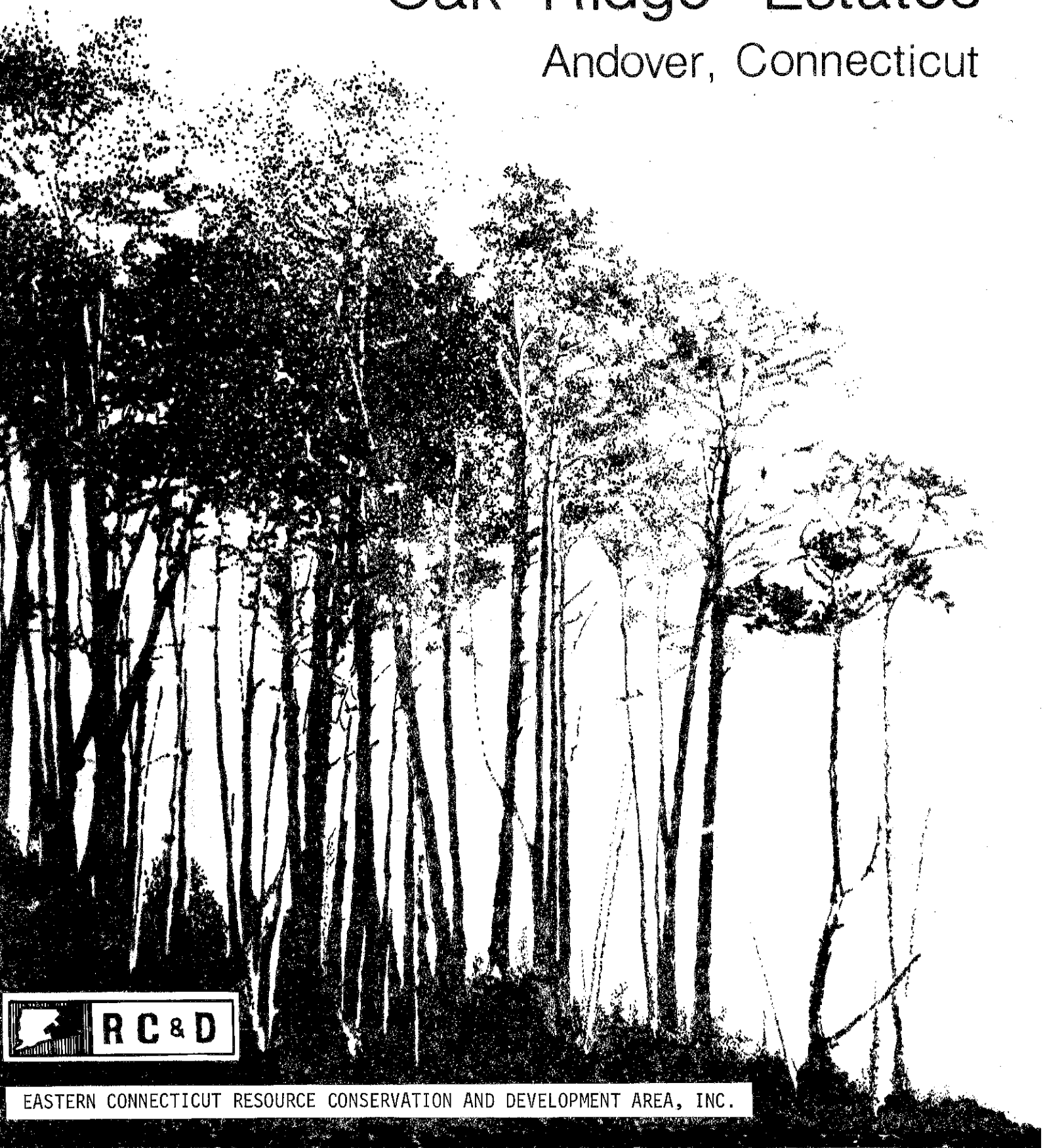


Environmental Review Team Report

# Oak Ridge Estates

Andover, Connecticut



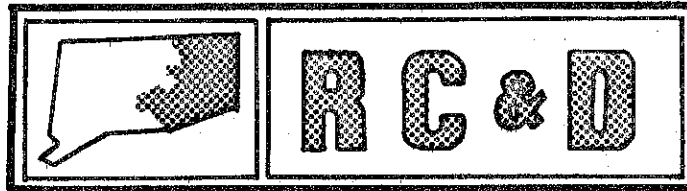
EASTERN CONNECTICUT RESOURCE CONSERVATION AND DEVELOPMENT AREA, INC.



