

Forest
Stewardship
Plan
(10-Year Planning Period)

Baddacook Field
Groton Conservation Commission
173 Main Street
Groton, MA 01450
+/- 36.0 Acres
May, 2011

Written by Eric Radlof
(603) 321-3482
Reviewed by Daniel J Cyr
NH LPF #46
P.O. Box 205
Francestown, NH 03043
(603) 547-8804

Property Owners: Groton Conservation Commission

Phone Number: (978) 448- 1106

Location: Martins Pond Road

Total Acreage: 36.0

Map/Lot Numbers: 232/ 56

Deed Book/Page: 31041/19

Date Prepared: May, 2011

General Description of the Property

The 36 acre property is located in the moderately populated eastern part of Groton on the northwestern shore of Baddacook Pond. The property is typical of the surrounding landscape, which is predominantly forestland broken up by house lots, farmland, water bodies, and wetland areas. The New Hampshire/ Massachusetts state line can be found a few miles to the north, with more developed urban areas radiating from the property to the north, south, and east. Farmland and larger tracts of forest land have been broken up by larger neighborhoods, town centers, commercial, and urban settings. The majority of the 26.7 acre forestland is made up of a white pine forest type and a white pine/ oak forest type. A power line corridor occupies 2.8 acres of the western part of the property while 6.5 acres of field make up the central part of the property.

This 36.0 acre property became a property of the Groton Conservation Commission in 1999. This property was a perfect candidate for the commission's ever growing list of wonderful properties. Acquiring the property allowed the conservation commission to ensure protection of the town's water supply by creating a vegetative buffer. The property also helps act as a scenic vista from Martins Pond Road. Through obtaining this multiuse property, the town was also able to conserve the past as this property was a part of the historical Shattuck Homestead. The house, barn, and silo foundations can still be seen on the property. Small abandoned cottages can be found scattered on the western shore edge of Baddacook Pond, giving additional character to this property. A woods trail/ road enhance the recreational opportunities for this property. This trail/ road appears to be maintained.

The seasonally wet but productive soils support regionally typical forest cover on this relatively level terrain with beaver ponds, streams, and wetlands. A predominant overstory of medium saw timber sized (12"-22" at diameter at breast height) white pine and northern hardwoods makes up the majority of the forested area. The understory of the forested area is made up of a white pine, mixed oak, and red maple pole sized to small timber sized trees (6"-10" at dbh). The regeneration in this stand consists of the same species found throughout the understory with the addition of black birch and white birch.

Much of the understory is heavily made up of opportunistic invasive species which seem to have become predominant due to the last harvest approximately 20+ years ago. Some of the main invasive species include but are not limited to glossy buckthorn, Japanese barberry, and multiflora rose.

The forest health is currently good, but isolated areas of high ice damage from the 2008 ice storm has been notice in the crowns and by the debris on the ground. Habitat diversity is great and favors interior forest dwelling species as well as early species that thrive in early successional stand types. Signs of wood peckers, neotropical migratory birds, beavers, snakes, hawks and white tailed deer were observed on the property. A series of beaver ponds in the western section of the property enhances the wildlife habitat value of the woods. Larger hard mast producing red oak trees and young regenerating species help enhance the wildlife value of this woodland. Stone walls and older foundations offer clues to prior use of the property for animal husbandry. The previous property owners have also planted black walnut trees along Martins Pond Road and Norway spruce trees in what may have been the yard for the house. Much of the old farm fields have grown back while sections are still being mowed. This aspect enhances the already great biodiversity found throughout the property.

On more of a landscape level, this property helps contribute to a continuous tract of land that acts as a wildlife corridor for much of the wildlife in northern Massachusetts. If maintained in an open manner, this parcel will continue to help support the wildlife species that depend on large unbroken tracts of forestland and farmland.

Landowner Goals & Objectives

The primary management objectives of the Groton Conservation Commission are to conserve and improve the forest resources available on the property, enhance wildlife habitats, maintain and improve recreational opportunities for the public, and maintain natural communities while providing educational opportunities for the public on stewardship matters. **It should also be noted that there is a Conservation Restriction held on this property with its own set of goals, objectives, rules, and regulations. Before any action is taken, persons should consult with this document.**

Required Elements

Timber – One of the main goals for this property is sound timber management in order to produce a periodic income. A list of management strategies on a stand-by-stand basis is discussed later in this plan.

Fish/Wildlife Habitat – Care will be taken to maintain and improve forest biodiversity on the property. Proper care will ensure the integrity of the property isn't compromised for the future. This property plays an important role for wildlife connectivity with the surrounding properties. Since there are invasive species on this property, they should be mowed and sprayed with herbicide. This is highly recommended so that invasive species do not fully take hold of the property and out compete the native species. Invasive species

are detrimental to the natural ecosystem and should be controlled. Bay State Forestry Service foresters are licensed commercial applicators which can help with this task.

Soil – Care will be taken to not harvest in mud season, when the ground is too soft, or on excessive slopes, to minimize rutting and erosion during harvest operations. Landings will be seeded with a conservation mix and limed at the conclusion of the job to stabilize the soil, and waterbars will be installed on skid trails where necessary.

Water Quality – Buffers will be left along streams and the wetland edge to avoid removing too many trees at once; this will provide soil stabilization along waterways and adequate shade. This shade will decrease water temperature and therefore increase the water's oxygen-holding capacity. The wetlands and streams will be left intact to keep the water clean and silt-free. Poled fords will be used when crossing smaller streams to further prevent siltation. Fueling of machines will not take place near the water's edge to prevent pollution.

Recreational Resources – The skid trails will provide a nice network of trails for recreational opportunities, both for walking and wildlife viewing. To this end, trails will be kept free of slash where possible.

