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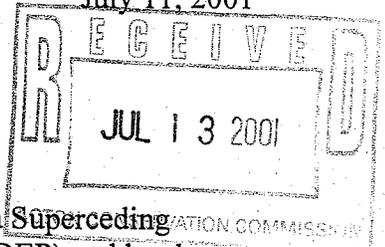
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**WILDLIFE HABITAT ENHANCEMENT PLAN
LOT 1 NEWTOWN ROAD
ACTON, MA**

July 11, 2001



1.0 Introduction

A Notice of Intent (NOI) for Lot 1 Newtown Road has been approved under a **Superceding** Order of Conditions (SOC) by the Department of Environmental Protection (DEP) and has been denied under the Acton Wetland Protection Bylaw (the "Bylaw") twice. The most recent denial took place on April 18, 2001. This report is to accompany the most recently revised NOI filing under the Bylaw currently before the Commission and to accompany the site plan labeled "Wildlife Habitat Enhancement Plan" dated June 27, 2001 by Foresite Engineering Associates, Inc.

The purpose of this report is to evaluate the site for wildlife habitat and to use mitigation and enhancement techniques to protect and demonstrate no **significant** impacts to the interests of the Bylaw, specifically as they pertain to wildlife habitat.

2.0 Existing Conditions

A site was inspected on June 8, 2001 by the staff of Carr Research Laboratory, Inc. (CRL) to examine existing conditions. The triangular shaped lot contains three wetland areas. A large BVW associated with Conant Brook, a perennial river, follows the southern property edge. Conant Brook has a 200-foot riparian zone. A smaller BVW which divides the uplands on-site is associated with the an intermittent stream flowing generally west to east. Finally a small area of BVW is found along Newton Road and is connected to a 15 inch culvert under the road. Each of these BVW resource areas has a 100-foot buffer zone.

The northern wetland (adjacent to Newtown Road) appears to offer vernal pool habitat as indicated by the signs of flooding to depths of about 1.5 feet and the presence of caddisfly larvae and amphibious snails. Though not directly observed, these signs suggest that amphibians such as wood frogs, American toads, spring peepers, or mole salamander may breed in the northern wetland. Chapter F3.14 of the Bylaw required a buffer zone to vernal pools of 100 feet or ½ the distance from the pool to the nearest foundation. Since the nearest foundation is 74 feet away, the vernal pool buffer zone is set at 37 feet. This vernal pool buffer is not given any specific significance in the Bylaw or accompanying Regulations, however CRL presumes that it is meant to initiate higher levels of review in order to protect wildlife habitat features associated with breeding vernal pool amphibians.

The southern wetland associated with the intermittent stream is mostly a floodplain wetland and does not contain breeding habitat for vernal pool amphibians. The intermittent stream however, could potentially be habitat for other types of amphibians such as the pickerel, leopard, or mink frogs. It is clear that the northern and southern wetlands support the habitat preferences and life cycle needs of a different set of wildlife species, with the likelihood of some overlap. The species that have specific habitat preferences to their wetland will unlikely have the need to cross the upland buffer zone to access a different wetland.

The upland/buffer zone portion of the site is the primary focus since all work proposed is in uplands. The uplands consist of a relatively undisturbed white pine forest with about 60% vegetative cover and a notable amount of rock/boulder outcrops and fallen trees. These features provide good cover to migrating, overwintering, or nesting wildlife. The dominant upland vegetative species are white ash, red maple, white pine, sugar maple, maple-leaved viburnum, Northern arrowwood, poison ivy, American hazelnut, highbush blueberry, cinnamon fern, interrupted fern, Canada mayflower, and hop hornbeam.

Some important features to evaluate when examining wildlife habitat are edge, foliage height diversity, moisture regime, winter food, and plant species diversity. The upland portion of this site lacked any notable edge: the tree canopy was well established while there was a sparse shrub layer and a dense herbaceous layer. The foliage height diversity was average: there was a noticeable lack of dense shrubs and sapling size plants. The moisture regime was present insofar as the vernal pool and intermittent stream areas hold seasonal water. Several hundred feet away from any proposed work a year round source of water exists via Conant Brook. The plant species found on-site have very little winter food value, the only buffer zone plants that offers winter food are white pine and poison ivy. Finally, plant species diversity is slightly below average: a low variety of native plants exist on the upland buffer zone portion of the site. As will be seen later, the overall number and diversity of wildlife habitat features on-site will be increased from predevelopment conditions.

