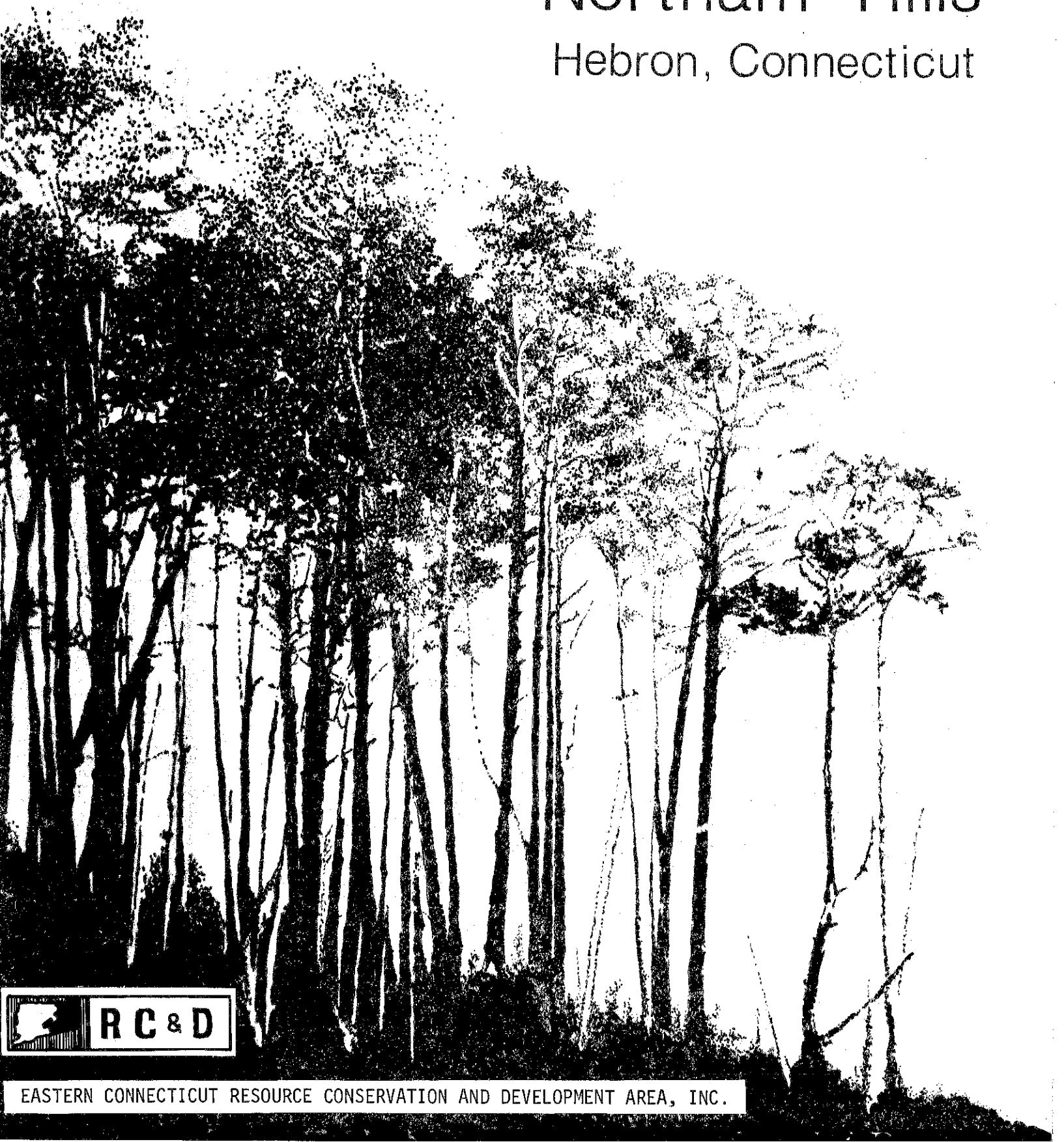


Environmental Review Team Report

Northam Hills

Hebron, Connecticut

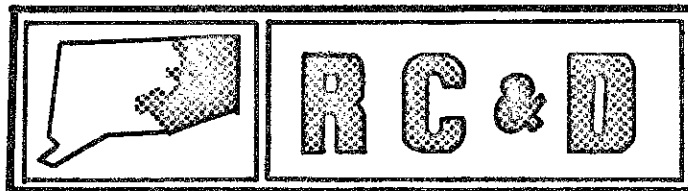


EASTERN CONNECTICUT RESOURCE CONSERVATION AND DEVELOPMENT AREA, INC.

