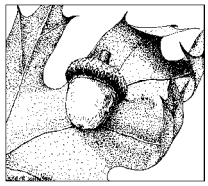
FOREST MANAGEMENT PLAN

Submitted to: Massachusetts Department of Conservation and Recreation
For enrollment in CH61/61A/61B and/or Forest Stewardship Program



CHECK-OFFS					*Administrative Box*			
CH61	CH61A	CH61B	STWSHP	C-S	Case No.		Orig. Case No.	
cert. ☐	cert. ☐	cert. ☐	new ☒	EEA ☐	Owner ID		Add. Case No.	
recert. ☐	recert. ☐	recert. ☐	renew ☐	Other ☐	Date Rec'd		Ecoregion	
amend ☐	amend ☐	amend ☐	Green Cert ☐		Plan Period		Topo Name	*Haverhill*
			Conservation Rest. ☐		Rare Spp. Hab.		River Basin	*Merrimac*
Plan Change: _____ to _____			CR Holder _____					

OWNER, PROPERTY, and PREPARER INFORMATION

Property Owner(s) ***City of Haverhill, Haverhill Conservation Dept., c/o Robert E. Moore (Tattersall Farm)***
Mailing Address *City Hall Room 310, 4 Summer Street, Haverhill, MA 01830* Phone 978-420-3678

Property Location: Town(s) *Haverhill* Road(s) *North Broadway Street*

Plan Preparer ***Gary H. Gouldrup, New England Forestry Cons., Inc.*** Mass. Forester License # *81*
Mailing Address *72 Townsend Street, Pepperell, MA 01463* Phone *978-433-8780*

RECORDS

Assessor's Map No.	Lot/Parcel No.	Deed Book	Deed Page	Total Acres	Ch61/61A/61B *Excluded* Acres	Ch61/61A/61B **Certified** Acres	Stewardship *Excluded Acres*	Stewardship Acres
571	2-53	*	*	45.80	NA	NA	31.76	14.04
548	1-1	*	*	38.60	NA	NA	15.31	23.29
			TOTALS	**84.40**	**NA**	**NA**	**47.07**	**37.33**

Excluded Area Description(s) **(if additional space needed, continue on separate paper)**

There are 47.07 acres to be excluded from forest classification. This area is open fields that are used for hay production.

HISTORY

Year acquired *1999* Year management began *2014*

Is subdivision plan on file with municipality? Yes ☐ No ☒

Are boundaries blazed/painted/flagged/signs posted? (circle all that apply) Yes ☐ No ☒ Partially ☐

Have forest products been cut within past 2 years? Yes ☐ No ☒

What treatments have been prescribed, but not carried out (last 10 years if plan is a recert.)?
Stand no. NA Treatment *NA* Reason *NA*
(if additional space needed, continue on separate page)

Previous Management Practices (last 10 years)

Stand #	Cutting Plan #	Treatment	Yield	Value	Acres	Date
1 & 2	*NA*	*Trail Maintenance*	*NA*	*NA*	*NA*	*2005-14*

Remarks: (if additional space needed, continue on separate page)
** Deed Book & Page is Probate #99P0538EP1*
This is the first Forest Stewardship Plan prepared for the property.

RECORDS (continued)

Assessor's Map No.	Lot/Parcel No.	Deed Book	Deed Page	Total Acres	Ch61/61A/61B *Excluded* Acres	Ch61/61A/61B **Certified** Acres	Stewardship *Excluded Acres*	Stewardship Acres
571	2-53	*PRB	*	45.80	NA	NA	31.76	14.04
548	1-1	*PRB	*	38.60	NA	NA	15.31	23.29
			TOTALS	**84.40**	**NA**	**NA**	**47.07**	**37.33**

* Deed Book & Page is Probate #99P0538EP1.

EXCLUDED AREA DESCRIPTION (continued):

There are 47.07 acres to be excluded from forest classification. This area is open fields used for hay production.

HISTORY (continued):

**Stand #*	*Acres*	*Mgt. Practice*	*Yield*	*Value*	*Year*

Trail maintenance is the only management that has been conducted in the forest.

This is the first Forest Management Plan for the Tattersall Farm property.

Property Overview, Regional Significance, and Management Summary

The 84-acre Tattersall Farm property is located in a northwest section of Haverhill on the west side of North Broadway. The property is a very popular walking and hiking area. The property is in a semi-rural setting with residential dwellings being the primary land use in the area. The Crystal Lake Golf Club is located just north of the property. The nearest properties with long term protection include the Tattersall Farm John's Woods (65-acres) and the Crystal Lake Conservation areas (230-acres). The property is listed in the Haverhill Trails Committee guide: A Guide to Exploring Haverhill Trails. The Guide provides some history of the properties acquisition and past use:

"The Tattersall Farm was owned and operated by the Tattersall Family for a substantial portion of the twentieth century. The last surviving family member, Mary Alice Tattersall, who died in 1999, entrusted her family's 150-acre farm to the City of Haverhill (which also includes John's Woods). The gift imposed specific conservation and open space preservation restrictions so that the Tattersall Farm would be preserved. At the same time, she granted the farm's managerial rights to the Tattersall Farm Charitable Foundation Trust, which is obligated to preserve the Tattersall Farm, to protect its wildlife and conservation interests, and to inform and educate on matters relating to farming and environmental conservation." (Haverhill Trails Committee, 2009).

The property is currently used for the production of hay in the open fields. Kimball Farm of Haverhill harvests hay annually. Corn has been planted and harvested in the past as well.

The property lies in the Merrimack River Watershed. Water that passes through the property flows south into Creek Brook which is the properties southwestern boundary. From Creek Brook water enters the Merrimack River just over one mile south of the property.

The property consists of open fields used for agriculture (56%), mature woodlands (15%), and developing and early successional forest (29%). Timber resource quality ranges from poor to high. White pine timber resources in particular tend to be poor to fair in form and timber quality which has resulted from weevil damage and growth in abandoned fields at a young age. A high component of white ash is developing on the north central section of the property. These white ash pole sized trees and saplings. A quarantine of white ash forest products in Essex County was recently imposed by the USDA due to the presence of the Emerald Ash Borer found in North Andover. The white ash trees will be monitored during this ten year management period for its presence. A few very large diameter hardwood trees (30" DBH+) exist and are unique features along the existing trails. The forest has not been managed for timber production in the past. Invasive and non-native vegetation on the property is prolific. Firebush, honeysuckle, bittersweet, multiflora rose, buckthorn, and Japanese barberry are extremely dense in the understory in most areas of the forest.