Aesthetic Values – To maintain good aesthetics, logging operations will not rut up the soils and will cut up the tops so they lay close to the ground for rapid decay. Special guidelines have been created to ensure the integrity of this property is maintained for the future. **See the attached Conservation Restrictions packet.**

Cultural Features – Care will be taken to avoid breaching or breaking the stone walls during timber harvests unless no openings exist to allow the trees to be skidded to the landing. To accomplish this, loggers will use existing bar ways for skidding. Special guidelines have been created to ensure the integrity of this property is maintained for the future. **See the attached Conservation Restrictions packet.**

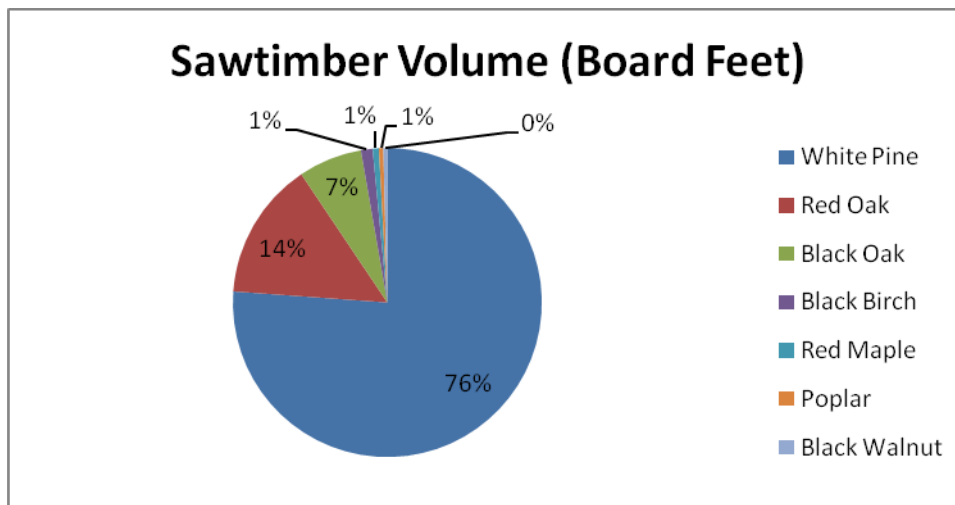
Forest Protection – The diversity of tree species does well to protect this property from a forest pest looking for a monoculture of timber. By keeping logging slash low to the ground, decay is speeded up; this prevents too much of a buildup of fuels as a fire hazard.

Wetlands – In order to preserve the integrity of more sensitive areas of this woodlot, wetlands will only be harvested under dry or frozen conditions.

Threatened/Endangered Species and Unique Natural Communities – During all the walks through this forestland, no species were identified as either threatened or endangered. However the Natural Heritage has identified Blanding's turtle, blue spotted salamander, and other species of special interests. Direct contact with the Natural Heritage program will be necessary to determine these special interests species before any action is taken on this property. If at some time any flora or fauna are identified on this property as such, appropriate measures will be taken to prevent disturbing that species.

**Forest Products Summary Table for Accessible Stands
Groton Conservation Commission, Baddacook Field—Groton, MA
Total Acreage: +/- 36.0 acres**

Species	(Board Feet)		
White Pine	219, 149		
Red Oak	41,496		
Black Oak	19,171		
Black Birch	3,511		
Red Maple	1,864		
Poplar	1,338	Hardwood Cordwood	136 cords
Black Walnut	1,193	Softwood Pulpwood	278 cords
Total Volume	287,822¹	Total Volume	414 cords²



¹ This sawtimber total represents all the trees of sawtimber quality 12 inches and greater in diameter found in this block. In order to capture this total volume, all trees of this specification would have to be harvested.

² These cordwood totals, both softwood and hardwood, represent all the standing trees with diameters of 6-11.9 inches found in this block, as well as trees of larger diameters that do not meet sawtimber quality specifications. In order to capture this total volume, all trees of this specification would have to be harvested.

Forest Management Plan

Stand 1 – White Pine, 15.2 Acres

Standing Volumes:

Species	Average BA/acre (sq. ft./ac.)	Volume per acre (bd. ft./ac.)	Total Volume (bd. ft.)
White Pine	67	10,119.8	153,821
Black Oak	7	524.4	7,970
Red Maple	1	122.6	1,864
Black Birch	1	114.3	1,738
Poplar	1	88.0	1,338
Red Oak	1	87.5	1,331
Sawtimber Total	78	11,057	168,061
		Cords/ac.	Total Cords
Softwood Pulp	57	12.7 cds	193 cds
Cordwood	26	4.3 cds	65 cds
Cord/Pulp Total	83		
All Products	161		

Description:

This stand makes up the majority of the property and is broken up by Stand 2 on the eastern side and Stand 3 on the western side. The stand is composed of mainly white pine, ranging from poor to good quality. In the overstory, the white pine ranges in size from 12-20 inches in diameter at breast height with scattered trees up to 28 inches at dbh. Other associated species found in the over story include scattered red maple, black birch, mixed oaks, and poplar ranging in size from 12- 16 inches at dbh. All of these species can be found scattered in the lightly stocked understory ranging in size from 4-8 inches at dbh. Much of this stand appears to be even aged with the understory being advanced regeneration responding from past harvest. The current regeneration in this stand is made up of sapling sized black birch, red maple, and the invasive species glossy buckthorn. The regeneration is primarily found in the southern section of the stand, which was harvested 20+ years ago and has established itself in the canopy openings. The topography is relatively flat with a slight 2-4% slope towards the small wetland pockets. The site is moderately well drained with a series of advanced vernal pools that have become small wetlands due to beaver activity. A woods road can be found running along the southern edge of the stand near Baddacook Pond.

The current health appears to be fair. This stand is showing pockets of severe ice damage, including excessive woody debris and standing broken off trees. It appears care takers

have tried to clean up some of this cumbersome mess. In the southern section, much of the stand shows signs of high grading when it was cut in the past. In the sections that weren't cut, much of the trees have reached a point of stagnation. Although much of this may appear great for wildlife, the forest as a whole is under a great deal of stress and will continue to degrade at a steady pace. The stand can be accessed from Martin's Ponds Road.

Recommendations:

The desired future condition of this stand is a healthy white pine stand with increased vigor. Emphasis will be placed on promoting the timber quality of this stand while trying to increase the health and aesthetics. A commercial thinning is recommended. Suppressed trees and those with low vigor will be selected for removal. These trees can be identified by their smaller crowns, poor growth form and lower position in the canopy. Ice damaged trees with more than 60% crown damage will be targeted for removal as well. By reducing the competition and damaged trees, the remaining trees will promote a healthier forest. Although this treatment is not designed to regenerate the stand, the increased sunlight is expected to result in some regeneration of shade tolerant species as well as releasing suppressed regeneration. The remaining stand will consist of well spaced dominant white pine. This treatment will generate white pine saw logs and biomass fuel chips. Entry should be limited to dry or frozen conditions to minimize any negative impacts to the soils and reduce damage to the root systems of the remaining trees. The end result will be a healthier stand that promotes timber growth. The harvest of this stand will coincide with other harvests on the rest of the property. It is recommended that this stand should be harvested using a biomass harvest due to the poor quality of the wood, the ice damage component, and the high visibility of the stand. Aspects from the **Conservation Restriction** will be taken into consideration to make sure that any future operations don't compromise the integrity of the property as a whole.