Environmental Review Team
Report
on

Northam Hills
Hebron, Connecticut

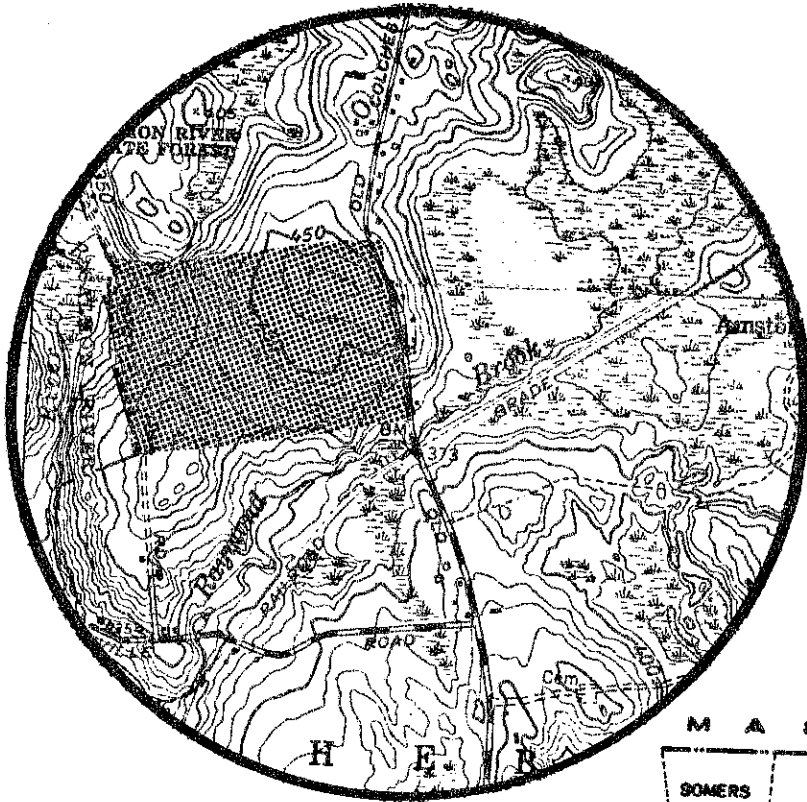
February 1979



eastern connecticut resource conservation & development area
environmental review team
139 boswell avenue
norwich, connecticut 06360

Location of Study Site

NORTHAM HILLS
HEBRON, CONNECTICUT



EASTERN CONNECTICUT
RESOURCE CONSERVATION AND DEVELOPMENT PROJECT

ENVIRONMENTAL REVIEW TEAM REPORT
ON
NORTHAM HILLS, SECTION 4
HEBRON, CONNECTICUT

This report is an outgrowth of a request from the Hebron Planning and Zoning Commission to the Tolland County Soil and Water Conservation District (S&WCD). The S&WCD referred this request to the Eastern Connecticut Resource Conservation and Development (RC&D) Area Executive Committee for their consideration and approval. The request was approved for the RC&D Executive Committee by David Syme, Committee President, and the measure was reviewed by the Eastern Connecticut Environmental Review Team (ERT).

The soils of the site were mapped by a soil scientist from the United States Department of Agriculture, Soil Conservation Service (SCS). Reproductions of the soil survey map, a table of soils limitations for certain land uses and a topographic map showing property boundaries were distributed to all Team members prior to their review of the site.

The ERT that field-checked the site consisted of the following personnel: Timothy Dodge, District Conservationist, Soil Conservation Service (SCS), Tom Ladny, Soil Conservationist, (SCS), Michael Zizka, Geologist, Connecticut Department of Environmental Protection (DEP), Rob Rocks, Forester, (DEP), Geoffrey Havens, State Department of Health, and Jeanne Shelburn, ERT Coordinator, Eastern Connecticut RC&D Area.