Forest soils on the property include moderately well drained fine sandy loam soils (Woodbridge-Montauk) and poorly drained fine sandy loam soils (Ridgebury-Whitman-Leicester). The forest soils are productive and capable of producing high quality timber resources.

Property Overview, Regional Significance, and Management Summary

Members of the Tattersall Farm Charitable Foundation Trust have developed the following goals for the Tattersall Farm property:

Management will focus on promoting a healthy forest environment for the safety and enjoyment of the residents of Haverhill and others who will visit the property. The Foundation would like to specifically accomplish the following on this property:

- Enhance both the quality and quantity of future timber products;
- Control and reduce the presence and establishment of invasive species;
- Improve forest regeneration and aesthetics;
- Enhance wildlife habitat by diversifying tree age and species;
- Protect the water quality; and
- Improve existing trails and create a self-guided stewardship trail for public education and enjoyment.

Trail maintenance and interpretive signage will be a priority on this forest for the safety and forest stewardship education of those using the property.

Wildlife habitats will be enhanced through the timber harvesting practices. Creating multiple age classes within the forest will benefit a variety of wildlife species. Identifying large "Legacy Trees" will be done to promote "Old Growth" characteristics within the forest where these trees exist and where this practice is applicable.

Reducing and controlling the presence of invasive species on the property is desired by the Tattersall Trust members. Harvesting forest products to encourage soil scarification and native tree species establishment will be considered as well as mechanical and chemical control methods during this ten year management period.

All forest management activities will be sensitive to protecting water quality, soils, cultural resources, wildlife habitats, rare and endangered species and their habitats, aesthetics and recreational values. When harvesting timber resources on the property a Chapter 132 Cutting Plan will be filed with the Department of Conservation and Recreation. The Division of Fisheries and Wildlife's Natural Heritage & Endangered Species Program (NHESP) will make recommendations to protect any special vegetation or wildlife and their habitats should they exist on the property.

Landowner Goals

Please **check** the column that best reflects the importance of the following goals:

Goal	Importance to Me			
	High	**Medium**	**Low**	**Don't Know**
Enhance the Quality/Quantity of Timber Products*****	X			
Generate Immediate Income			X	
Generate Long Term Income			X	
Produce Firewood			X	
Promote Biological Diversity	X			
Enhance Habitat for Birds	X			
Enhance Habitat for Small Animals	X			
Enhance Habitat for Large Animals	X			
Improve Access for Walking/Skiing/Recreation	X			
Maintain or Enhance Privacy			X	
Improve Hunting			X	
Improve Fishing			X	
Preserve or Improve Scenic Beauty	X			
Protect Water Quality	X			
Protect Unique/Special/ Cultural Areas	X			
Other: Attain Green Certification		X		
Other: Public Education & Outreach	X			

*** This goal must be checked "HIGH" if you are interested in classifying your land under Chapter 61/61A.**

1. In your own words please describe your goals for the property:

The members of the Tattersall Farm Charitable Foundation Trust would like to maintain a healthy forest, and maintain biological diversity and habitat, while providing a safe place for visitors to visit and learn about the immediate environment.

Stewardship Purpose

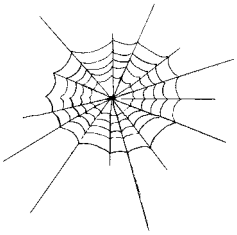
By enrolling in the Forest Stewardship Program and following a Stewardship Plan, I understand that I will be joining with many other landowners across the state in a program that promotes ecologically responsible resource management through the following actions and values:

1. Managing for long-term forest health, productivity, diversity, and quality.
2. Conserving or enhancing water quality, wetlands, soil productivity, biodiversity, cultural, historical and aesthetic resources.
3. Following a strategy guided by well-founded silvicultural principles to improve timber quality and quantity when wood products are a goal.
4. Setting high standards for foresters, loggers and other operators as practices are implemented; and minimizing negative impacts.
5. Learning how woodlands benefit and affect surrounding communities, and cooperation with neighboring owners to accomplish mutual goals when practical.

Signature(s): _____ Date: _____

Stewardship Issues

Massachusetts is a small state, but it contains a tremendous variety of ecosystems, plant and animal species, management challenges, and opportunities. This section of your plan will provide background information about the Massachusetts forest landscape as well as issues that might affect your land. **The Stand Descriptions and Management Practices sections of your plan will give more detailed property specific information** on these subjects tailored to your management goals.



Biodiversity: Biological diversity is, in part, a measure of the variety of plants and animals, the communities they form, and the ecological processes (such as water and nutrient cycling) that sustain them. With the recognition that each species has value, individually and as part of its natural community, maintaining biodiversity has become an important resource management goal.

While the biggest threat to biodiversity in Massachusetts is the loss of habitat to development, another threat is the introduction and spread of invasive non-native plants. Non-native invasives like European Buckthorn, Asiatic Bittersweet, and Japanese Honeysuckle spread quickly, crowding out or smothering native species and upsetting and dramatically altering ecosystem structure and function. Once established, invasives are difficult to control and even harder to eradicate. Therefore, vigilance and early intervention are paramount.

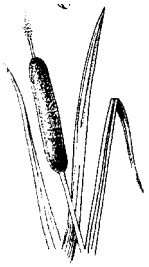
Another factor influencing biodiversity in Massachusetts concerns the amount and distribution of forest growth stages. Wildlife biologists have recommended that, for optimal wildlife habitat on a landscape scale, 5-15% of the forest should be in the seedling stage (less than 1" in diameter). Yet we currently have no more than 2-3% early successional stage seedling forest across the state. There is also a shortage of forest with large diameter trees (greater than 20"). See more about how you can manage your land with biodiversity in mind in the "Wildlife" section below. (Also refer to *Managing Forests to Enhance Wildlife Diversity in Massachusetts* and *A Guide to Invasive Plants in Massachusetts* in the binder pockets.)

Rare Species: Rare species include those that are **threatened** (abundant in parts of its range but declining in total numbers, those of **special concern** (any species that has suffered a decline that could threaten the species if left unchecked), and **endangered** (at immediate risk of extinction and probably cannot survive without direct human intervention). Some species are threatened or endangered globally, while others are common globally but rare in Massachusetts.

