

DCR-BOFF Forest Restoration Prescription

Project Name: Cattle Barn Lot	Date Proposed: June 30, 2021
Property Name: Mount Washington SF Intemann Lot	Town(s): Mount Washington
Project acres: 362 Active acres: 175.25	Landscape Designation: Woodlands
Forestry District: South Berkshire	Rec Complex/District: West Region/Lakes District
Forester: Tom Ryan	FOTL/F&P Supervisor: Adam Morris

Approved by:

Management Forestry 
 Program Supervisor _____ Date: _____
 Thomas Brulé

MASSACHUSETTS FOREST ACTION PLAN GOALS

* Increase resistance and resilience of trees and forests to mitigate and adapt to the effects of climate change
* Manage forest ecosystem health and biodiversity
* Support and enhance forest economy
* Maintain and enhance soil, water, and air resources
* Cultivate and support partnerships with forestry and conservation Stakeholders

GENERAL LOT DESCRIPTION

Acres	Forest Type		Stand Description
123.5	Overstory: Northern Hardwood	Understory: Variable. Scattered oak mixed hardwood seedling/sapling with pockets of maple and birch poles	Stand has gradual to moderate grades located mid slope on east and west aspects adjacent to Karner Brook. Boarding vegetative wetlands and hill side seeps are common. Overstory tree species include: sugar maple, red oak, white ash, red maple and birch; mid story scattered pockets of birch (black/yellow) and maple (sugar/red) poles as well as striped maple and witch hazel common. Ground cover ranging from largely absent (duff-leaf litter) to dense patches of hay scented fern and mixed forbs. Barberry and stilt grass and other invasive plant species are common.
95	Overstory: Oak Hardwoods	Understory: Variable. Scattered oak-mixed hardwood regeneration with chestnut sprouts	Stand has moderate to steep grades located on upper slope to ridge top with shallow rocky soils. Upland ephemeral drainages common that carry water from snow melt and rain events. Overstory species include: red oak, chestnut oak, red maple, black birch, sugar maple, white ash and white oak. Mid story of mountain laurel, witch hazel, striped maple, low bush blue berry and huckle berry. Sparse fern and forb ground cover. Invasive species absent to light intensity.
105	Overstory: Riparian Hemlock Hardwoods	Understory: Sparse mixed hardwood/hemlock regeneration	Stand has moderate to steep grades located on lower slopes occupying ravine of Karner Brook, intermittent streams, boarding vegetative wetlands and seeps. Overstory species include: hemlock, red/sugar maple and ash. Mid story

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			sparse of striped maple and witch hazel. Understory sparse to largely absent with exception of dense concentrations of invasive plants including barberry, multiflora rose and stilt grass.
6.5	Overstory: Softwood Plantation	Understory: oak and mixed hardwoods seedlings	Stand is nearly flat on former agricultural field; replanted to white spruce and European larch. Overstory includes: 1/2 of stand is dead and declining white spruce, 1/2 of stand is healthy European larch. Scattered aspen, red maple, black cherry are also present. Understory is dense hay scented and mixed ferns with blackberry (Rubus spp). Barberry, stilt grass, multiflora rose is common.
32	Overstory: Open field	Understory: Grass/forbs	Trees encroaching along field edges with dense hedge row of invasive species including barberry, multiflora rose, bittersweet and honeysuckle along periphery of field.