The Team met and field checked the site on Thursday, December 14, 1978. Reports from each contributing Team member were sent to the ERT Coordinator for review and summarization for the final report.

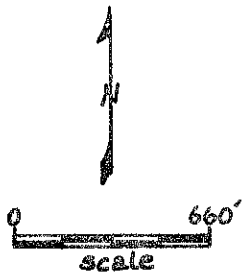
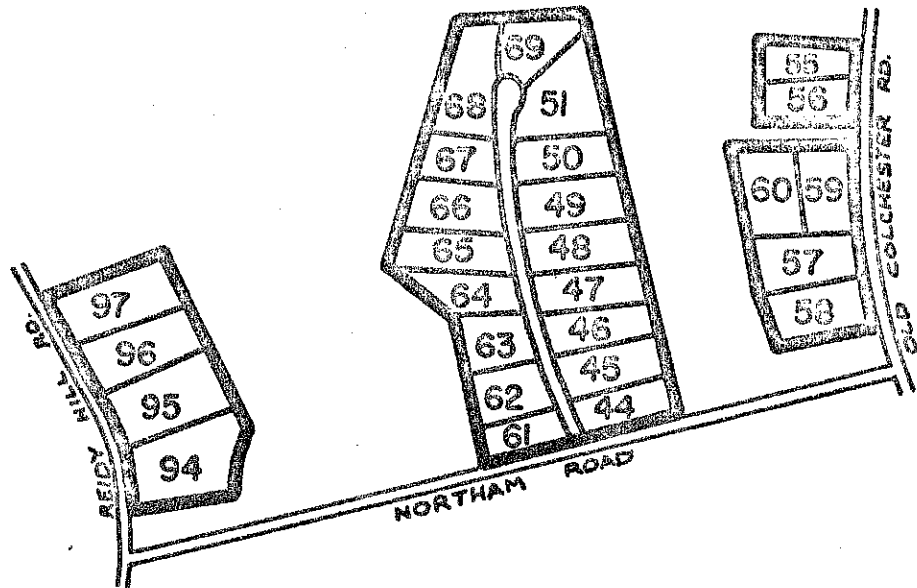
This report is not meant to compete with private consultants by supplying site designs or detailed solutions to development problems. This report identifies the existing resource base and evaluates its significance to the proposed development and also suggests considerations that should be of concern to the developer and the Town of Hebron. The results of this Team action are oriented toward the development of a better environmental quality and the long-term economics of the land use.

The Eastern Connecticut RC&D Area Committee hopes that this report will be of value and assistance in making any decisions regarding this particular site.

If you require any additional information, please contact: Ms. Jeanne Shelburn, Environmental Review Team Coordinator, Eastern Connecticut RC&D Area, 139 Boswell Avenue, Norwich, Connecticut 06360, 889-2324.

Preliminary Subdivision Plan

NORTHAM HILLS ESTATES
HEBRON, CONNECTICUT



ALL LOT LINES SHOWN ARE APPROXIMATE.

INTRODUCTION

The Hebron Planning and Zoning Commission requested Environmental Review Team activity on the fourth section of Northam Hills subdivision. The Northam Hills subdivision (section 4) is located between Old Colchester Road and Reidy Hill Road, north of Northam Road. The site is presently in the ownership of Northam Hills Associates in Glastonbury. Preliminary plans for this section were prepared by the Luchs and Beckerman Engineering firm also of Glastonbury. The entire subdivision proposal includes 100+ lots, some of which have already been built upon.

Preliminary plans for section four show a 35+ acre area broken into three separate sites. One site fronts on Old Colchester Road, one fronts on Reidy Hill Road, and one extends north from Northam Road. These areas are further subdivided into a total of 27 lots of 1 acre or more in size. All lots are to be served by on-site septic systems and on-site wells.

The site has a variable topography from flat hay fields to sloping wetlands. Soils range from rapidly permeable and stony to regulated wetland soils. Vegetation is characterized by a mixed hardwood forest type, dominated by oaks and hickories with a relatively sparse understory.