Stand 2- Abandoned Field 1.5 Acres

Standing Volumes:

Species	Average BA/acre (sq. ft./ac.)	Volume per acre (bd. ft./ac.)	Total Volume (bd. ft.)
Black Walnut	10	795.1	1,193
Sawtimber Total	10	795	1,193
		Cords/ac.	Total Cords
Cordwood	30	4.3 cds	6 cds
Cord/Pulp Total	40		
All Products	40		

Description:

This small stand is near the northeastern corner of the property running along the eastern edge of the field, separating the northeast part of Stand 1. This even aged stand is composed of mainly scattered planted black walnut, white pine, apple trees and scattered red maples. The trees range in size from 4- 10 inches at dbh and are scattered upon a variety of shrubs. Invasive species are prevalent in this and include buckthorn, burning bush, and autumn olive. This stand is slowly going through the succession from field to forest. There appears to be a smaller section that is being mowed and maintained as field. This forest type is very desirable by species that thrive in early successional habitats. This stand adds great biodiversity to the property. Moving southwesterly in the stand, the ground becomes saturated with water and more of a red maple component emerges. This becomes a wetland with a small stream outflow, flowing off of the property.

The overall stand health is good with minor mortality and ice damage. The soils appear to be well drained and accessible for the majority of the year with the exception of the southern section of the stand. There are signs that fencing was put up in the area that is being maintained as a field. The stand can easily be accessed from Martin's Ponds Road.

Recommendations:

Given the current state of the stand and the objectives of the **Conservation Restriction**, this stand should be moved using a high powered brush hog to remove smaller trees and shrubs with low vigor and desirability in the northern half of the stand. Since there are invasive species in this stand, they should be mowed and sprayed with herbicide. This is highly recommended so that invasive species do not fully take hold of the stand and out compete the native species. Bay State Forestry Service foresters are licensed commercial applicators which can help with this task. For more specific recommendations see the attached **Conservation Restrictions**. Since parts of this stand are in the view shed from

the house, the **Conservation Restrictions** mention specific details to its maintenance. The harvest of this stand does not need to coincide with other harvests on the rest of the property but should be evaluated for cost effectiveness when preparing to harvest the rest of the property.

Stand 3- Red Maple Forested Wetland 1.5 Acres

Standing Volumes:

Species	Average BA/acre (sq. ft./ac.)	Volume per acre (bd. ft./ac.)	Total Volume (bd. ft.)
Red Maple	NA	NA	NA
Sawtimber Total	NA	NA	NA
		Cords/ac.	Total Cords
Cordwood	60	5.7 cds	5.7 cds
Cord/Pulp Total	60		
All Products	60		

Description:

This small stand is near the northeastern corner of the property, to the southeast of Stand 2, separating the northeast part of Stand 1. This even aged stand is composed mainly of red maple with other scattered associated wetland tree species such as elm. The trees range in size from 2-8 inches at dbh and are scattered upon a variety of wetland shrubs and plants. Invasive species can be found along the northern edge of the stand and include glossy buckthorn, burning bush, and autumn olive. This forest type is very desirable by species that thrive in a forested wetland habitat. This stand is yet another great stand that promotes the already great biodiversity of this stand. Moving southwesterly in the stand, the ground becomes saturated with water and eventually a stream forms, draining the water into Baddacook Pond.

The overall stand health is good with minor mortality and ice damage. The soils appear to be poorly drained year round and not accessible. There are signs that fencing was put up in this stand along the boundary line. This is a sign that animals may have been kept on this property at some point in the property's history. The stand can be accessed from Martin's Ponds Road from Stand 2.

Recommendations:

Given the current state of the stand and the poor ground conditions, there are no recommendations for a harvest. It is recommended that this stand be allowed to grow and stay natural. The northern section of this stand should be mowed using a high powered brush hog to remove smaller trees and shrubs with low vigor and desirability. Since there are invasive species in this stand, they should be mowed and sprayed with herbicide. This is highly recommended so that invasive species do not fully take hold of the stand and out compete the native species. Bay State Forestry Service foresters are licensed commercial applicators which can help with this task. For more specific recommendations see the

attached Conservation Restrictions. Since this stand makes up the majority of the view shed from the house, the **Conservation Restrictions** mention specific details to its maintenance. The harvest of this stand does not need to coincide with other harvests on the rest of the property but should be evaluate for cost effectiveness when preparing to harvest the rest of the property. Stand 2 and 3 can be treated separately from other harvests on the rest of the property.

Stand 4 –White Pine/ Oak, 9.0 Acres

Standing Volumes:

Species	Average BA/acre (sq. ft./ac.)	Volume per acre (bd. ft./ac.)	Total Volume (bd. ft.)
White Pine	45	7,258.6	65,328
Red Oak	40	4,473.9	40,265
Black Oak	12	1,244.5	11,201
Black Birch	2	197.0	1,773
Sawtimber Total	99	13,174	118,566
		Cords/ac.	Total Cords
Softwood Pulp	38	9.5 cds	85 cds
Cordwood	38	6.5 cds	59 cds
Cord/Pulp Total	76		
All Products	175		

Description:

This 9.0 acre stand makes up the rest of the woodland of this property. This stand makes up the southern and western parts of the property and is broken up by the power line corridor running southerly and the western part of Stand 1. The stand is composed of mainly white pine, red oak, and black oak in the overstory, ranging from fair to excellent quality. The trees in the overstory range in size from 14- 28 at dbh with scattered wolf white pine trees exceeding 28 inches at dbh. The understory in this stand is composed of good black and red oak, black birch, red maple, and other mixed hardwoods ranging in size from 3- 10 inches in diameter at breast height. The regeneration in this stand is low, consisting of white pine, mixed oak, hickory, black birch, and red maple seedling and saplings up to 8 ft tall. There is a high amount of invasive species in this stand. Some of these species include multiflora rose, honeysuckle, bittersweet, and Japanese barberry. The topography is relatively flat with a slight 2-4% rolling slope to the south. The site varies from moderately well drained soils to poorly drained soils. A series of beaver ponds and streams can be found splitting the stand in half running southerly, exiting the property to the south and west. The beavers have flooded over 2 acres of this stand and continue to do so. The remains of three abandoned camps can be found along the southwestern edge of the beaver ponds. Although the current health appears to be good, these stands are showing moderate signs of ice damage and die back from over stocking. Debris from the ice damaged trees is scattered throughout the stands forest floor. With an overall basal area of 175 sq ft per acre, the basal area is 60 sq ft per acre higher than the ideal growing conditions.