3.0 Proposed Work

It is proposed to construct a single family house with an associated driveway and septic system. There is no work whatsoever, proposed in any resource area; no work will be occurring in any wetland, any potential vernal pool, or any riverfront area. Additionally, no work is proposed within 25 feet of any wetland resource area and no structures are proposed within 45 feet of any wetland resource area. All work is limited to upland areas greater than 25 feet from wetlands.

The vernal pool and surrounding 37-foot buffer zone account for about 17,700 square feet of the 3.7 acre lot. Of this 17,700 square feet, 94% of vernal pool and surrounding 37-foot buffer zone will remain undisturbed while 2% will be temporarily disturbed for grading purposes then immediately replanted with native vegetation and the other 4% will be converted to a portion of a stone wall, some native landscape plants, and perhaps some lawn. Therefore, only a minimal amount of impact is proposed to the vernal pool buffer zone.

It is important to note that a large developable upland area south of the intermittent stream will remain untouched. Under a limited project status, the applicant could have sought a barn, guest

house, etc. Also, this upland is potentially accessible for development from adjacent parcels to the south. Instead, the applicant is willing to leave the remainder of the lot undeveloped.

4.0 Proposed Mitigation

In order to compensate for the impact of necessary construction and permanent structures, several significant wildlife mitigations and enhancements are provided.

- No alteration is proposed to an wetland resource area.
- No structures are planned within 45 feet of a wetland resource area.
- A significant amount of additional upland/buffer zone beyond the 40 foot buffer, including the highest elevation on site (elev. 206), is to be left undisturbed.
- All surface water runoff from the roof and driveway will be recharged through stone trenches precluding any point source discharge to a resource area or buffer zone.
- All landscaping will be contained within the bound of the proposed stone wall. Landscaping plants will be limited to lawn and native vegetation. This approximately 125-foot by 90-foot area (about 7% of the lot) will be the only permanently altered part of the lot. The remainder of the lot will be natural and vegetated.
- All remaining areas temporarily altered for grading related to driveway and septic system construction will be restored to a wildlife area.
- No fertilizers/pesticides/herbicides will be used on the lot.
- The driveway between the stone wall and Newtown Road (about 140 linear feet) will not be paved, but instead be crushed stone.
- The small area of driveway grading north of the driveway will be planted with shrubs and wildflower species desirable for wildlife. The shrub locations are specified on the site plan. Shrub species will be consist of American hazelnut (*Corylus americana*), flowering dogwood (*Cornus florida*), and/or lowbush blueberry (*Vaccinium angustifolium*). The slope will be seeded with a Northeast Upland Wildlife Seed Mix available from Southern Tier Consulting, Inc. - (800) 848-7614. See attached.
- South of the proposed driveway is the leaching field. This area cannot be replanted with large tree species due to the necessity of maintaining the integrity of the septic system. The area will be maintained with shallow rooted vegetation and other features conducive to wildlife movement. A wildflower/wildlife meadow is proposed.
- The meadow will be planted with the above referenced Wildlife Seed Mix. The seeds in the mix will provide good cover for small mammals, amphibians, and reptiles. Additionally, birds will be able to nest in the meadow grasses.
- Around the perimeter of the meadow, additional American hazelnut, flowering dogwood, and/or lowbush blueberry plants will be established. Throughout the meadow, several small boulders and downed trees, ranging from 6 inches to 1.5 feet in diameter, will be placed on the ground to create cover and food. These downed trees will be obtained by relocating downed trees currently in the proposed house area.
- At the edge of the meadow, an open sand turtle nesting area will be constructed. This feature will provide turtle nesting opportunities that did not previously exist. A layer of coarse sand at least 9 inches thick shall be placed over the fill material. The sandy area will be planted randomly with five clumps of native bunch grass (*Andropogon scoparius*) and will be partially surrounded by a blackberry hedge. This blackberry hedge offers some protection from predators and is very high in food value.