Of the 2,040 plant and animal species (not including insects) in Massachusetts, 424 are considered rare. About 100 of these rare species are known to occur in woodlands. Most of these are found in wooded wetlands, especially vernal pools. These temporary shallow pools dry up by late summer, but provide crucial breeding habitat for rare salamanders and a host of other unusual forest dwelling invertebrates. Although many species in Massachusetts are adapted to and thrive in recently disturbed forests, rare species are often very sensitive to any changes in their habitat

Indispensable to rare species protection is a set of maps maintained by the Division of Fisheries and Wildlife's Natural Heritage & Endangered Species Program (NHESP) that show current and historic locations of rare species and their habitats. The maps of your property will be compared to these rare species maps and the result indicated on the upper right corner of the front page of the plan. Prior to any

regulated timber harvest, if an occurrence does show on the map, the NHESP will recommend protective measures. Possible measures include restricting logging operations to frozen periods of the year, or keeping logging equipment out of sensitive areas. You might also use information from NHESP to consider implementing management activities to improve the habitat for these special species.



Riparian and Wetlands Areas: Riparian and wetland areas are transition areas between open water features (lakes, ponds, streams, and rivers) and the drier terrestrial ecosystems. More specifically, a **wetland** is an area that has hydric (wet) soils and a unique community of plants that are adapted to live in these wet soils. Wetlands may be adjacent to streams or ponds, or a wetland may be found isolated in an otherwise drier landscape. A **riparian area** is the transition zone between an open water feature and the uplands (see Figure 1). A riparian zone may contain wetlands, but also includes areas with somewhat better drained soils. It is easiest to think of riparian areas as the places where land and water meet.

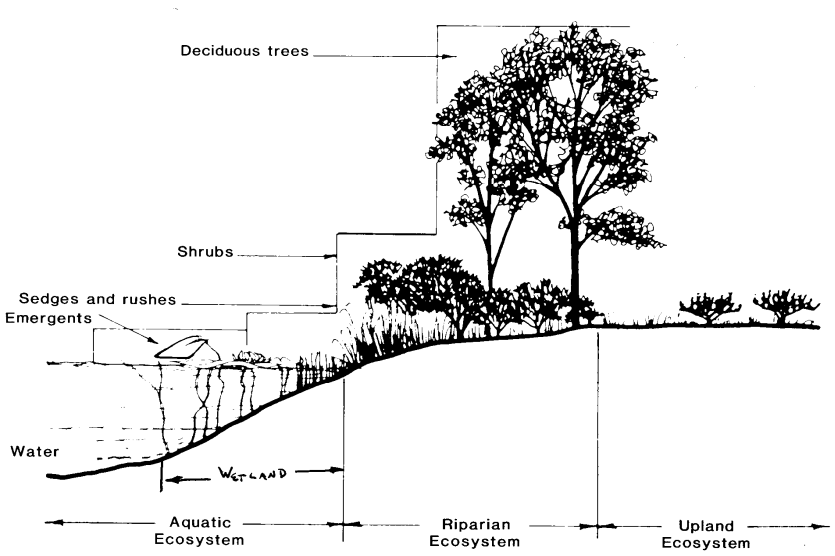


Figure 1: Example of a riparian zone.

The presence of water in riparian and wetland areas make these special places very important. Some of the functions and values that these areas provide are described below:

Filtration: Riparian zones capture and filter out sediment, chemicals and debris before they reach streams, rivers, lakes and drinking water supplies. This helps to keeps our drinking water cleaner, and saves communities money by making the need for costly filtration much less likely.

Flood control: By storing water after rainstorms, these areas reduce downstream flooding. Like a sponge, wetland and riparian areas absorb stormwater, then release it slowly over time instead of in one flush.

Critical wildlife habitat: Many birds and mammals need riparian and wetland areas for all or part of their life cycles. These areas provide food and water, cover, and travel corridors. They are often the most important habitat feature in Massachusetts' forests.

Recreational opportunities: Our lakes, rivers, streams, and ponds are often focal points for recreation. We enjoy them when we boat, fish, swim, or just sit and enjoy the view.

In order to protect wetlands and riparian areas and to prevent soil erosion during timber harvesting activities, Massachusetts promotes the use of "Best Management Practices" or BMPs. Maintaining or reestablishing the protective vegetative layer and protecting critical areas are the two rules that underlie these common sense measures. DEM's Massachusetts Forestry Best Practices Manual (included with this plan) details both the legally required and voluntary specifications for log landings, skid trails, water bars, buffer strips, filter strips, harvest timing, and much more.

The two Massachusetts laws that regulate timber harvesting in and around wetlands and riparian areas are the Massachusetts Wetlands Protection Act (CH 131), and the Forest Cutting Practices Act (CH132). Among other things, CH132 requires the filing of a cutting plan and on-site inspection of a harvest operation by a DEM Service Forester to ensure that required BMPs are being followed when a commercial harvest exceeds 25,000 board feet or 50 cords (or combination thereof).

Soil and Water Quality: Forests provide a very effective natural buffer that holds soil in place and protects the purity of our water. The trees, understory vegetation, and the organic material on the forest floor reduce the impact of falling rain, and help to insure that soil will not be carried into our streams and waterways.

To maintain a supply of clean water, forests must be kept as healthy as possible. Forests with a diverse mixture of vigorous trees of different ages and species can better cope with periodic and unpredictable stress such as insect attacks or windstorms.

Timber harvesting must be conducted with the utmost care to ensure that erosion is minimized and that sediment does not enter streams or wetlands. Sediment causes turbidity which degrades water quality and can harm fish and other aquatic life. As long as Best Management Practices (BMPs) are implemented correctly, it is possible to undertake active forest management without harming water quality.

Forest Health: Like individual organisms, forests vary in their overall health. The health of a forest is affected by many factors including weather, soil, insects, diseases, air quality, and human activity. Forest owners do not usually focus on the health of a single tree, but are concerned about catastrophic events such as insect or disease outbreaks that affect so many individual trees that the whole forest community is impacted.

Like our own health, it is easier to prevent forest health problems then to cure them. This preventative approach usually involves two steps. First, it is desirable to maintain or encourage a wide diversity of tree species and age classes within the forest. This diversity makes a forest less susceptible to a single devastating health threat. Second, by thinning out weaker and less desirable trees, well-spaced healthy individual trees are assured enough water and light to thrive. These two steps will result in a forest of vigorously growing trees that is more resistant to environmental stress.