Description of Project Area: The Cattle Barn Forest management project is located on the Intemann Lot, which is the northern parcel of Mt. Washington State Forest along East Street; the largest maintained field along east street is known as the “Cattle Shed Field” inspiring namesake for this project; a smaller field to the south is known as the “Potato Shed Field”. This total project area comprises approximately 175 acres within the original 362-acre project proposal. A high priority for this project is to control invasive plants which are present throughout this project area. Control measures will use a suite of integrated pest management (IPM) strategies including mechanical, chemical, and intensive grazing with livestock. The forest stands are separated into northern hardwood, oak-hardwood, softwood plantations, maintained fields and Hemlock-Hardwood riparian/wetland complex. The transition between the northern hardwood and oak hardwood stands is a gradual. Sugar maple dominates the overstory on lower slopes with richer soils and is typed as Northern Hardwoods; while oak dominates the upper slopes with thinner less fertile soils and is typed as Oak Hardwoods. This project is within designated priority habitat by the MA Natural Heritage and Endangered Species Program and is subject to a timing restriction for equipment operation to occur only between November 1st and April 30th of any given year. NHESP has advised that a site-specific avoidance plan may be developed by a qualified biologist to investigate a reduction in timing restrictions. This area is within the Karner Brook Watershed and is designated as an Area of Critical Environmental Concern (ACEC). This project area is located within the source headwaters for the drinking water supply of the town of Egremont Water Department.

SOILS AND TOPOGRAPHIC FEATURES

Acres	Soil Type	Drainage Characteristic
<u>238 acres</u>	<u>LdE (931E) Lanesboro- Dummerston association</u>	<u>Loamy slope, steep (15-45% slopes), very stony, well drained and very high run off class</u>
<u>61 acres</u>	<u>FwC (930C) Fullam- Lanesboro association</u>	<u>Coarse silt loam, (3-15% Slopes), moderately well drained and high run off class</u>
<u>67 acres</u>	<u>TmE (932E) Taconic-Macomber association</u>	<u>Shallow gravelly loam, (15-45% slopes), somewhat excessively drained and very high run off class</u>

Average Slope Percent: Variable	Terrain Consistency: Variable
General Aspect: Varied	Terrain Position: Multiple
Description of Soils and Topographic Features: Well drained loamy soils with moderate risk for erosion from runoff storm events. Generally moderate slopes with easterly and westerly aspects funneling to head waters of	

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Karner Brook watershed.

WETLAND FEATURES

	Present	Crossing	Work within Filter/Buffer
Wetlands:	Yes	Yes	Yes
Regulated Streams:	Yes	Yes	Yes
Non-Regulated Streams:	Yes	Yes	Yes
Vernal Pools:	Possible	No	No
Seeps:	Yes	Yes	Yes

Description of Wetland Features: This project lies within source headwaters for the Karner Brook. The water resources located within the project area include: perennial and intermittent streams as well as upland drainages, bordering vegetative wetlands, seeps and isolated wetlands. Regulated water resources and their buffers are delineated in the field with double orange paint marks. The bulk of these water resources are contained within the stand typed as riparian hemlock-hardwoods and will be protected throughout the project area by variable width filter strips as required by the MA Forestry BMP Manual for an outstanding resource water. No heavy equipment will enter these core wetland resource areas except at designated crossing locations; some harvesting to occur along periphery.

CULTURAL RESOURCES

	Present	At Risk	Work Within Buffer
Stone Walls:	Yes	Possible	Yes
Foundation / Cellar Hole:	Yes	No	No
Well:	No	N/A	N/A
Structures:	Yes	Yes	Possible
Cemetery:	No	N/A	N/A
Other: Click or tap here to enter text.	Choose an item.	Choose an item.	Choose an item.

Description of Cultural Resources: Historic production of agricultural products as evident by fields, stone walls, remnant fence, cattle shed, and an earthen shed used for potato storage. The Cattle and Potato sheds are at risk and in poor condition; restoration recommended. The project area has a history of producing forest products as evident by charcoal hearths (pits), skid roads and cart paths, decomposing stumps and slash from previous timber harvests and likely sugar bush management. Currently there exists some passive recreational use by hikers and hunters.