The Team is primarily concerned with the effect of this proposal on the natural resource base of this site. Construction of the total subdivision proposal (100+ lots) may cause a significant change in the hydrologic conditions on the site. These changes may in turn cause problems with vegetation and groundwater levels on the site. There is a need for hydrologic calculations to be done for the entire proposal in order to fully assess the potential for problems to occur.

After examining preliminary and revised soils and topography data for Section 4 and during the actual field review, it is apparent that the location of septic systems will be a problem on this site. Soils range from shallow-to-bedrock types to those types with seasonally high water tables. These placement problems can be alleviated by careful engineering and construction of these systems, but such engineering measures should be in place and shown to be working before final approval on questionable lots.

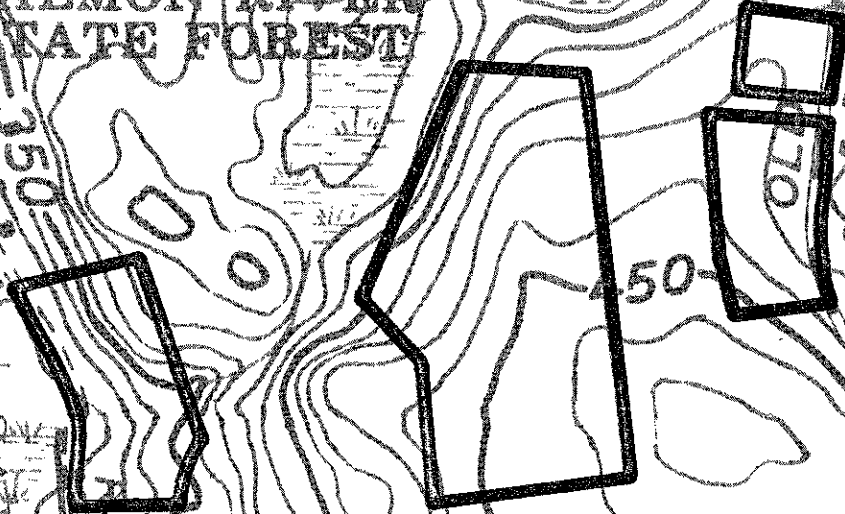
Those lots containing highly erosive soils should have individual sediment and erosion control measures prepared and included on the plans before final approval of these lots. These measures should be implemented before construction begins on each specific lot. Consideration should also be given to connection of the interior access road passing through Section 4 to Old Colchester Road, thereby eliminating a single access/egress point for 17 lots. Also, completion of the total subdivision proposal may cause the need for an upgrading of Old Colchester Road and Reidy Hill Road due to increased traffic demands.

Hope Valley

SALMON RIVER
STATE FOREST

x 405

COLCHE



450
450

350

COLCHE

Br

BM

373

Raymond

RAILROAD

ROAD

Topography

— Site Boundary

0 660
scale

ENVIRONMENTAL ASSESSMENT

GEOLOGY

Bedrock underlying the property is part of the Hebron Formation. In the vicinity of the property, this rock unit consists primarily of interbedded brownish quartz-biotite-plagioclase schist and greenish gray calc-silicate gneiss. Schists are rocks in which platy or flaky minerals have aligned to form wavy or crinkled surfaces that may be parted relatively easily. Gneisses are granular rocks in which fewer platy minerals are present but in which light and dark minerals are generally banded. No bedrock outcrops were observed on the property.

The unconsolidated material overlying bedrock on the site is till, a glacial deposit composed of rock particles of all shapes and sizes. The particles were picked up by, and later redeposited from, glacier ice. Much, but not all, of the till on the site appears to have been deposited while the ice was wasting; the absence of abundant clay- and silt-sized particles suggests that many of these small constituents were winnowed away by meltwater. The local till is therefore principally sandy and gravelly. Some sections of the westernmost lots contain an even "cleaner" sand and gravel that probably was deposited by glacial meltwater streams. Such deposits are known as stratified drift. Small lenses of stratified drift may occur throughout the till, indicating that meltwater flowed through channels on or within the retreating ice sheet.