Fire: Most forests in Massachusetts are relatively resistant to catastrophic fire. Historically, Native Americans commonly burned certain forests to improve hunting grounds. In modern times, fires most often result from careless human actions. The risk of an unintentional and damaging fire in your woods could increase as a result of logging activity if the slash (tree tops, branches, and debris) is not treated correctly. Adherence to the Massachusetts slash law minimizes this risk. Under the law, slash is to be removed from buffer areas near roads, boundaries, and critical areas and lopped close to the ground to speed decay. Well-maintained woods roads are always desirable to provide access should a fire occur.

Depending on the type of fire and the goals of the landowner, fire can also be considered as a management tool to favor certain species of plants and animals. Today the use of prescribed burning is largely restricted to the coast and islands, where it is used to maintain unique natural communities such as sandplain grasslands and pitch pine/scrub oak barrens. However, state land managers are also attempting to bring fire back to many of the fire-adapted communities found elsewhere around the state.

Wildlife Management: Enhancing the wildlife potential of a forested property is a common and important goal for many woodland owners. Sometimes actions can be taken to benefit a particular species of interest (e.g., put up Wood Duck nest boxes). In most cases, recommended management practices can benefit many species, and fall into one of three broad strategies. These are **managing for diversity, protecting existing habitat, and enhancing existing habitat**.

Managing for Diversity – Many species of wildlife need a variety of plant communities to meet their lifecycle requirements. In general, a property that contains a diversity of habitats will support a more varied wildlife population. A thick area of brush and young trees might provide food and cover for grouse and cedar waxwing; a mature stand of oaks provides acorns for foraging deer and turkey; while an open field provides the right food and cover for cottontail rabbits and red fox. It is often possible to create these different habitats on your property through active management. The appropriate mix of habitat types will primarily depend on the composition of the surrounding landscape and your objectives. It may be a good idea to create a brushy area where early successional habitats are rare, but the same practice may be inappropriate in the area's last block of mature forest.

Protecting Existing Habitat – This strategy is commonly associated with managing for rare species or those species that require unique habitat features. These habitat features include vernal pools, springs and seeps, forested wetlands, rock outcrops, snags, den trees, and large blocks of unbroken forest. Some of these features are rare, and they provide the right mix of food, water, and shelter for a particular species or specialized community of wildlife. It is important to recognize their value and protect their function. This usually means not altering the feature and buffering the resource area from potential impacts.

Enhancing Existing Habitat – This strategy falls somewhere between the previous two. One way the wildlife value of a forest can be enhanced is by modifying its structure (number of canopy layers, average tree size, density). Thinning out undesirable trees from around large crowned mast (nut and fruit) trees will allow these trees to grow faster and produce more food. The faster growth will also accelerate the development of a more mature forest structure, which is important for some species. Creating small gaps or forest openings generates groups of seedlings and saplings that provide an additional layer of cover, food, and perch sites.

Each of these three strategies can be applied on a single property. For example, a landowner might want to increase the habitat diversity by reclaiming an old abandoned field. Elsewhere on the property, a stand of young hardwoods might be thinned to reduce competition, while a "no cut" buffer is set up around a vernal pool or other habitat feature. The overview, stand description and management practice sections of this plan will help you understand your woodland within the context of the surrounding landscape and the potential to diversify, protect or enhance wildlife habitat.

Wood Products: If managed wisely, forests can produce a periodic flow of wood products on a sustained basis. Stewardship encompasses finding ways to meet your current needs while protecting the forest's ecological integrity. In this way, you can harvest timber and generate income without compromising the opportunities of future generations.

Massachusetts forests grow many highly valued species (white pine, red oak, sugar maple, white ash, and black cherry) whose lumber is sold throughout the world. Other lower valued species (hemlock, birch, beech, red maple) are marketed locally or regionally, and become products like pallets, pulpwood, firewood, and lumber. These products and their associated value-added industries contribute between 200 and 300 million dollars annually to the Massachusetts economy.

By growing and selling wood products in a responsible way you are helping to our society's demand for these goods. Harvesting from sustainably managed woodlands – rather than from unmanaged or poorly managed forest – benefits the public in a multitude of ways. The sale of timber, pulpwood, and firewood also provides periodic income that you can reinvest in the property, increasing its value and helping you meet your long-term goals. Producing wood products helps defray the costs of owning woodland, and helps private landowners keep their forestland undeveloped.

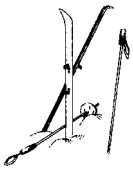
Cultural Resources: Cultural resources are the places containing evidence of people who once lived in the area. Whether a Native American village from 1,700 years ago, or the remains of a farmstead from the 1800's, these features all tell important and interesting stories about the landscape, and should be protected from damage or loss.

Massachusetts has a long and diverse history of human habitation and use. Native American tribes first took advantage of the natural bounty of this area over 10,000 years ago. Many of these villages were located along the coasts and rivers of the state. The interior woodlands were also used for hunting, traveling, and temporary camps. Signs of these activities are difficult to find in today's forests. They were obscured by the dramatic landscape impacts brought by European settlers as they swept over the area in the 17th and 18th centuries.

By the middle 1800's, more than 70% of the forests of Massachusetts had been cleared for crops and pastureland. Houses, barns, wells, fences, mills, and roads were all constructed as woodlands were converted for agricultural production. But when the Erie Canal connected the Midwest with the eastern cities, New England farms were abandoned for the more productive land in the Ohio River valley, and the landscape began to revert to forest. Many of the abandoned buildings were disassembled and moved, but the supporting stonework and other changes to the landscape can be easily seen today.

One particularly ubiquitous legacy of this period is stone walls. Most were constructed between 1810 and 1840 as stone fences (wooden fence rails had become scarce) to enclose sheep within pastures, or to

exclude them from croplands and hayfields. Clues to their purpose are found in their construction. Walls that surrounded pasture areas were comprised mostly of large stones, while walls abutting former cropland accumulated many small stones as farmers cleared rocks turned up by their plows. Other cultural features to look for include cellar holes, wells, old roads and even old trash dumps.



Recreation and Aesthetic Considerations: Recreational opportunities and aesthetic quality are the most important values for many forest landowners, and represent valid goals in and of themselves. Removing interfering vegetation can open a vista or highlight a beautiful tree, for example. When a landowner's goals include timber, thoughtful forest management can be used to accomplish silvicultural objectives while also reaching recreational and/or aesthetic objectives. For example, logging trails might be designed to provide a network of cross-country ski trails that lead through a variety of habitats and reveal points of interest.

