kind services.

Through the prescription process, timber sales will use subdivisions or units of the project/contract area to effectively control logging operations. Divisions will be determined by location, topography, species composition, and/or operational needs.

Project Access: Access to the proposed project area is from the intersection of East New Lenox Road and New Lenox Road in the town of Lenox, east on New Lenox Road for 1.5 miles towards the Town of Washington then north towards the City of Pittsfield for one mile to the project boundary on Sykes Mountain Road. This road continues north through the project area back onto private land.

Alternate access to the project area may be available from several other parcels (public and private) to the north and east of the project area. As this project moves forward permission for temporary access with abutters may be sought.

Landings: There are no currently existing landing areas large enough to support a modern timber harvest operation on DCR property. Currently four landing will be proposed off of Sykes Mountain Road to support a variety of equipment setups. Efforts will be made to set the landings back approximately 50 feet from the road to ensure the required buffer strip is kept intact where feasible.

Permission to utilize several existing landings located on the Pittsfield Watershed may be sought to help facilitate logging operations.

Skid Road and Trails: All main forwarder and skidder trails will be designated during the timber marking of the project area by the forester. Existing woods roads and trails that are in good condition will be utilized when possible and new trails will be laid out as directed in the "Massachusetts Forestry Best Management Practices Manual" and "Landscape Designations for DCR Parks & Forests: Selection Criteria and Management Guidelines".

Road and Trail Buffers: As per the "Landscape Designations for DCR Parks & Forests: Selection Criteria and Management Guidelines", there will be a 50 foot buffer along these two roads where no more than 50% of live basal area will be harvested and no slash within 25' of the road will remain. The Massachusetts Slash Law will be observed beyond the 25' no slash zone.

Equipment Limitations: Until further field work is completed there are no anticipated equipment limitations.

Hydraulic Features and Excluded Areas: Wetlands in the project area will be clearly identified and excluded from harvest. Equipment will be excluded from areas of sustained 40% or greater slopes if found.

All mapped hydraulic features (wetlands, vernal pools, streams, etc.) and final access layout will be depicted in the Forest Cutting Plan and the Forest Products Sale Permit maps. This final sale lay out will be submitted to the DCR Ecologist for final comment prior to this project being bid.

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 roads and trails will help mitigate current and future erosion of the Sykes Mountain Road and the unnamed woods roads.

Site Restoration: Upon completion of activity in the project area all roads, forwarder/skid roads and forwarder/skid trails will be left in a stable state by grading and installing water bars as needed. All landings will be clear of debris, graded and seeded with "Berkshire Conservation Mix" and straw.

Proximity to Designated Forest Reserves: The Reserved portion of October Mountain State Forest is located approximately 1 mile south of the project area. The project area and the reserved portion of the state forest are separated by private land and New Lenox Road.

In-kind Services: Proposed in-kind services to be attached to this project to date.

- Repair and restoration of drainage features on Sykes Mountain Road and other woods roads.
- Repair and restoration of illegal trail use. To protect any restoration work completed an attempt to block access to illegal trails will be made.

Prescription Documentation:

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

Sale Level:

1. Locate, flag (pink wetlands) and paint with two red diagonal stripes the buffers and filter strips along all wetland and associated streams.
2. Locate and paint with two red diagonal stripes the sale boundary (property boundary).
3. Flag temporary layout of primary and secondary skid trail network with orange flagging. Using orange paint mark small non commercial stems or stems already marked for removal located along adjusted skid trails upon completion of marking (Orange).

4. Flag Temporary layout of all wetland and stream crossing with labeled orange flagging. Using Red paint mark and label each crossing upon completion of marking and any final adjustment to location.
5. Locate and mark perimeter landings and with one red diagonal stripes.
6. General tree marking guide:

Type of Tree	**Tally Method**	**Mark Type**
Cut Saw Log	Individual tally DBH & height	Blue Horizontal Line
Cut Pulp/Cord Wood	Individual tally DBH - 1/10 height	Blue Dot
Cut Live Cull Tree	Count	Blue X
Dead Tree / Warning	No tally	Blue X

Irregular Shelterwood: Remove 30 to 80% of basal area within remaining project area based on existing ground conditions, including tree health, form and vigor using the following prioritized guide below. Residual density should remain higher in areas with acceptable growing stock.