HYDROLOGY

Runoff from those areas of the property that are located along Old Colchester Road drains eastward into an extensive swamp that is associated with Raymond Brook. Runoff from the central area drains principally westward, either into a wetland or into the small stream that emerges from it (The stream is a very short tributary to Jeremy River). Runoff from the western areas of the site flows into Jeremy River either directly or via the tributary stream. The total drainage areas of Jeremy River and of Raymond Brook are large enough and their wetland areas extensive enough that the runoff increases accompanying this development should be absorbed without a marked effect on the hydrology of those streams. However, the tributary to Jeremy River that lies within the property has only a small drainage area, of which a large percentage will be developed. It is difficult to predict the extent of the changes along the tributary: more would have to be known about lot layout, the amount of clear-cutting that will take place, drainage measures to be employed, etc. While the sections of the subdivision that were field reviewed by the Team would not, by themselves, necessarily have a noticeable impact on the tributary and its wetlands, it would be wise to assess the peak-flow and runoff-volume increases to be expected along this stream following full development. A rise in the normal water level in the wetland could be detrimental to the vegetation, particularly the trees, and could cause problems such as unpleasant odors or increased mosquito-breeding. Once the details of the subdivision plan are more fully known, an engineer or hydrologist should be able to predict the hydrologic changes and to recommend measures to minimize their impact.

WILDLIFE

The major habitat type present is woodland.

Lots 55, 56, and portions of 59 and 60 are presently utilized as open fields and represent openland habitat. Lots 95, 96, and 97 are also partially open but with poor vegetative cover established.

The woodland habitat is of fair quality. Vegetation is primarily mixed hardwoods including shagbark hickory, white oak, blue beech, red oak, yellow birch, red maple and scattered white pine. Low bush blueberries are the dominant type of understory. The overall understory is sparse. The droughty nature of some of these soils and poor growth conditions help account for this. Major wildlife using this type habitat include seasonal songbirds, mice and other rodents, cottontail rabbit, ruffed grouse, gray squirrel, raccoon; and to some extent, white tailed deer.

The area of lots 95, 96, and 97 provide limited habitat where vegetation is well established. Cottontail rabbits, songbirds, and small rodents would predominate.

Quality of the field vegetation, both weeds and grasses, is fair. Again songbirds, small rodents, and cottontails would be typical.

Most wildlife use these areas for part of their needs, but they must range over a larger area in order to meet all of their daily and seasonal needs.

Development will increase disturbance factors by people and by the increased incidence of free roaming cats and dogs, and will reduce the amount of habitat available to wildlife.