If aesthetics is a concern and you are planning a timber harvest, obtain a copy of this excellent booklet: *A Guide to Logging Aesthetics: Practical Tips for Loggers, Foresters & Landowners,* by Geoffrey T. Jones, 1993. (Available from the Northeast Regional Agricultural Engineering Service, (607) 255-7654, for $7). Work closely with your consultant to make sure the aesthetic standards you want are included in the contract and that the logger selected to do the job executes it properly. The time you take to plan ahead of the job will reward you and your family many times over with a fuller enjoyment of your forest, now and well into the future.

This is your Stewardship Plan. It is based on the goals that you have identified. The final success of your Stewardship Plan will be determined first, by how well you are able to identify and define your goals, and second, by the support you find and the resources you commit to implement each step.

It can be helpful and enjoyable to visit other properties to sample the range of management activities and see the accomplishments of others. This may help you visualize the outcome of alternative management decisions and can either stimulate new ideas or confirm your own personal philosophies. Don't hesitate to express your thoughts, concerns, and ideas. Keep asking questions! Please be involved and enjoy the fact that you are the steward of a very special place.

STAND DESCRIPTIONS

OBJ	STD NO	TYPE	AC	MSD OR SIZE-CLASS	BA/AC	VOL/AC	SITE INDEX
STEW	1	WH	13.09	11.4" DBH Sawtimber	87 sqft	4,301 BF & 18.2 Cds.	60 (WP)

White pine and mixed hardwoods dominate the overstory of this adequately stocked stand. Species composition, size class, and density vary throughout the area. The mixed hardwoods include red maple, black oak, hickory, white ash, black cherry, and elm poles and sawtimber sized stems. Timber quality is generally poor to fair in all species, although there are well formed and high quality timber resources scattered throughout the stand. Forest regeneration is limited due to the dense understory of honeysuckle, multiflora rose, Japanese barberry, firebush, and bittersweet. The area is rocky in spots, gently sloped, with moderately well to poorly drained fine sandy loam soils (Woodbridge-Montauk-Whitman) capable of producing high quality timber resources. Management will focus on improving the timber resources, reducing and controlling the invasive species, and maintaining the current trail system for walkers and hikers. The desired future condition is a stand that is growing high quality timber resources without the prolific growth of invasive species in the forest understory in order to provide safe and enjoyable trails.

STEW	2	MH	19.60	8.6" DBH Pole	80 sqft	407 BF & 15.3 Cds	65 (RO)

Red maple is the dominant overstory species in this well stocked pole sized stand. The other mixed hardwoods include black cherry, black oak, red oak, white ash, aspen, hickory, elm, and white birch poles and infrequent sawtimber sized stems. The overall timber quality is poor to fair, although there are well formed and high quality trees developing throughout the stand. Forest regeneration is scattered and includes white pine and mixed hardwood saplings competing with a dense understory of honeysuckle, firebush, multiflora rose, bittersweet, and buckthorn. The area is flat to gently sloped with moderately well drained soils in the upland areas (Montauk) and poorly drained soils in the low lying drainage ways (Ridgebury-Leicester). The soils are capable of producing high quality timber resources. Management will focus on improving the timber resources, reducing and controlling the invasive species, and maintaining the current trail system for walkers and hikers. The desired future condition is a stand that is growing high quality timber resources without the prolific growth of invasive species in the forest understory in order to provide safe and enjoyable trails.

STEW	3	WA	4.63	6.5" DBH Pole	60 sqft	10.2 Cords	65 (WA)

White ash is the dominant overstory species in this adequately stocked pole sized stand. The white ash stems are generally fair to good in form and timber quality. Scattered red maple and black cherry poles of poor to good form and timber quality can also be found. The understory consists of a dense layer of honeysuckle, multiflora rose, bittersweet, buckthorn, and barberry. The area is flat to gently sloped with moderately well drained fine sandy loam soils (Montauk) capable of producing high quality timber resources. Management will primarily focus on invasive species control. As the stand develops, pre-commercial thinning may be conducted to increase growth and spacing between trees. Monitoring the white ash trees for the presence of the Emerald Ash Borer will also be done. The desired future condition is a stand that is growing high quality timber resources in several size and age classes.

MANAGEMENT PRACTICES
to be done within next 10 years

OBJ	STD NO	TYPE	SILVICULTURAL PRESCRIPTION	AC	TO BE REMOVED		TIMING
					BA/AC	TOT VOL	

Timber Management

STEW 1 MH Improvement Thin 13+/- 25 sqft 45 Cords 2014-2023

Management will focus on improvement thinning by removing poorly formed and low quality hardwoods in a low impact harvesting program. The target is to harvest approximately 1/4 to 1/3 of the overstory volume. Poor quality hardwoods of all sizes will be cut in this recommended harvest. Thinning will be designed to release the best formed mixed oaks, white pine, and mixed hardwood trees that are developing into high quality timber resources. Some of the largest trees within the stand (25" DBH+) will be selected as "Legacy Trees" and retained for biological diversity. Thinning around some of these legacy trees will be done to highlight them along the trails as well as improve their health and vigor. Advanced regeneration will be released and the site will be prepared for new production in the understory as a result of thinning. Hardwood species that are harvested will be utilized as firewood. No plans are being made to harvest the white pine component at this time. The desire is to have a local farmer, tree company, or firewood business harvest the firewood using low impact equipment. Tractors, or small tree skidders, will be the preferred machinery for the removal of the firewood from the forest. An effort will be made to cut as much of the invasive species in the understory as possible during the firewood harvesting. Please see page 14 for more on biological diversity and invasive species control.