The mitigation/enhancement measures will create a wide (140 feet) wildlife corridor that allows easy movement between the northern and southern on-site wetlands. Any small animal could easily travel from one wetland to the other if desired. If a small mammal, reptile, or amphibian were to encounter the stone wall during migration through the corridor, it could follow the edge of it, cross the gravel drive, and reach the other wetland.

The features of edge, foliage height diversity, moisture regime, winter food, and plant species diversity that were mentioned earlier can now be re-evaluated under this new plan. The created meadow will create significant edge that previously did not exist at its interface with the partially wooded uplands/wetlands to the north and south. The foliage height diversity will be increased with the addition of a variety of shrubs and herbs. The moisture regime will remain unaltered. Some winter food value will be lost with the removal of some white pine trees, however a larger variety of winter food plant species will be available. Specifically dogwood and blackberry, which offer highly nutritious berries, will be planted. Finally, plant species diversity will be increased with the introduction of new, native species to the site and simultaneous maintenance of existing species on the site. As can be seen, the overall number and diversity of wildlife habitat features on-site will be increased from predevelopment conditions.

5.0 Requirements of Acton Wetlands Protection Bylaw Section F8.1

This section requires that the applicant bear the burden of proving that the work proposed in the application will not have “**significant impacts**” on the interests protected in the Bylaw. The interests of the are public or private water supply, groundwater, flood control, erosion control, storm damage prevention, water pollution prevention, fisheries, and wildlife habitat.

Public or private water supply: Does not apply to this project.

Groundwater: The only perceived impact to groundwater could be the addition of a septic system to the site. Title 5 Regulations require a 4 foot separation from the top of the groundwater table in order to protect groundwater. Additionally, Title 5 requires a 50-foot setback from wetlands. These Title 5 standards are not arbitrary but are the result of significant research undertaken by the Commonwealth of MA DEP to ensure the protection of groundwater and wetlands. This site meets all Title 5 standards and has obtained Board of Health approval. Therefore, the presumption is that groundwater is sufficiently protected.

Flood control: No work is proposed in the floodplain and therefore this interest does not apply.

Erosion control: Completed erosion control will be placed at the downgradient edge of work to prevent erosion into the wetland resource areas. Therefore, this interest is protected.

Storm damage prevention: No work is proposed in the floodplain. Therefore, this interest does not apply.

Water pollution prevention: No work is being performed in or immediately adjacent to a waterbody. The two nearest temporal waterbodies are the northern wetland/uncertified vernal pool complex and the southern wetland/intermittent stream complex. There will be no direct discharge to any wetland area or waterbody. All on-site impervious runoff will be dissipated through recharge trenches and subsequently enter the wetland through base flow. Any direct surface flow to the wetland resource area will be from natural

wooded areas. Therefore, the interest of water pollution prevention is sufficiently protected.

Fisheries: Does not apply to this project.

Wildlife habitat: Based on the previous two Conservation Commission denial decisions, it is apparent that wildlife habitat is of concern on this site. Section F8.3 of the Bylaw outlines the minimum setbacks from the edge of wetlands necessary for the protection of the Bylaw interests. These setbacks, specifically the 25-foot buffer of undisturbed vegetation and the 40-foot setback to the edge of driveways, roadways, and structures, have been met on this site. The most recent denial by the Commission has not issued a written decision extending these setbacks further. Therefore, without any mitigation work, the interest of wildlife habitat is sufficiently protected particularly in light of the 37-foot vernal pool buffer zone. Nevertheless, the applicant is proposing to go through great measure to add and enhance many wildlife features beyond the 40-foot buffer zone. As discussed above and presented in the site plans, an extensive 140-foot long wildlife corridor between the two wetland areas is proposed. This will allow wildlife to use almost the entire site and take advantage of many added features. Under the current proposal there will be no "*significant*" impact to wildlife habitat within 100-feet of the wetlands.