Recommendations:

The desired future condition of this stand is an uneven aged white pine/ hardwood stand with increased vigor. Emphasis will be placed on promoting the timber quality of this stand while trying to increase aesthetics. The focus on this harvest will be to continue to promote the uneven age structure already present. This will be done by single tree/ group tree selection. The harvest will focus on removing the majority of the overstory white pine and red oak trees to help release the predominant well established intermediate age class that makes up the majority of this stand. Ice damaged trees with more than 60% crown damage will be targeted for removal as well. By reducing the competition and damaged trees in the overstory, the remaining trees will promote a healthier forest. This treatment is designed to help regenerate the stand. The increased sunlight is expected to result in some regeneration of shade tolerant species as well as release suppressed regeneration. The remaining stand will consist of well spaced mixed dominant white pine and mixed oak as well as other codominant hardwoods. This treatment will generate white pine and hardwood saw logs, firewood, and biomass fuel chips. Entry should be limited to dry or frozen conditions to minimize any negative impacts to the soils and reduce damage to the root systems of the remaining trees. The end result will be a healthier stand that promotes timber growth. The harvest of this stand will coincide with other harvests on the rest of the property. It is recommended that this stand should be harvested using a biomass harvest given the scattered ice damage and scattered poor quality white pine trees. Serious consideration should be given to controlling the invasive species which will become even more prevalent following the proposed harvests. Bay State Forestry Service foresters are licensed commercial applicators which can help with this task. Consult the **Conservation Restriction** for additional recommendations.

Management Schedule

2011

- Prepare the forest management plan.
- Blaze and paint identifiable boundary lines.
- Conduct a biomass timber harvest in harvestable areas.
- Seed and lime the landing at the conclusion of the timber harvest.
- Address recreational issues (hunting, hiking, etc.).

2011-20

- Monitor the woodlot for wind damage, ice damage, fire, or disease and take appropriate corrective actions as needed to ensure the continued health of this forest block.
- Assist the Town of Groton Conservation Commission with carry out the objectives set forth in the **Conservation Restriction** for the property.
- Control invasive species through herbicide applications using a backpack sprayer and herbicides legal in the State of Massachusetts.(2011-2015).
- Re-assess the woodlot in 10 years and write a new 10-year management plan, specifically looking at TSI potential and another harvest midway through the next management period.
- (Recommended Item) Make this property available for Project Learning Tree excursions for the local schools.

Concluding Remarks

The recommendations proposed in this 10-year management plan should be implemented within the next 10 years, although timing will depend on landowner priorities, market conditions, and environmental conditions such as pest outbreaks and weather. Through sound silvicultural practices and using best management practices (BMP's), mature, diseased, and defective trees will be harvested to allow residual trees to grow in their place. This forest should be monitored for pest outbreaks and destructive weather events; corrective action should be taken as needed over the next 10 years in response to any such events. These recommendations are silviculturally and operationally sound and should result in meeting the landowners' objectives for their woodlot. Implementing these recommendations will help ensure that this forestland is being managed with long-term sustainability in mind.

Respectfully Submitted,

Eric V. Radlof

CONSERVATION RESTRICTION
TO THE
GROTON CONSERVATION TRUST

This grant of restrictive covenant is made this ____ day of _____ 2013, by the Town of Groton, a Massachusetts municipal corporation having an address of 173 Main Street, Groton, Middlesex County, Massachusetts and its permitted successors and assigns (hereafter “Grantor”), acting pursuant to Sections 31, 32, and 33 of Chapter 184 of the Massachusetts General Laws.

WHEREAS, Grantor, being the owner in fee simple of those certain parcels of land located in Groton, Middlesex County, Massachusetts with the buildings and improvements thereon, being shown on Assessor’s Map 232-56 (formerly K-27) and being more particularly bounded and described in a deed from Dr. F. Woodward Lewis and Dr. Elizabeth K. Lewis recorded with the Middlesex South County Registry of Deeds in Book 31041, Page 19 a copy of which is attached hereto as Exhibit (A) and as shown on the Stand Type Map, a copy of which is attached as Exhibit (B), both of which are made a part hereof (“Property”);

WHEREAS, under the provisions of sections 31, 32 and 33 of Chapter 184 of the General Laws, the Grantor hereby grants, with quitclaim covenants, to the Groton Conservation Trust, a 501(c)(3) organization with an address of PO Box 395, Groton, MA 01450, and its successors and permitted assigns, (“Grantee”) in perpetuity and exclusively the following restrictive covenants to be imposed upon the lots of land comprising the Property and any portion thereof. These covenants shall bind the Grantor’s successors in interest to the Property or any portion thereof:

I. Purposes:

It shall be the intent and purpose of this Conservation Restriction, to improve and maintain the Property subject to M.G.L. c.40, §8C on the establishment and powers and duties of conservation commissions and the Wetlands Protection Act. M.G.L. c.131, §40, the Groton Wetlands Protection Bylaw, and the rules and regulations of the Department of Environmental Protection (“DEP”) relative to the protection of public water supplies. This Conservation Restriction is expressly subject to any and all requirements imposed by DEP relative to the Town’s siting of a municipal water supply on the Property. The Property, comprised of approximately 35 acres of land, contains unusual, unique or outstanding qualities the protection of which in their predominantly natural or open condition will be of benefit to the public. These qualities include:

Vistas of the fields adjacent to Baddacook Pond, vistas of Baddacook Pond from Martins Pond Road, passive recreational open space, watershed protection, support of the Baddacook Pond ecosystem, and a possible municipal water supply.