STEW 2 OH Improvement Thin 17+/- 25 sqft 65 Cords 2014-2023

Management will focus on improvement thinning by removing poorly formed and low quality hardwoods in a low impact harvesting program. The target is to harvest approximately 1/4 to 1/3 of the overstory volume. Poor quality hardwoods of all sizes will be cut in this recommended harvest. Thinning will be designed to release the best formed mixed oaks, white pine, and mixed hardwood trees that are developing into high quality timber resources. Some of the largest trees within the stand (25" DBH+) will be selected as "Legacy Trees" and retained for biological diversity. Thinning around some of these legacy trees will be done to highlight them along the trails as well as improve their health and vigor. Advanced regeneration will be released and the site will be prepared for new production in the understory as a result of thinning. Hardwood species that are harvested will be utilized as firewood. No plans are being made to harvest the white pine component at this time. The desire is to have a local farmer, tree company, or firewood business harvest the firewood using low impact equipment. Tractors, or small tree skidders, will be the preferred machinery for the removal of the firewood from the forest. An effort will be made to cut as much of the invasive species in the understory as possible during the firewood harvesting. Please see page 14 for more on biological diversity and invasive species control.

Wood landing areas will be seeded to ensure stability and provide alternative wildlife habitat.

OBJECTIVE CODE: CH61 = Forest Products (for Ch. 61/61A) STEW= Stewardship Program practices
STD= stand Type= Forest type AC= acre MBF= thousand board feet BA= basal area VOL= volume

Owner(s) Haverhill – Tattersall Farm Town(s) Haverhill

MANAGEMENT PRACTICES
to be done within next 10 years

OBJ	STD NO	TYPE	SILVICULTURAL PRESCRIPTION	AC	TO BE REMOVED		TIMING
					BA/AC	TOT VOL	

Biological Diversity

STEW 1-3 All Invasive Species Control 37+/- NA NA 2014-2023

The Tattersall Farm Charitable Foundation Trust members are interested in promoting biological diversity on the property. Eliminating invasive and non-native trees, plants and shrubs will be done where these species exist and when economically feasible and practical. Buckthorn, firebush (winged euonymus), bittersweet, honeysuckle, Norway maple, multiflora rose, and Japanese barberry are currently known to be growing on the property and are prolific in areas. Natural communities are being affected by their presence in several areas within the forest. Cutting the stems with saws, or with other mechanical means, will help reduce and control the spread of the invasive species. Controlling the invasive species through well timed timber management activities is another management tool. Encouraging vigorous growth of native tree species in the forest understory will be accomplished by scarifying the soil prior to seed dissemination. The Foundation members will also consider chemical control methods. Consulting with a licensed applicator is recommended. Another biodiversity issue is the distribution of forest growth stages. Trying to maintain multiple forest age and size classes on the property will also be pursued by the landowner on this property through periodic timber harvests and wildlife habitat management. Please see the Biological Diversity issues on page #6 for more details.

The Tattersall Farm Charitable Foundation Trust will seek council from the UMass Amherst Extension Center for Agriculture and the United States Forest Service with regard to controlling invasive species as part of a forest stewardship program to ensure active management activities do not result in proliferation of these species on the property.

Wildlife Management

STEW 1-3 All Vegetation Control 5+/- NA NA 2014-2023

Harvesting trees and vegetation along the edges of the existing fields will be done to promote wildlife habitat. The edges of the fields will be pushed back to create more sunlight to the fields and reduce the current high levels of invasive species growing into the forest edge. The newly created openings will provide a “soft edge” between the field and forest which will create a third habitat essential for wildlife using the property. This soft edge will be allowed to regenerate with native trees and vegetation which will develop into a thicket and provide nesting and cover for many wildlife species. Approximately 3-5 acres will be cleared along the edges of the existing fields that are dry and not in a wetland resource area.

MANAGEMENT PRACTICES
to be done within next 10 years

OBJ	STD NO	TYPE	SILVICULTURAL PRESCRIPTION	AC	TO BE REMOVED		TIMING
					BA/AC	TOT VOL	

Recreation Management
Forest Stewardship Education

STEW	1-3	All	Trail Maintenance Forest Stewardship Education	37+/-	NA	NA	2014-2023

The existing trails on the Tattersall Farm property will be improved and maintained for the safety, enjoyment and education of the residents of Haverhill. New trails may also be constructed. Trail maps, tags, and interpretive signs will all be variables associated with the management of the trails and the education of those who will be using the trails. Interpretive signs along the trails will help educate the property users about Forest Stewardship matters within the forest interior. The Foundation will work closely with the Haverhill Trails Committee to accomplish these goals.

Boundary Maintenance

STEW	All	All	Boundary Identification	37+/-	NA	NA	2014-2023

The boundary lines are defined by stone walls. Painting the boundaries or placing property signs along the boundary lines will allow users and abutters of the property to know the exact location of the property ownership.

Signature Page Please check each box that applies.

☐ **CH. 61/61A Management Plan** I attest that I am familiar with and will be bound by all applicable Federal, State, and Local environmental laws and /or rules and regulations of the Department of Conservation and Recreation. I further understand that in the event that I convey all or any portion of this land during the period of classification, I am under obligation to notify the grantee(s) of all obligations of this plan which become his/hers to perform and will notify the Department of Conservation and Recreation of said change of ownership.

☒ **Forest Stewardship Plan**. I pledge to abide by the management provisions of this Stewardship Management Plan for a period of at least ten years, following approval. I understand that in the event that I convey all or a portion of the land described in this plan during the period of the plan, I will notify the Department of Conservation and Recreation of this change in ownership.

Signed under the pains of perjury:

Owner(s) _____ Date _____

_____ Date _____

I attest that I have prepared this plan in good faith to reflect the landowner's interest.

Plan Preparer _____ Date _____

I attest that the plan satisfactorily meets the requirements of CH61/61A and/or the Forest Stewardship Program.

Approved, Service Forester _____ Date _____

Approved, Regional Supervisor _____ Date _____

In the event of a change of ownership of all or part of the property, the new owner must file an amended Ch. 61/61A plan within 90 days from the transfer of title to insure continuation of Ch. 61/61A classification.

New England Forestry Consultants, Inc.