NATURAL HERITAGE / WILDLIFE-HABITAT MANAGEMENT / OTHER RESOURCES

Natural Heritage Polygon: Yes	Natural Heritage Restrictions: Yes
Restrictions on Harvest Description: Per NHESP pre-file consultation - forestry operation use of heavy equipment is restricted to only occur between November 1st and April 30th to protect species of concern. Invasive plant control may occur without a time of year restriction if details are outlined as addendum to forest cutting plan with expectation to implement IPM work on foot with handheld tools.	
Wildlife Specific Management: Yes	Targeted Species: young forest species such as American woodcock, chestnut sided warbler and ruffed grouse
Goals: Create conditions for young forest habitat to benefit avian and other wildlife by increasing foraging	

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opportunities.	
Additional Habitat Management: Yes	Habitat Type: Ecological restoration
Goals: Control invasive plants within project area and restore ecological site integrity	
State Forest Action Plan: Yes	State Wildlife Action Plan: Yes
ACEC: Yes	Public Water Supply: Yes
BIO Map2: Yes	Current Resource Management Plan: No
Additional Detail: Click or tap here to enter text.	

FOREST HEALTH / INVASIVE SPECIES

Forest Health Concern: Yes	Species affected: white spruce
Management Considerations: white spruce trees are dead and declining; this section of softwood plantation will be treated with noncommercial clear cut and restore to native early successional hardwood stand.	

Plant Invasive Species Present: Yes	Species Present: Barberry, Stilt grass, multi-flora rose, bittersweet, honeysuckle, garlic mustard, autumn olive, phragmites
Management Considerations: The highest concentrations of invasive plants are in the area between East Street and Karner Brook proximate to the fields. Invasive control techniques to utilize mechanical cutting to grade followed by herbicide application after resprouting; this will reduce amount of herbicide to be used within this surface drinking water supply. Intensive livestock grazing may also be used proximate to cattle shed and field.	

Insect Invasive Species Present: Yes	Species Present: Emerald ash borer (<i>Agrilus planipennis</i>), spongy moth (<i>Lymantria dispar</i>), elongate hemlock scale (<i>Fiorinia externa</i>) and hemlock woolly adelgid (<i>Adelges tsugae</i>)
Management Considerations: Emerald ash borer (<i>Agrilus planipennis</i>) and spongy moth (<i>Lymantria dispar</i>) are present on site and are currently the greatest risk to the overall forest health of this site. Dead and dying ash trees will be harvested by salvage and sanitation harvesting. Monitor hemlocks for presence of elongate hemlock scale (<i>Fiorinia externa</i>) and hemlock woolly adelgid (<i>Adelges tsugae</i>). Monitor oak species, specifically white oak as favored host of spongy moth; other hardwoods and nearly all vegetation can be defoliated by spongy moth during high spongy moth population outbreaks.	

CLIMATE ADAPTATION AND CARBON CONSIDERATIONS

Action Type	Identified Issue	Action Description
Resilience	Predominantly mature even aged forest	Create variable age/stage classes with individual tree and group selection openings large enough to allow adequate light penetration for regenerating a greater diversity of native tree species.
Facilitated	White spruce plantation stagnant	Noncommercial clear cut former Christmas tree plantation that is dead/dying to restore site to native hardwood stand.

Adaptive Management Strategies: The combination of the silvicultural treatments above will enhance the ecological restoration and climate resilience of this site. Trees marked for harvest include dead and dying ash and spruce as well as acceptable and unacceptable hardwood growing stock. The treatments will aim to release established birch and maple poles that regenerated from harvest in the 1980's; retain all white oak and hickory and favor dominant/codominant healthy red oak, sugar maple and other mixed hardwoods. Target group

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selection openings of approx. 1/3 acre will create conditions for regeneration of a diversity of native trees.
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INFRASTRUCUTRE / RECREATION/ AESTHETICS

Access Road: yes	Ownership: state owned wood road
Condition: fair to poor	Road Repair/Upgrade: Yes
Existing Landing: Yes	Landing Repair/Upgrade: Yes
Project Access and Landing Site: Main access road to be maintained with approx. 1200 feet of gravel and fabric from edge of East Street to interior landing; interior failed culverts along wood road to be removed; eroded/washed out sections of wood road to be repaired. Frequent broad-based dips to be used along wood road to shed water from road.	

Existing Skid Trail Network: Yes	Pre-Harvest Repair/Upgrade: Possible
Skid Trail Network Description: Existing network or skid trails exist from previous land management activities; roads to be re-used are flagged/mapped.	