II. Prohibited Acts and Uses, Exceptions Thereto, and Permitted Uses:

A. Prohibited Acts and Uses. Subject to the exceptions set forth in paragraphs B and C below, the following acts and uses are prohibited on the Property:

1. Constructing or placing of any building, tennis court, landing strip, mobile home, swimming pool, fences, asphalt, or concrete pavement, sign, billboard or other advertising display, antenna, utility pole, tower, conduit, line or other temporary or permanent structure or facility on or above the Property.
2. Mining, excavating, dredging or removing from the Property of soil, loam, peat, gravel, sand, rock or other mineral resource or natural deposit.
3. Placing, filling, storing or dumping on the Property of soil, refuse, trash, vehicle bodies or parts, boats, trailers, rubbish, debris, junk, waste or other substance or material whatsoever or the installation of underground storage tanks for any substance other than water.
4. Cutting, removing, or otherwise destroying trees, grasses or other vegetation.
5. Use of fertilizers, pesticides, fungicides or herbicides, unless to control a species harmful or a nuisance to humans or other plant and animal life, and then only in a safe manner consistent with recommended practice of application in ecologically sensitive areas in conformity with all state and federal law, and the manufacturer's instructions.
6. The subdivision of the Property or use towards building or development requirements on this or any other property.
7. Motorized vehicles.
8. Hunting or trapping.
9. Activities detrimental to drainage, flood control, water conservation, erosion control, wetland protection, or soil conservation.
10. Any other use of the Property or activity which would materially impair conservation interests unless necessary for the protection of the conservation interests that are the subject of this Conservation Restriction.

B. Exceptions to Otherwise Prohibited Acts and Uses. The following acts and uses otherwise prohibited in subparagraph A are permitted but only if such acts or uses do not materially impair significant conservation interests and are not prohibited by DEP due to the siting of a municipal water supply on the Property.

1. Limited use of motorized vehicles, including the use of motorized wheelchairs, motorized vehicles as necessary for police, fire, ambulance or other emergency personnel or governmental agents in the performance of their official duties and vehicles used by

owner or its employees or its agents for the purpose of agricultural uses including animal husbandry, upkeep, and maintenance of the Property.

2. Clear all existing scrub growth along the southerly side of Martins Pond Road in order to create clear views into the field areas and toward Baddacook Pond to the extent that the same does not threaten endangered or protected wildlife species.
3. Remove all existing trees within the field areas except for mature, specimen trees.
4. Remove all debris piles, fences, and existing structures including those camps and appurtenant structures located by Baddacook Pond except for the foundation of the former barn and stone walls.
5. Remove sufficient trees, but not mature trees, in the area between Martins Pond Road and Baddacook Pond to allow Baddacook Pond to be seen from Martins Pond Road, as sketched on the plan attached as Exhibit C (“Viewshed Area”). Within Viewshed Area, all understory growth shall be cleared. Selected existing trees may be retained provided that the lower branches of such trees are trimmed sufficiently to allow views through to the pond.
6. No building lots shall be created and no new structures shall be constructed except as necessary and required for construction and operation of a municipal water supply approved by the DEP or to support the maintenance and/or passive, non-motorized recreational use of the Property. Grantee shall be presented with the plans for any and all new structures, including those for a municipal water supply, and shall consent for any such structures reviewing them for size, height, materials, color, and screening in the interest of minimizing the visual impact. Consent shall not be unreasonably withheld. Grantee shall have 60 days to respond to the notice of and submission of plans for new structures. Failure on the part of the Grantee to respond in writing within the 60 days shall be deemed to be consent. No structures shall be constructed in the viewshed area in any event or shall adversely affect the vernal pools identified as VPA, VPB, and VPC on Exhibit ‘B’. Also see attached Exhibit D showing primary and secondary locations for a municipal water supply.
7. The Town shall continue to maintain the Property to retain the views into and through the Property. The Town will remove vegetation along Martins Pond Road at least every two years and will mow at least once a year, hay or maintain in agricultural use the open fields so they remain open. The Town will also trim or remove trees or other vegetation in the Viewshed Area to retain a viewshed to Baddacook Pond. Motorized vehicles may be used as necessary to maintain the Property and for public safety purposes.

If the Town of Groton does not comply with these requirements, after 60 days notice by the Grantee, Grantee shall cause such work to be done at Grantor’s expense per Section III c.

8. The Town of Groton agrees that public access to the Property will be allowed under the terms of this Restriction and that such access will be under control of the Board of Selectmen, unless a portion of the Property is transferred to the care, custody, and control of another town board pursuant to a vote of Town Meeting. The intent is that public access will be allowed and the Property used for public benefit, subject to the requirements of public safety and the potential installation of a municipal water supply and the terms of an Agreement by and between the Town of Groton, Groton Historic Commission, Groton Land Foundation, Inc., the Groton Conservation Trust and Dr. F. Woodward Lewis and Dr. Elizabeth K. Lewis dated January 10, 2000 which Agreement is part of the Public Record at Middlesex South District Registry of Deeds, Book 31924, Page 478.

9. Notwithstanding the provisions of these sections the Town of Groton shall not be required to make any improvements to the Property or allow public access which is not in accordance with the Wetlands Protection Act, the Groton Wetlands Bylaw and the rules and regulations of the Department of Environmental Protection relative to the protection of public water supplies.

10. Excavation and removal from the Property of soil, gravel or other mineral resource of natural deposit as may be incidental to the installation or maintenance or removal of a municipal well, underground tanks, septic systems, utilities, all serving the municipal water facility if constructed on the property or to the maintenance of good drainage, soil conservation practices or to other permissible use of the Property, including agricultural uses and animal husbandry except that all such uses shall not occur within 100 feet of the edge of the shore of Baddacook Pond..

11. The maintenance of piles of limbs, brush, leaves, and similar biodegradable material that emanates from the Property itself, provided such piles are not conspicuous or otherwise interfere with the conservation or public water supply objectives of this Conservation Restriction.

12. The placing of fences, an irrigation well, or animal three-sided shelters that do not interfere with the aesthetic values and other conservation purposes and public water supply of this Conservation Restriction as expressed in the Purpose section of Article 1.

13. Erection of signs by the Grantor or Grantee identifying the Grantor and the Grantee as holder of the restriction and to educate the public about the conservation values and public water supply protected and any limitations relating to public access.

C. Further exceptions to otherwise Prohibited Acts and Uses. The following acts and uses otherwise in subparagraphs A and B are permitted.