1. White Ash greater than 10" DBH
2. Any infected American Beech greater than 5" DBH
3. Any species with less than 25 percent live crown
4. Unacceptable Red Maple, Sugar Maple, Birch
5. Unacceptable Black Cherry
6. Unacceptable Soft Wood Species
7. Other Acceptable Hardwood*

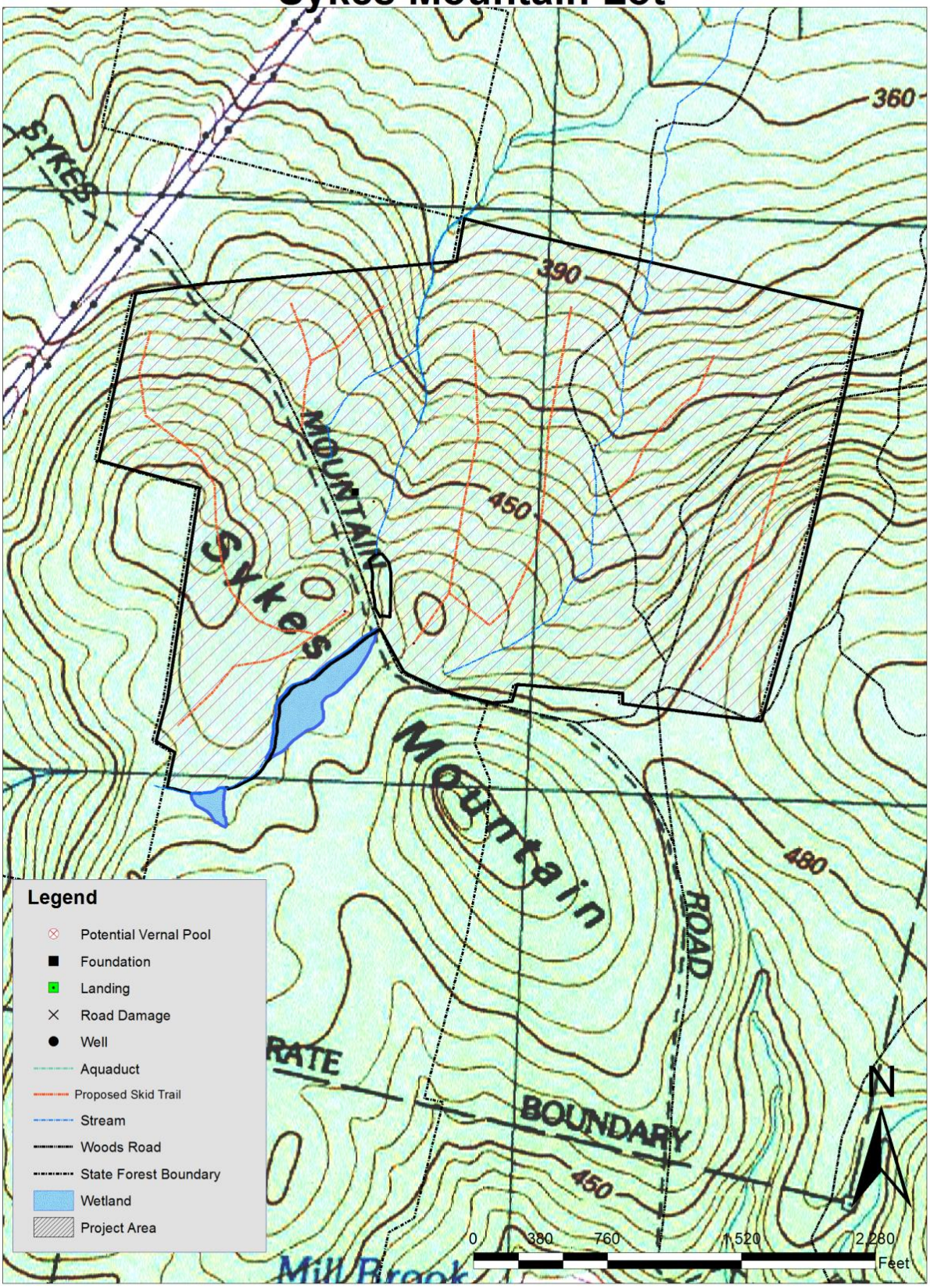
Residual Basal Area Ranges:

	Current Average	High	Low
Hardwood Desired	180	126	36
Softwood Desired	161	112	32

*no oak or hickory will be marked for harvest.

Attached: Stand Map and Locus Map showing location of Forest Products Sale Area

October Mountain State Forest
Sykes Mountain Lot



KMM 11/10/2017

Sykes Mountain Lot - Locus Map
October Mountain State Forest