There are no other performance standards of interests in the Bylaw of Regulations for work within 100-feet of wetlands.

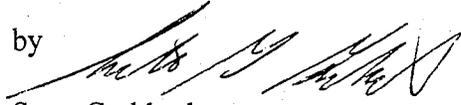
6.0 Conclusion

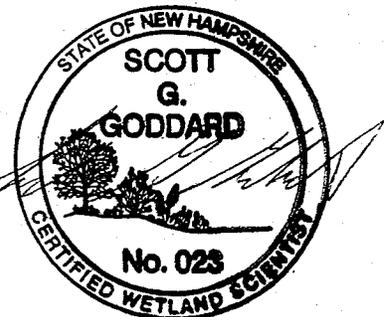
It is the opinion of CRL that the current project offers a very reasonable proposal for the development of a single family house lot. The proposal adds many new wildlife features to the site to account for wildlife needs such as migration, food availability, shelter, nesting, etc. This project has sufficiently protected and demonstrated no significant impact to the interests of the Bylaw.

If there are any questions concerning this report, please do not hesitate to contact me.

Sincerely,
Carr Research Laboratory, Inc.

by


Scott Goddard
Ecological Engineer &
Certified Wetland Scientist



Attachment: Page 19 of Southern Tier Consulting, Inc. 1999-2000 Wetland Plant Catalog

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et Vernal Grass
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e's Rocket
en Anne's Lace
da Goldenrod
s Leaf Goldenrod
Bergamot
England Aster
mon Milkweed

Northeast Wetland Hummock Mix

\$140.00 PER POUND

1 POUND WILL COVER 13,400 SQ. FT. @ 200 SEEDS PER SQ. FT.

This mix is to seed drawdown areas, the edges of wetlands, and adjacent uplands in constructed and restored wetlands. The mix is produced from hand collected seed and available quantities are limited. The seeds in this mix will not generally germinate under water. We recommend 3.25 pounds per acre and interplanting with bare root transplants on a three or four foot interval.

PERCENT BY NUMBER OF SEEDS (Not by weight)

3.6%
19.0%
33.5%
1.3%
1.3%
0.9%
0.2%
0.2%

^N *Scirpus atrovirens*
^N *Juncus effusus*
^N *Carex vulpinoidea*
^N *Leersia oryzoides*
^N *Carex comosa*
^N *Carex crinita*
^N *Carex lurida*
^N *Carex lupulina*

- Green Bulrush
- Soft Rush
- Fox Sedge
- Rice Cut Grass
- Bearded Sedge
- Fringed Sedge
- Shallow Sedge
- Hop Sedge

Northeast Upland Wildlife Seed Mix

\$7.75 PER POUND

1 POUND WILL COVER 21,200 SQ. FT. @ 200 SEEDS PER SQ. FT.

This mix provides a permanent mixed cover of grasses, forbs, and legumes with an initial cover of annuals. The seed mix is designed to provide cover, seed, and forage for a variety of herbivores. We recommend 20 pounds per acre.

PERCENT BY NUMBER OF SEEDS (Not by weight)

42.5%
24.9%
15.6%
3.9%
3.5%
0.9%

PERENNIALS

Phleum pratense
Trifolium hybridum
Dactylis glomerata
Lespedeza bicolor
^N *Panicum virgatum*
^N *Andropogon virginicus*

- Timothy
- Alsike Clover
- Orchard Grass
- Bicolor Lespedeza
- Switchgrass
- Broom-Sedge

NUMBER OF SEEDS (Not by weight)

5.3%
1.9%
0.8%
0.7%

ANNUALS

Setaria italica
^N *Helianthus annuus*
^N *Polygonum pensylvanicum*
Avena sativa

- Fox-Tail Bristle Grass
- Common Sunflower
- Pennsylvania Smartweed
- Oats

FAX: (716) 968-3122
Orders: (800)848-7614

Southern Tier Consulting, Inc
Inquiries: (716) 968-3120

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