1. Any and all uses, structures, and improvements required for the siting of a municipal water supply on the Property but only if such actions do not impair the conservation qualities for which the Property was originally protected and are done in accordance with approvals from the Massachusetts Department of Environmental

Protection or its successor agency or agencies (“MDEP”) in compliance with MDEP water supply regulations, guidelines, and policies and the same are outside of the Viewshed Area, and shall have no adverse effects on the vernal pools located on the Property as Vernal Pools A, B, and C.

Any trails negatively impacted by the implementation of a municipal water supply, according to applicable regulations, shall be relocated at the sole expense of the Groton Water Department.

2. Grantor and Grantee agree that Exhibit D is consistent with the intent of the map recorded as Schedule C of the document recorded at Middlesex South District Registry of Deeds, Book 31924, Page 478.

III. Legal Remedies and Enforcement of the Grantee:

A. Enforcement

If Grantee, after inspection, should note a violation of any terms of this Conservation Restriction, Grantee shall give written notice to Grantor specifying in particular the nature of the violation. Representatives of the Grantor and the Grantee shall meet within 30 days of said notice to discuss the violation and agree on the appropriate remedy and time table of same which Grantor agrees to undertake.

B. Legal & Injunctive Relief

The rights hereby granted shall include the right to enforce this Conservation Restriction by appropriate legal proceedings and to obtain injunctive and other equitable relief against any violations, including, without limitation, relief requiring restoration of the Property to its condition prior to the time of the injury complained of (it being agreed that the Grantee may have no adequate remedy at law), and shall be in addition, and not in limitation of, any other rights and remedies available to the Grantee.

C. Reimbursement of Costs of Enforcement

The Grantor, and thereafter the successors and assigns of the Grantor covenant and agree to reimburse the Grantee for all reasonable costs and expenses (including without limitation counsel fees) incurred in enforcing this Conservation Restriction or in remedying or abating any violation thereof.

D. Grantee’s Disclaimer of Liability

By its acceptance of this Conservation Restriction, the Grantee does not undertake any liability or obligation relating to the condition of the Property. Any election by the Grantee as to the manner and timing of its right to enforce this conservation restriction or to exercise its rights hereunder shall not be deemed or construed to be a waiver of such rights.

E. Non-Waiver

Any election by the Grantee as to the manner and timing of its right to enforce the Conservation Restriction or otherwise exercise its rights hereunder shall not be deemed or construed to be waiver of such rights.

IV. Access:

The Conservation Restriction hereby conveyed does not grant to the Grantee, to the general public, or to any other person any right to enter upon the Property except as set forth in section II, B, 8 hereof and except there is granted to the Grantee and its representatives the right to enter the Property at reasonable times and in manner for the purpose of inspecting the same to determine compliance herewith.

V.

A. Grantee's Receipt of Property Right

The Grantor and the Grantee agree that the donation of this Conservation Restriction gives rise for purposes of this paragraph to a real property right, immediately vested in Grantee, with fair market value that is at least equal to the proportionate value that this Conservation Restriction determined at the time of the gift bears to the value of the unrestricted Property at that time. The Grantor and the Grantee agree that as between them the fair cash market value of the Conservation Restriction is negligible.

B. Grantor/Grantee Cooperation Regarding Public Action

Whenever all or part of the Property or any interest therein is taken by public authority under power of eminent domain or other act of public authority, then the Grantor and the Grantee shall cooperate in recovering the full value of all direct and consequential damages resulting from such action. All legal expenses and related expenses incurred by the Grantee and by the Grantoree only if the public authority exercising eminent domain is not the Town of Groton or any of its subdivisions shall first be paid out of any recovered proceeds; and the remaining proceeds shall be distributed solely to the Grantor, their successors and assigns.

VI. Assignability:

A. Running of the Burden

The burdens of this Conservation Restriction shall run with the Property in perpetuity, and shall be enforceable against the Grantor and the successors and assigns of the Grantor holding any interest including a leasehold interest in the Property.

B. Execution of Instruments

The Grantee is authorized to record or file any notices or instruments appropriate to assuring the perpetual enforceability of this Conservation Restriction; the Grantor on

behalf of themselves and their successors and assigns appoint the Grantee their attorney-in-fact to execute, acknowledge and deliver any such instruments on their behalf. Without limiting the foregoing, the Grantor and their successors and assigns agree themselves to execute any such instruments upon request.

C. Running of the Benefit

The benefits of this Conservation Restriction shall be in gross and shall not be assignable by the Grantee, without express written permission of the Grantor.

As a condition of any assignment, the Grantee shall require that the purpose of this Conservation Restriction continues to be carried out; and the Assignee, at the time of the assignment, qualifies under Section 170(h) of the Internal Revenue Code of 1986, as amended, and applicable regulations thereunder, and is a donee eligible to receive this Conservation Restriction under Section 32 of Chapter 184 of the General Laws of Massachusetts. Any assignment will comply with Article 97 of the Amendments to the Constitution of the Commonwealth of Massachusetts, if applicable.

VII. Subsequent Transfers:

The Grantor agrees to incorporate by reference the terms of this Conservation Restriction in any deed or other legal instrument by which they divest themselves of any interest in all or a portion of the Property.

VIII. Severability

If any court determines that any provision of this instrument is invalid or unenforceable, such provisions shall be deemed to have been modified automatically to conform to the requirements for validity and enforceability as determined by such court. In the event the provision invalidated is of such a nature that it cannot be so modified, the provision shall be deemed deleted from this instrument as though it had never been included herein. In either case, the remaining provisions of this instrument shall remain in full force and effect.

IX. Termination of Rights and Obligations:

Notwithstanding anything to the contrary contained herein, the rights and obligations of any party holding an interest in the premises under this Conservation Restriction shall terminate upon transfer of that party's interest. Liability for acts or omissions occurring prior to said transfer made in violation of this Conservation Restriction, shall survive such transfer.

X. Estoppel Certificates

Upon request by the Grantor, the Grantee shall within ninety (90) days execute and deliver to the Grantor any document, including an estoppel certificate, which certifies the

Grantor's compliance with any obligation of the Grantor contained in this Conservation Restriction.

XI. Effective Date:

This Conservation Restriction shall be effective when the Grantor and the Grantee have executed it, the administrative approvals required by Section 32 of Chapter 184 of the General Laws have been obtained, and it has been recorded, or if registered, filed.

XII. Recordation:

The Grantor shall record this instrument in timely fashion in the Middlesex County Registry of Deeds.