Shared Infrastructure: No	Road/Trail Names: Click or tap here to enter text.
Management Considerations: Click or tap here to enter text.	

Official Trail Present: No	Condition: Click or tap here to enter text.
Illegal Trail Present: No	Condition: Click or tap here to enter text.
Existing Trail Head: No	Condition: Click or tap here to enter text.
Recreation Facility: No	Condition: Click or tap here to enter text.
Recreation and Aesthetic Concerns/Opportunities: Current public access to this property is poor. The town roads are subject to a town wide no parking ordinance. The landings and access road maintenance will greatly improve access and parking opportunities for the public. This project will greatly improve public access post treatment for passive recreation, wildlife viewing and hunting.	

SILVICULTURE

Acres	Silviculture Type	Silviculture Description
172	Individual tree and group selection	This treatment will be used in both the oak-hardwoods and northern hardwoods stands with particular focus on white ash. Ash is being targeted for a salvage and sanitation (pre-salvage) purposes. Other marked trees to include oak, maple, birch and other mixed hardwoods.
154.75	No treatment	This area encompasses the Riparian Hemlock Hardwood stand along Karner Brook and functions as a riparian buffer zone (105 ac), larch plantation and other areas outside the designated harvest area marked with double orange (49.75). The Karner brook buffer zone includes regulated perennial and intermittent streams, unregulated upland drainages, seeps and boarding vegetative wetlands.
3.25	Clear cut – Non commercial hazard tree mitigation	This treatment will be used in ½ of the stand to treat the dead/declining white spruce. Scattered hardwoods are included within stand to be cut as well. A native hardwood stand will rapidly regenerate via coppice (stump sprout), root sprouting (aspens) as well as residual seed bank in soil (cherry) and release of existing advanced hardwood seedling regeneration. The other half of this plantation is a healthy

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		vigorous stand of larch and will be retained in the no treatment area.
32	Field maintenance	Trees that are encroaching into the field edges will be marked. Invasive plants are at highest concentrations proximate to field edges.
Project wide	Invasive plant control	Invasive plant control to occur within the harvest area targeting both woody and herbaceous nonnative species. Integrated pest management control techniques are in consideration including mechanical, chemical and management intensive grazing with livestock. Barberry thicket adjacent to cattle shed is priority area to target for control; mechanically treat overstory of dead/dying ash and woody invasives. Soil is currently eroding and will be stabilized by reseeded to native conservation mix.

General Comments on Silviculture Proposed: The maintenance and improvement of water quality is of utmost importance as this site functions as the headwaters for town of Egremont drinking water supply. NHESP timing restrictions will make it difficult for timely project completion, success of invasive plant control and to achieve ground scarification for establishment of desirable tree regeneration.

FOREST INVENTORY DATA - Overstory

50 overstory variable radius sample plots taken, randomly distributed, using a 20 factor prism with trees tallied by 2 inch dbh class. Only live trees included in calculations. Yielding the following metrics with 90% confidence intervals.

Mean basal area live (sq.ft./acre)	122.4 +/- 8.1
Mean stems per acre (#/acre)	166.6 +/- 24
Mean relative density (%/acre):	87.3 +/- 6.4%
Mean net bdfv volume (bdfv/acre):	8407.7 +/- 811.3
Mean net pulpwood (cords/acre):	17.0 +/- 1.2

Snags

Trees per acre	BA Total	BA Sapling	BA Poles	BA small saw	BA md. saw	BA lg saw
13.2	12	0	2.8	5.2	3.6	0.4

Coarse Woody Debris (cubic feet/acre): 145

Composition – BA, percent BA, trees per acre

	all species	all oaks	SM	NRO	RM	WA	SB	YB	EH	BC	AB	WO	WP	PB	STM
Total BA	122.4	21.6	46.8	20.4	17.6	12.8	6.8	5.2	4.8	2.8	2.4	1.2	0.8	0.4	0.4
Percent BA	100	18	38	17	14	10	6	4	4	2	2	1	1	0	0
Trees per acre	167	16.5	61.7	14.3	26.6	11.3	25.6	8.3	4.7	1.6	7.1	2.2	0.6	0.5	2.0