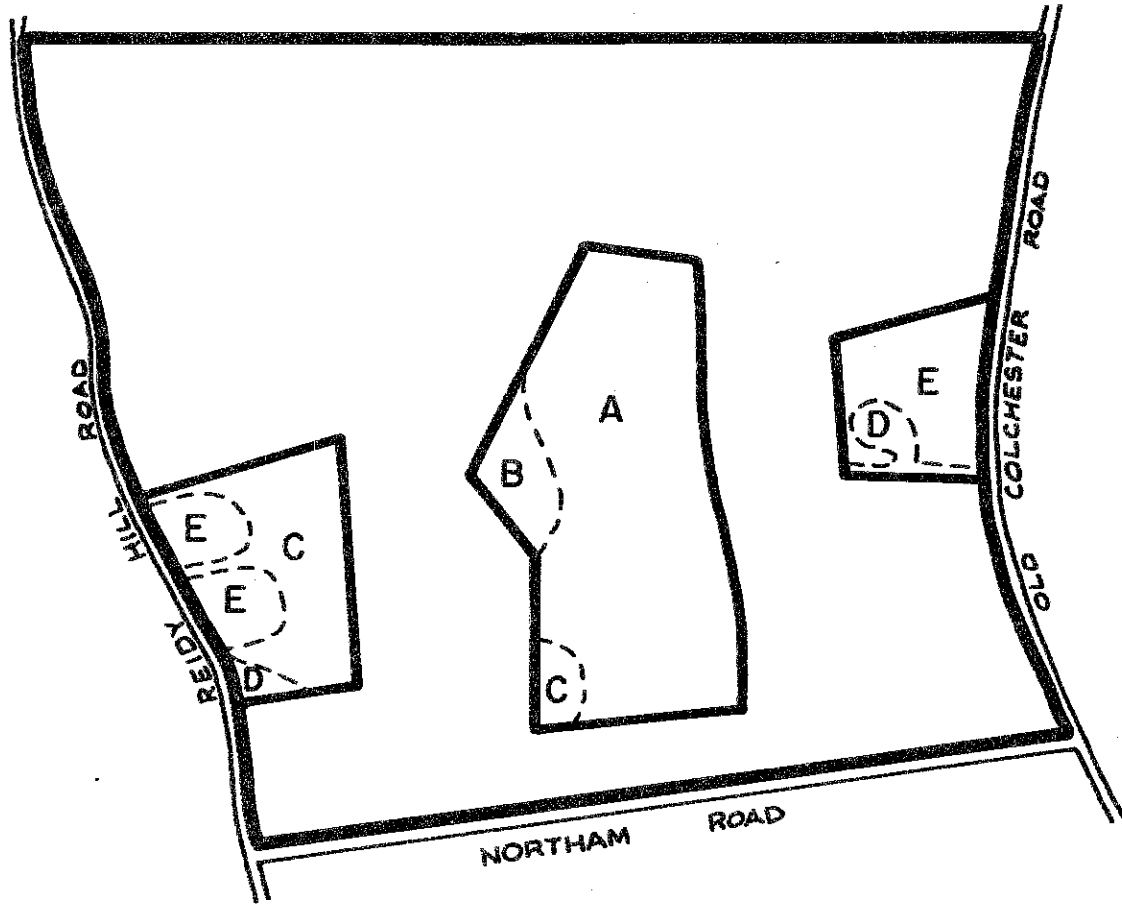
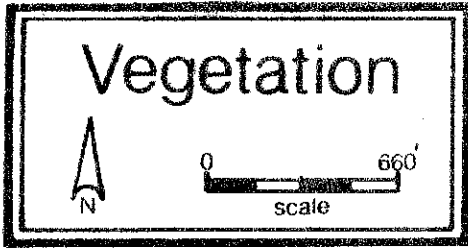
Proper utilization of landscape planting patterns and the varieties of plantings used could enhance habitat for songbirds and other small mammals, both game and non-game varieties.

VEGETATION

The major portion of the site is vegetated by a mixed hardwood forest type. Open and abandoned fields also are found on the site. A description of the vegetation types illustrated on the vegetation map follows:

Stand A: (Mixed Hardwoods) Pole size (5 to 11 inch diameter at breast height-DBH) and sawlog size (12 inch and larger DBH) white oak are predominant on this approximately 20-acre site, with red oak, black oak, shagbark hickory, yellow birch, and red maple. The trees in this stand fully occupy the site. The understory consists of American hornbeam, azalea, highbush blueberry, maple leaf viburnum, and several species of hardwood seedlings. Huckleberry, club mosses, ferns, pyrola, and pip-sisewa form the ground cover in this area.

Stand B: (Mixed Hardwoods) Approximately two acres of pole size yellow birch, red maple, white oak, black oak, and hickory are found in this fully stocked stand. High bush blueberry and maple leaf viburnum with red maple and yellow birch seedlings are the principal factors in the understory. Shadbush are also present. Ground cover consists of two species of club moss and several species of fern.



LEGEND

- == Road
- Property boundary
- - - Vegetation boundary

VEGETATION TYPES

- Stand A. Mixed hardwoods, pole and sawlog size, fully stocked.
- Stand B. Mixed hardwoods, pole size, fully stocked.
- Stand C. Old field, sapling and pole size, understocked.
- Stand D. Hardwood swamp, sapling size, overstocked.
- Stand E. Open field.

Stand C: (Old Field) Sapling size (1 to 5-inch DBH) and pole size red cedar, bigtooth aspen, gray birch, American hornbeam, and occasional white pine and white oak are present in these 7-acre understocked stands. White and black oak seedlings (less than 1 inch DBH) were present in the ground cover layer which was dominated by grasses, sweet fern, bayberry, huckleberry, ferns, arrowwood, and steplebush.