Executed under seal this _____ day of _____, 2013

COMMONWEALTH OF MASSACHUSETTS

Middlesex. ss. _____, 2013

Then personally appeared the above-named members of the Board of Selectmen of the Town of Groton _____

and acknowledged the foregoing instrument to be the free act and deed, of the Town of Groton before me.

Notary Public

My Commission Expires:

ACCEPTANCE OF GRANT

The above Conservation Restriction is accepted this _____ day of _____, 2013.

Groton Conservation Trust

By: _____

By: _____

COMMONWEALTH OF MASSACHUSETTS

Middlesex, ss. _____, 2013

Then personally appeared the above-named _____,
_____ members of the Groton
Conservation Trust and acknowledged the foregoing to be its free act and deed, before
me.

Notary Public
My Commission Expires:

APPROVAL BY THE SECRETARY OF ENERGY AND ENVIRONMENTAL
AFFAIRS COMMONWEALTH OF MASSACHUSETTS

The undersigned, Secretary of Energy and Environmental Affairs of the Commonwealth
of Massachusetts, hereby certifies that the foregoing Conservation Restriction has been

approved in the public interest pursuant to M.G.L. Chapter 184, section 32. Said approval shall not be construed as representing the existence or non-existence of any pre-existing rights of the public, if any, in and to the Property, and any such pre-existing rights of the public, if any, are not affected by the granting of this Conservation Restriction.

Dated: _____, 2013

Richard K. Sullivan, Jr.
Secretary of Energy & Environmental Affairs

COMMONWEALTH OF MASSACHUSETTS

Suffolk, ss.

_____, 2013

Then personally appeared the above-named Richard K. Sullivan, Jr., Secretary of Energy & Environmental Affairs, and acknowledged the foregoing instrument to be his free act and deed as Secretary of Energy & Environmental Affairs of the Commonwealth of Massachusetts, before me,

Notary Public
My commission expires:

EXHIBIT A

BK 3104 | PG 019

DP-5

QUITCLAIM DEED

F. WOODWARD LEWIS AND ELIZABETH K. LEWIS, of 164 Main Street, Groton, Middlesex County, Massachusetts,

FOR CONSIDERATION OF \$650,000.00 PAID,

GRANTS WITH QUITCLAIM COVENANTS TO the Inhabitants of the TOWN OF GROTON, by and through its Board of Selectmen, of Groton, Massachusetts, County of Middlesex,

The land in Groton, Middlesex County, Massachusetts, described as follows:

A certain parcel of land situated in the Easterly part of said Groton, at the Northerly end of Baddacook Pond, bounded and described as follows:

- NORTHERLY by Martins Pond Road;
- EASTERLY by land presently of Van Hoogan, 550 feet, more or less;
- SOUTHERLY and SOUTHEASTERLY by Baddacook Pond; and
- SOUTHERLY and SOUTHWESTERLY by a line running to Martins Pond Road, including land formerly of Noah Shattuck (the Noah Shattuck parcel referred to is shown on the Groton Assessors Map as Parcel K 41 U), and including land shown on said Groton Assessors Map as Parcel K 39.

Meaning and intending to convey all of our right, title, and interest to that portion of the premises described in a deed from William E. Wheeler to Susie H. Shattuck dated June 2, 1909 and duly recorded with the Middlesex South District Registry of Deeds in Book 3446 at Page 376 as lies Southerly of Martins Pond Road, excepting therefrom that parcel of land previously conveyed to Squannacook Sportsman Club, Inc. by deed recorded on March 4, 1957 with said deeds in Book 8911, Page 66 and further excepting therefrom the parcel of land previously conveyed to Phillip Van Hoogan and Sarah Van Hoogan dated March 14, 1985, and recorded with said deeds in Book 16062, Page 479, shown as Lot 1 on a plan dated 12/17/84 recorded with said deeds as Plan No.302 of 1985. See also Estate of Susie Haswell Shattuck, Middlesex Probate No. 412600.

This conveyance is made subject to and with the benefit of easements, rights, and restrictions of record, to the extent the same are in force and applicable.

The above-described premises are shown on the Groton Assessors Maps as that portion of Parcel K 27 situated on the southerly side of Martins Pond Road.

MSD 01/18/00 02:28:45 764 50.00

BK31041PG020

For Grantor's title see Deed of William E. Wheeler to Susie H. Shattuck dated June 2, 1909 and duly recorded with the Middlesex South District Registry of Deeds in Book 3446 at Page 376 and see Estate of Susie Haswell Shattuck, Middlesex Probate No. 412600.

The undersigned certify that there has been full compliance with the provisions of G.L.c.7, §40J in connection with this conveyance.

No deed stamp taxes are due on this conveyance pursuant to G.L.c.64D, §1.

WITNESS our hands and seals this 14th day of Jan, 2000.

GRANTOR(S)

F. Woodward Lewis
F. Woodward Lewis

Elizabeth K. Lewis M.D.
Elizabeth K. Lewis

COMMONWEALTH OF MASSACHUSETTS

Middlesex, SS

1720, 2000

Then personally appeared the above named F. Woodward Lewis and Elizabeth K. Lewis and acknowledged the foregoing instrument to be their free act and deed, before me.

Notary Public Delano P. [Signature]