Quality – percent in Acceptable Growing Stock (AGS)

	all species	all oaks	SM	NRO	RM	WA	SB	YB	EH	BC	AB	WO	WP	PB	STM
Poles	44	33	57	50	47	33	40	33	0	0	20	0	0	0	0

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Small sawtimb	63	71	69	79	50	69	50	75	20	50	0	0	0	100	0
Medium sawtimb	64	86	61	86	50	50	0	0	100	25	0	0	100	0	0
Large sawtimb	63	88	57	88	67	25	0	0	100	0	0	0	0	0	0
All sizes	58	78	62	82	50	53	41	54	50	29	17	0	50	100	0

Stems per acre by species and size class

DBH size class	all species	SM	RM	SB	NRO	WA	YB	AB	EH	WO	STM	BC	WP	PB
POLE	104.0	39.5	17.4	24.8	1.9	3.9	4.8	6.6	1.9	1.1	2.0			
SM SAW	41.4	12.8	7.6	0.8	7.3	4.6	3.1	0.5	1.9	1.0		0.8	0.4	0.5
MD SAW	18.7	8.7	1.2		4.3	2.3	0.4		0.8			0.8	0.2	
LG SAW	2.5	0.7	0.4		0.8	0.4			0.1			0.1		
overstory totals	166.6	61.7	26.6	25.6	14.3	11.3	8.3	7.1	4.7	2.2	2.0	1.6	0.6	0.5

Relative Density – Percent

	all species	all oaks	SM	NRO	RM	WA	SB	YB	EH	BC	AB	WO	WP	PB	STM
Rel. Density	87	12	44	11	11	5	5	3	3	1	2	1	0	0	0
AGS only	50	9	28	9	5	3	2	2	1	0	0	0	0	0	0

Volumes (per acre) – International ¼ inch Log Rule

	all species	all oaks	SM	NRO	RM	WA	SB	YB	EH	BC	AB	WO	WP	PB	STM
Gross Total Cords	36.9	7.3	14.0	7.0	5.4	4.3	1.3	1.4	1.3	1.0	0.5	0.3	0.3	0.1	0.0
Net Total Cords	29.5	5.9	11.2	5.6	4.3	3.4	1.0	1.1	1.0	0.8	0.4	0.3	0.2	0.1	0.0
Net Pulp Cords	17.0	2.7	6.5	2.5	3.2	1.4	1.0	0.9	0.4	0.4	0.4	0.2	0.1	0.1	0.0
Gross Board-foot	10272.8	2320.4	4016.0	2265.1	1042.3	1572.9	68.7	316.4	477.3	312.6	29.2	55.3	88.5	28.6	0.0
Net Board-foot	8407.7	2138.7	3123.5	2094.1	752.3	1416.5	27.0	147.8	421.9	277.9	8.8	44.7	78.7	14.5	0.0

FOREST INVENTORY DATA - Understory

50 understory fixed radius sample plots taken throughout the project area with plot size of 1/400 acre. Yielding the following:

Tree Regeneration

SPECIES	*Regeneration Size Class				Average	Stems/Acres
	1	2	3	4		
Red Oak	30	1	0	0	0.62	186.00
White Ash	64	21	0	0	1.70	510.00
Hophornbeam	4	11	2	4	0.42	126.00
Striped Maple	9	17	11	0	0.74	222.00
Red Maple	55	0	0	0	1.10	330.00

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Chestnut	1	2	0	0	0.06	4.50
Black Cherry	17	1	0	0	0.36	27.00
Sugar Maple	20	8	0	4	0.64	48.00
Black Birch	1	0	1	7	0.18	13.50
Beech	10	18	0	0	0.56	42.00
Yellow Birch	6	15	0	1	0.44	33.00
Serviceberry	2	1	0	1	0.08	6.00
Hemlock	3	0	0	0	0.06	4.50
White Pine	1	1	0	0	0.04	3.00
White Oak	2	1	0	0	0.06	4.50