Stand D: (Hardwood Swamp) Crowded sapling size red maple in clumps with scattered big tooth aspen occupy this 2-acre site. Gray birch can be found in drier areas in this stand. A dense growth of highbush blueberry, speckled alder, azalea, and arrowwood comprise the understory, with marsh grasses and ferns present as ground cover.

Stand E: (Open Fields) This 8-acre area is vegetated with grasses, goldenrod, and sweet fern. A portion of the area has been tilled and is presently unvegetated.

The soils in Stand D (Hardwood Swamp) are characterized by a high water table which drops only in the driest months of summer. Depths of tree and shrub root systems are severely limited due to saturated or poorly aerated soils. Trees presently usually have little value for commercial wood products. This is due in part to slow growth rates and the poor quality of trees present. In addition, removal of the product is usually not economically feasible.

The soils found in Stand C (Old Field) dry out rapidly in early spring. Moisture deficiencies at this time of rapid growth can seriously limit growth rates of certain tree species. Undisturbed, these old field sites will eventually produce oak, white pine, or a combination of oak and white pine stands.

Dead and dying trees become hazardous when they are near driveways, utility lines, buildings, or recreation areas. Trees are very sensitive to disturbances in the soil. Changes in soil aeration, moisture level, or physical constitution under a tree's canopy may cause the death of that tree within three to five years. It would be safer and more economical to remove the tree at the time of soil disturbance. Where possible, clumps or "islands" of trees should be saved for aesthetic and shade purposes. Saving trees in groups helps to reduce the possibility of tree mortality due to excessive soil disturbance and also retains some element of habitat quality for wildlife.

Stand A received a thinning between 25 and 30 years ago. Many of the trees responded well; however, the canopy closed during this time and tree growth has slowed considerably. Another thinning of one third of the volume at this time to increase the health and vigor of the residual stand before construction of the subdivision would be ideal. A consultant forester should be contacted to mark the trees to be removed.

SOILS

A detailed soils map of this site is included in the Appendix to this report, accompanied by a chart which indicates soil limitations for various urban uses. As the soil map is an enlargement from the original 1,320'/inch scale to 660'/inch, the soil boundary lines should not be viewed as absolute boundaries, but as guidelines to the distribution of soil types of the site. The soil limitation chart indicates the probable limitations for each of the soils for on-site sewage disposal, buildings with basements, streets and parking, and landscaping. However, limitations, even

though severe, do not preclude the use of the land for development. If economics permit large expenditures for land development and the intended objective is consistent with the objectives of local and regional development, many soils and sites with difficult problems can be used. The soils map, with the publication Soil Survey: Tolland County, Connecticut, can aid in the identification and interpretation of soils and their uses on this site. Know Your Land: Natural Soil Groups For Connecticut can also give insight to the development potentials of the soils and their relationship to the surficial geology of the site.

Soils on the Northam Hills Estates, Section 4, range from the poorly drained Peat and Muck soils and the Leicester-Ridgebury-Whitman complex, all of which are inland wetland soils and regulated by PA 155 as amended, to the excessively well-drained Hinckley series. The shallow-to-bedrock Hollis soils present severe limitations to development. The moderately well-drained Sutton soils are characterized by seasonally high water tables during the winter and spring seasons. The Sutton soils are also susceptible to frost action. The Charlton and Gloucester-Charlton soils are well-drained soils. Development limitations are caused primarily by slope conditions and stoniness. Slopes on the site range from relatively flat to steeply sloping, and most soils are characterized by stony or extremely stony conditions. Erosive subsoil layers are common with these soils.

These soil characteristics will present moderate to severe limitations to development on all lots. Refer to the soils limitation chart in the Appendix for additional information.

A sediment and erosion control plan and storm water management plan should be developed and implemented during construction of this site. The Erosion and Sediment Control Handbook for Connecticut, published by the Soil Conservation Service, can aid both the developer and the Town in preparing an adequate erosion and sediment control plan. Standards and specifications for both mechanical and vegetative practices listed within the handbook are available through the Tolland County Soil and Water Conservation District office in Vernon.