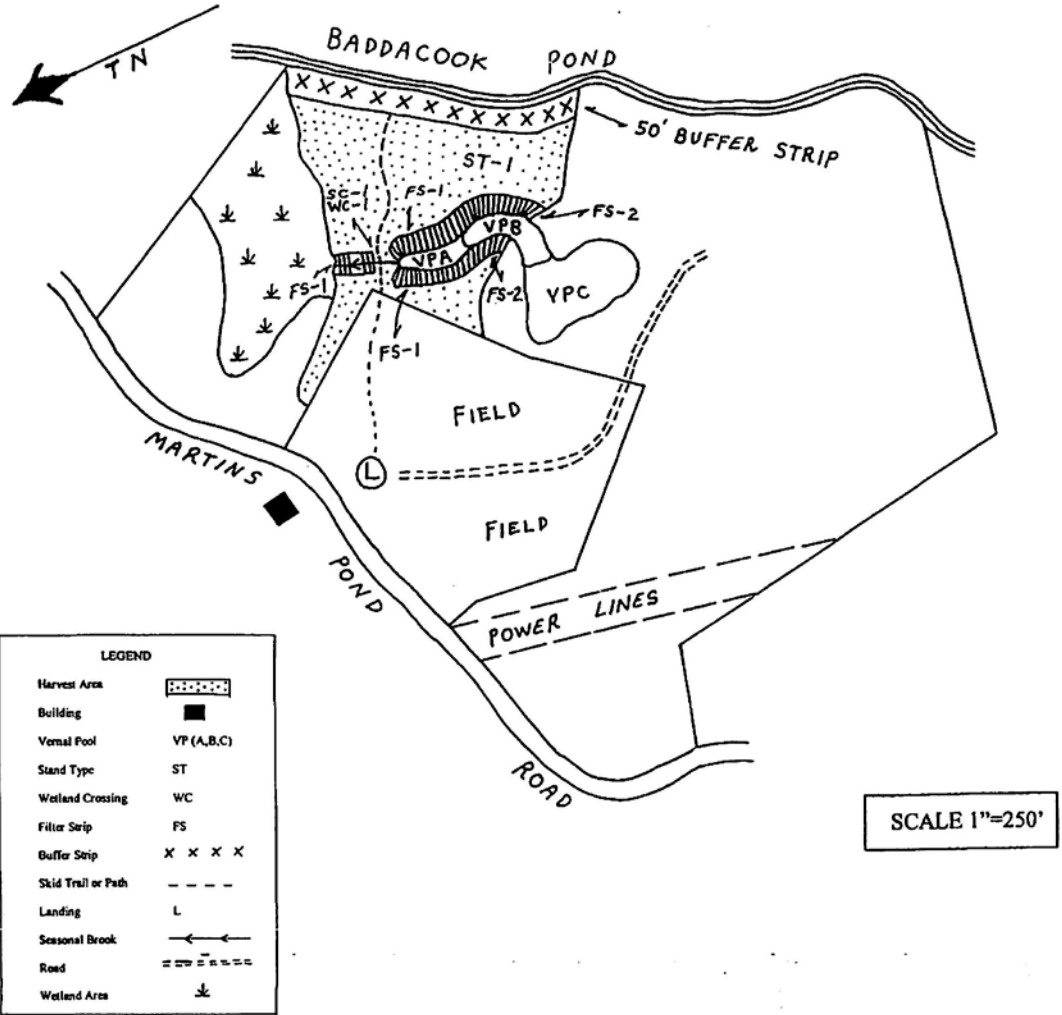
My Commission Expires 4/8/05

EXHIBIT B

STAND TYPE MAP

Dr. Lewis Lot
GROTON, MA

Owned By: Town of Groton
173 Main Street
Groton, MA 01450



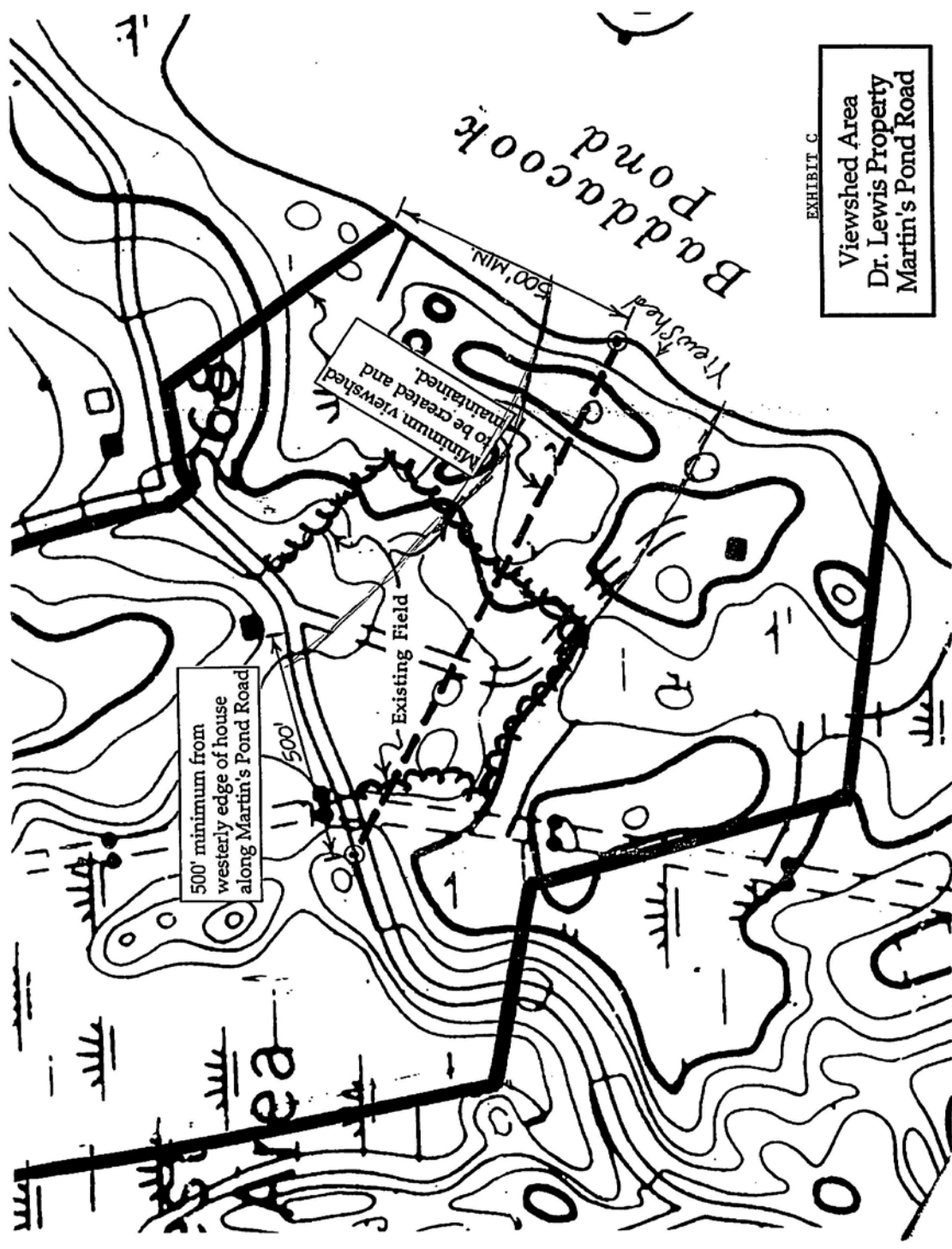


EXHIBIT C
Viewshed Area
Dr. Lewis Property
Martin's Pond Road