* Size Classes: **1** = > 3 inches and < 1 foot in height; **2** = 1 foot to 4.5 feet in height; **3** = 4.5 feet in height to 1 inch dbh; **4** = 1 inch to 4.99 inch dbh

Shrub and Herbaceous

SPECIES	AVG. % COVER	# plots observed	% of plots observed
Fern	40.80	42	84.00
Barberry	15.10	23	46.00
Multi-flora Rose	1.70	7	14.00
Bittersweet	0.60	3	6.00
Low Bush Blueberry/Huckleberry	3.00	6	12.00
Witch Hazel	6.40	12	24.00
Grass/Sedge/Stilt grass	5.80	13	26.00
Blackberry (Rubus sp.)	1.00	5	10.00
Lycopodium	0.40	1	2.00
Mtn Laurel	0.20	1	2.00

MARKING INSTRUCTIONS

- Blue paint marks trees to be cut at or near breast height and stump. Horizontal line tallied in board feet; vertical slash tallied as cord; “x” not tallied.
- Orange paint marks do NOT cut trees. This is the heavy equipment stop line. Double marks delineate boundaries for edge of treatment area, filter strips and wetland boundaries, any trees marked in blue beyond this line must be retrieved by cabling or directional felling.
- White or Yellow paint marks do NOT cut trees. Horizontal line used to mark future crop trees

* Unmarked trees targeted for retention include exceptional trees of health and vigor or have high wildlife habitat value and will serve as future seed and crop trees. Special consideration to retain white oak, hickory, legacy and cavity trees and loose bark maples.

Northern Hardwood and Oak Hardwood Stands

- Single tree and group selection with targeted basal area reduction of approximately 30 – 50%;

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retained BA to average approximately 60 to 80 square feet per acre; predominantly composed of acceptable growing stock. Group openings will be up to 1/3 acre in size. Hierarchy of trees selected for marking to be cut include:

- White ash 8-inch dbh and greater
- Unacceptable growing stock of all species and size classes
- Acceptable growing stock when necessary to control density, spacing and space reallocation.

Softwood Plantation

- Noncommercial clearcut with targeted basal area reduction of 100%.
 - Edge of stand to mark cut boundaries of dead and dying white spruce former Christmas tree plantation, including scattered poplar, black cherry and soft maple.

Field Maintenance

- Trees to be marked are encroaching on edge of field

Hemlock Hardwood ravine along Karner Brook and associated wetland complex

- This area is marked off by double orange marks, no heavy equipment to operate in this area. This is largely a no treatment area with exception of limited harvesting to occur along periphery to focus on White Ash. Trees marked beyond the orange equipment stop line will be retrieved via cabling and/or directional felling.

PERMIT REQUIREMENTS / OPPORTUNITIES

	Description
Ch. 132 Forest Cutting Plan: Yes	Required agricultural permit that serves as notice of intent for commercial timber harvesting that exceeds 25mbf or 50 cords.
Seasonal Timing Restrictions: Yes and No	Per NHESP pre-file consultation: forestry operation use of heavy equipment is restricted to only occur between November 1st and April 30th to protect species of concern. Invasive plant control (mechanical/chemical) may occur without a time of year restriction if details are outlined as addendum to forest cutting plan; expectation to implement work on foot with handheld tools.
Equipment Restrictions: No	See note above for NHESP
Recreation Restrictions: N/A	Click or tap here to enter text.
Green Docket: N/A	Click or tap here to enter text.
In-kind Services: Yes	Road Maintenance and invasive plant control