Lots 44, 45, and 46 are situated on Hollis soils. Sometimes the shallow-to-bedrock Hollis soil is variable, with deep pockets of soil present over the bedrock. Placement of on-site septic systems under these conditions is usually possible if these pockets can be located.

Lots 44 - 50 drain toward the proposed road. Construction of a grassed swale along the east side of the road would collect surface runoff from these lots. The swale allows for some natural infiltration. Appropriate measures to convey this water under driveways would be needed. A provision for drainage through lot 69 as proposed in the plan would be necessary. This swale system could tie into the road drainage system utilizing the riprap outlet.

Surface runoff, when directed onto a roadway, is in itself a hazard; it deposits sediment and can create icy conditions in the winter. The swale also allows for some natural infiltration.

Soils in Lot 94 along Reidy Hill Road include Peat and Muck, a wetland soil. By placing the driveway along the northern boundary, crossing the wetland may be avoided. Approximately half of the lot is on Gloucester soil and appears suitable for home development.

Appendix

SOIL INTERPRETATIONS FOR URBAN USES

The ratings of the soils for elements of community and recreational development uses consist of three degrees of "limitations:" slight or no limitations; moderate limitations; and severe limitations. In the interpretive scheme various physical properties are weighed before judging their relative severity of limitations.

The user is cautioned that the suitability ratings, degree of limitations and other interpretations are based on the typical soil in each mapping unit. At any given point the actual conditions may differ from the information presented here because of the inclusion of other soils which were impractical to map separately at the scale of mapping used. On-site investigations are suggested where the proposed soil use involves heavy loads, deep excavations, or high cost. Limitations, even though severe, do not always preclude the use of land for development. If economics permit greater expenditures for land development and the intended land use is consistent with the objectives of local or regional development, many soils and sites with difficult problems can be used.

Slight Limitations

Areas rated as slight have relatively few limitations in terms of soil suitability for a particular use. The degree of suitability is such that a minimum of time or cost would be needed to overcome relatively minor soil limitations.

Moderate Limitations

In areas rated moderate, it is relatively more difficult and more costly to correct the natural limitations of the soil for certain uses than for soils rated as having slight limitations.

Severe Limitations

Areas designated as having severe limitations would require more extensive and more costly measures than soils rated with moderate limitations in order to overcome natural soil limitations. The soil may have more than one limiting characteristic causing it to be rated severe.

About the Team

The Eastern Connecticut Environmental Review Team (ERT) is a group of professionals in environmental fields drawn together from a variety of federal, state, and regional agencies. Specialists on the Team include geologists, biologists, foresters, climatologists, soil scientists, landscape architects, archeologists, recreation specialists, engineers and planners. The ERT operates with state funding under the supervision of the Eastern Connecticut Resource Conservation and Development (RC&D) Area.

The Team is available as a public service at no cost to Connecticut towns.

PURPOSE OF THE TEAM

The Environmental Review Team is available to help towns and developers in the review of sites proposed for major land use activities. To date, the ERT has been involved in reviewing a wide range of projects including subdivisions, sanitary landfills, commercial and industrial developments, sand and gravel operations, elderly housing, recreation/open space projects, watershed studies and resource inventories.

Reviews are conducted in the interest of providing information and analysis that will assist towns and developers in environmentally sound decision-making. This is done through identifying the natural resource base of the project site and highlighting opportunities and limitations for the proposed land use.

REQUESTING A REVIEW

Environmental reviews may be requested by the chief elected officials of a municipality or the chairman of town commissions such as planning and zoning, conservation, inland wetlands, parks and recreation or economic development. Requests should be directed to the Chairman of your local Soil and Water Conservation District. This request letter should include a summary of the proposed project, a location map of the project site, written permission from the landowner allowing the Team to enter the property for purposes of review, and a statement identifying the specific areas of concern the Team should address. When this request is approved by the local Soil and Water Conservation District and the Eastern Connecticut RC&D Executive Council, the Team will undertake the review on a priority basis.

For additional information regarding the Environmental Review Team, please contact Jeanne Shelburn (889-2324), Environmental Review Team Coordinator, Eastern Connecticut RC&D Area, 139 Boswell Avenue, Norwich, Connecticut 06360.