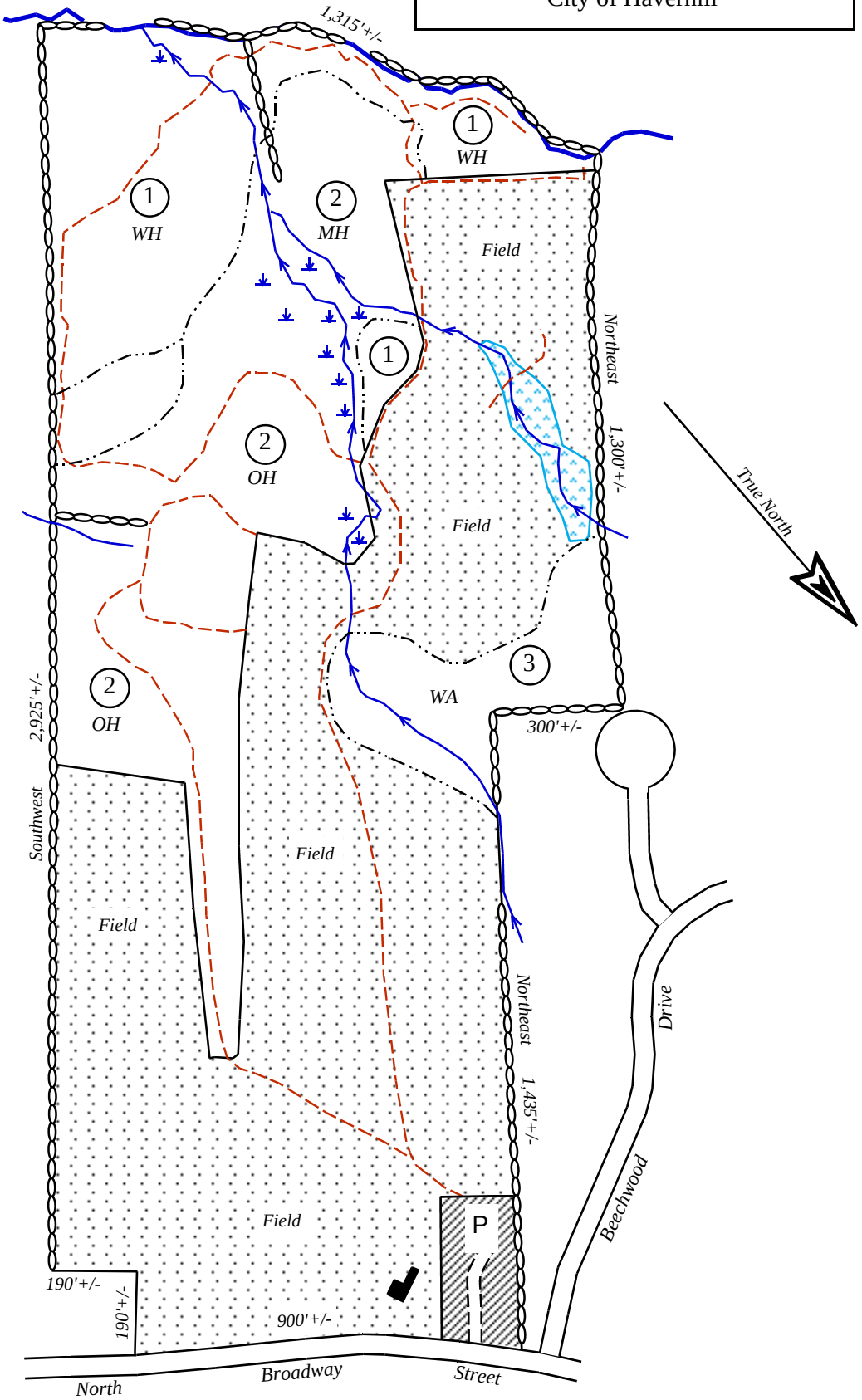
Prepared By:
Gary H. Gouldrup
Consulting Forester
72 Townsend Street
Pepperell, MA 01463
978-433-8780
3/28/2014

BOUNDARY & STAND TYPE MAP

Land in Haverhill, MA
Tattersall Farm

Owned By:
City of Haverhill

Map based on:
GPS Field Work and
City of Haverhill GIS,
2014



Legend

Forest Type Line	
Wetland Area	
Woods Road/ Trail	
Stone Wall	
Stand Type #	3
Stream	
Oak-Hardwood	*OH*
White Pine-Hardwoods	*WH*
White Ash	*WA*
Mixed Hardwoods	*MH*
Building	
Iron Pipe	*IP*
Parking Lot	
Field	

graphic scale (in feet)