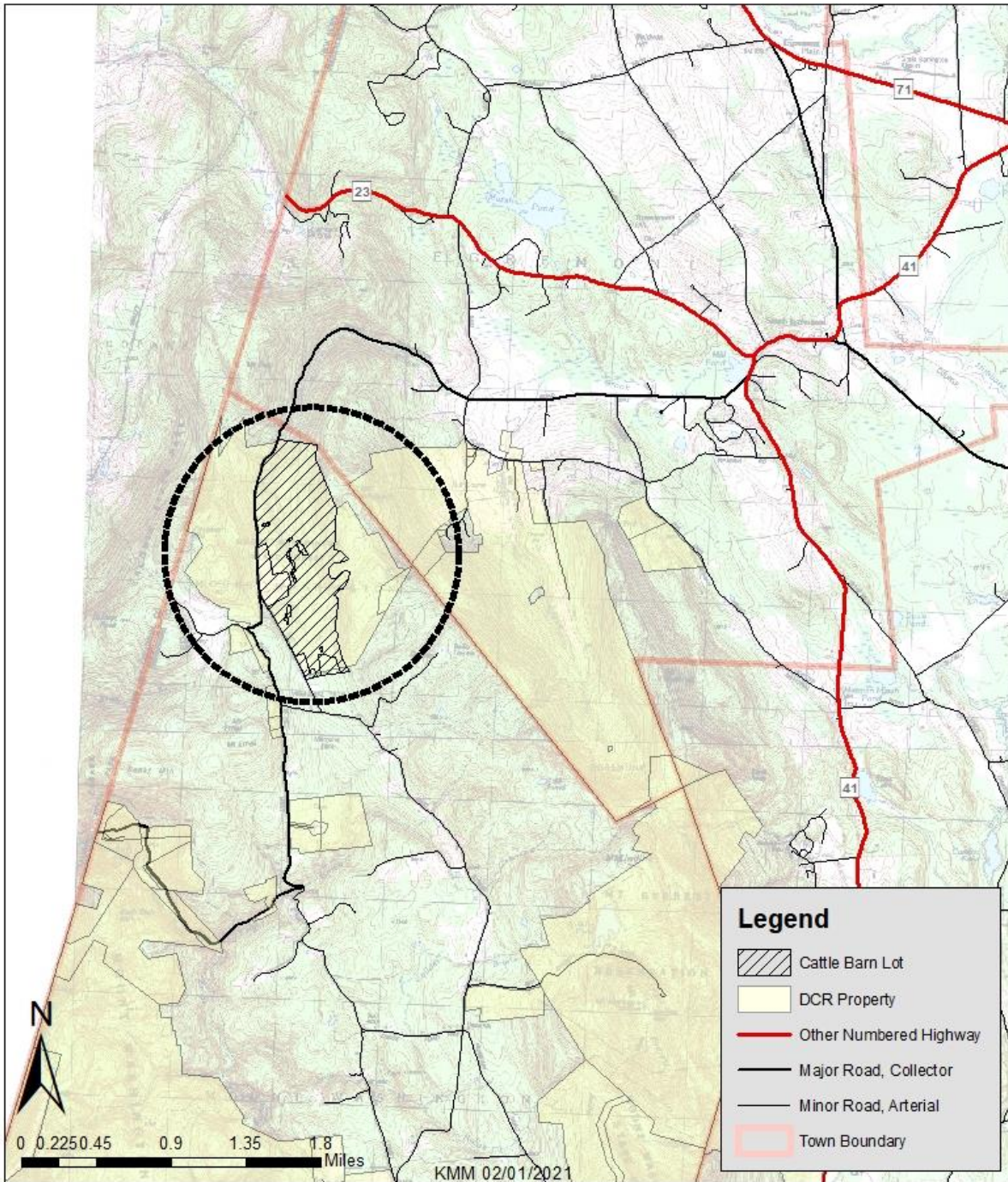
Potential Local Economic Benefits: Supply of local wood products to rural economy and employment opportunities for local contractors to provide project services including timber harvesting, vegetation control and excavation. 8% of timber sale proceeds to be made payable to the town of Mount Washington.

Attachments:

Locus Map

Prescription Map

Intemann Lot - Mt. Washington State Forest Cattle Barn Lot - Locus Map



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