0 375 750

City of Haverhill
Tattersall Farm Lot
Haverhill, MA
2013 Aerial Photo

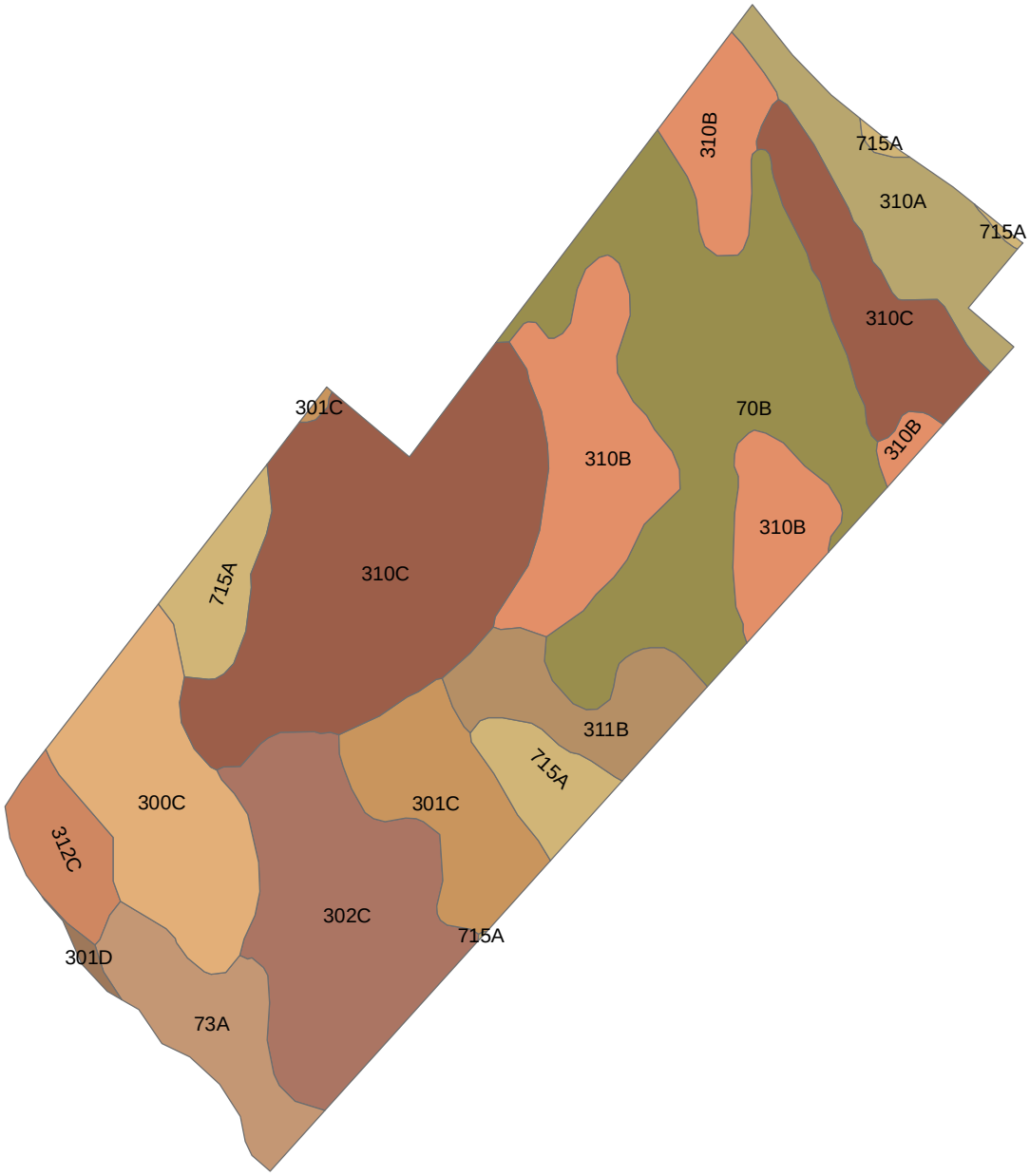
500 250 0 500 1,000 Feet

N
W E
S

Prepared by:
New England Forestry Consultants, Inc
Sherman R. Small, Consulting Forester
Maine License # LF655
New Hampshire License # 409
April 16, 2014

Sketch map for management and planning purposes only, NOT A LEGAL SURVEY
Data obtained from MASS GIS, & New England Forestry Consultants, Inc.

City of Haverhill
Tattersall Farm Lot
Haverhill, MA
Soils Map



307B Soils Symbol

500 250 0 500 1,000 Feet

N
W E
S

Prepared by:
New England Forestry Consultants, Inc
Sherman R. Small, Consulting Forester
Maine License # LF655
New Hampshire License # 409
April 16, 2014

Sketch map for management and planning purposes only, NOT A LEGAL SURVEY
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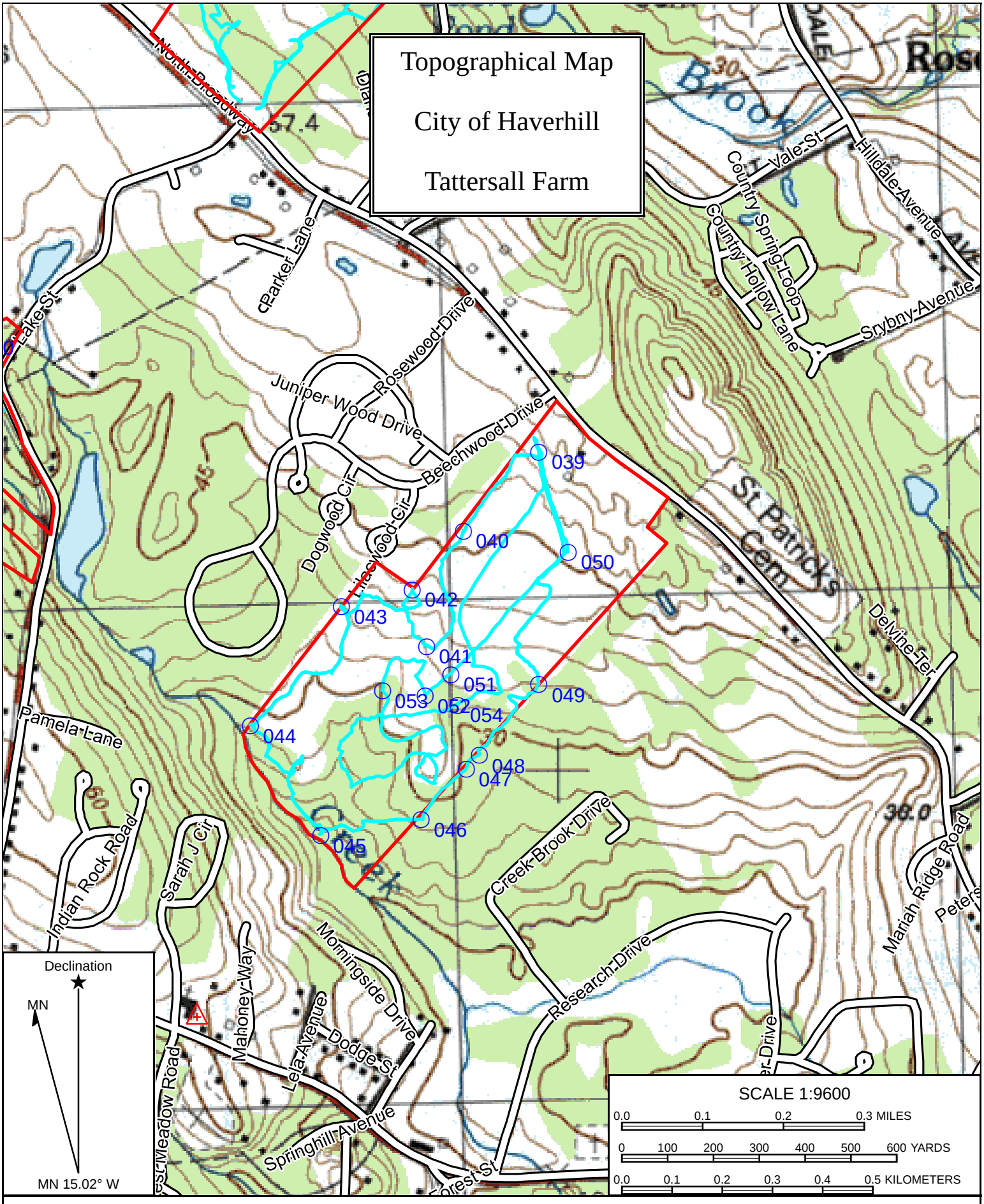

Name: HAVERHILL
Date: 04/28/14
Scale: 1 inch = 800 ft.

Location: 042° 47' 40.79" N 071° 07' 35.43" W
Caption: Tattersall Farm