Environmental Review Team  
Report  
on

Oak Ridge Estates  
Andover, Connecticut

January 1979

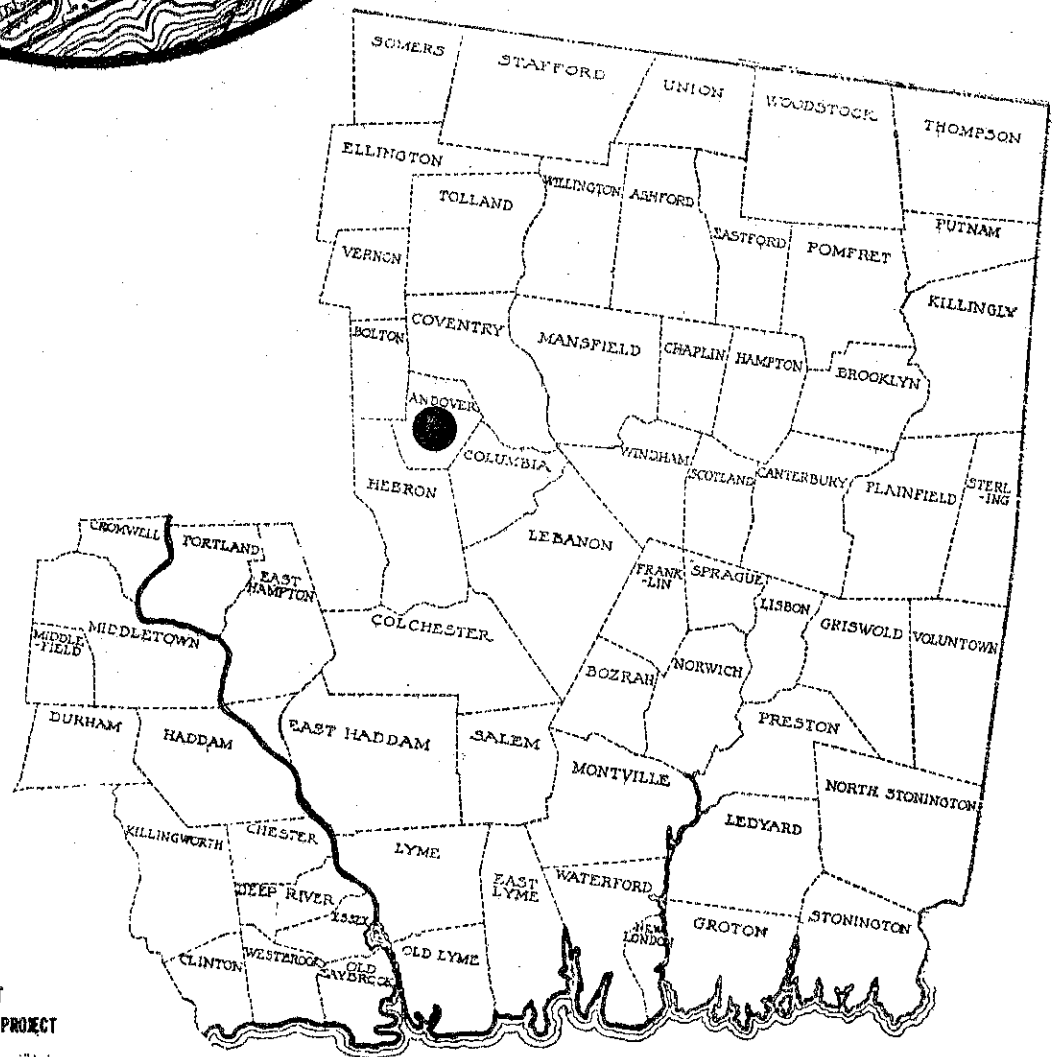
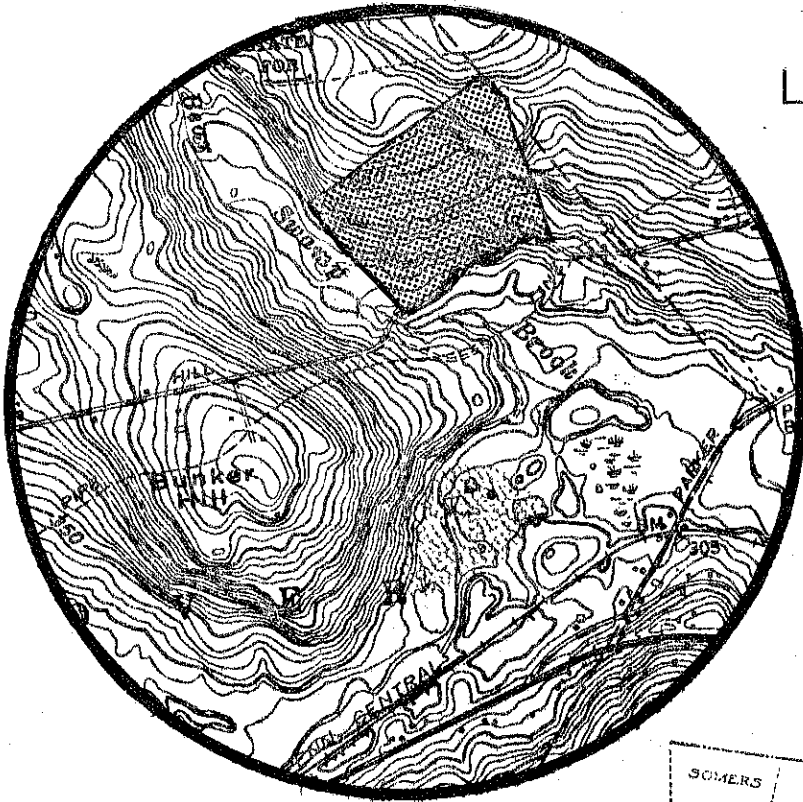


eastern connecticut resource conservation & development area

environmental review team  
139 boswell avenue  
norwich, connecticut 06360

# Location of Study Site

OAK RIDGE ESTATES, SECTION II  
ANDOVER, CONNECTICUT



EASTERN CONNECTICUT  
RESOURCE CONSERVATION AND DEVELOPMENT PROJECT



ENVIRONMENTAL REVIEW TEAM REPORT  
ON  
OAK RIDGE ESTATES, SECTION II  
ANDOVER, CONNECTICUT

This report is an outgrowth of a request from the Andover 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.

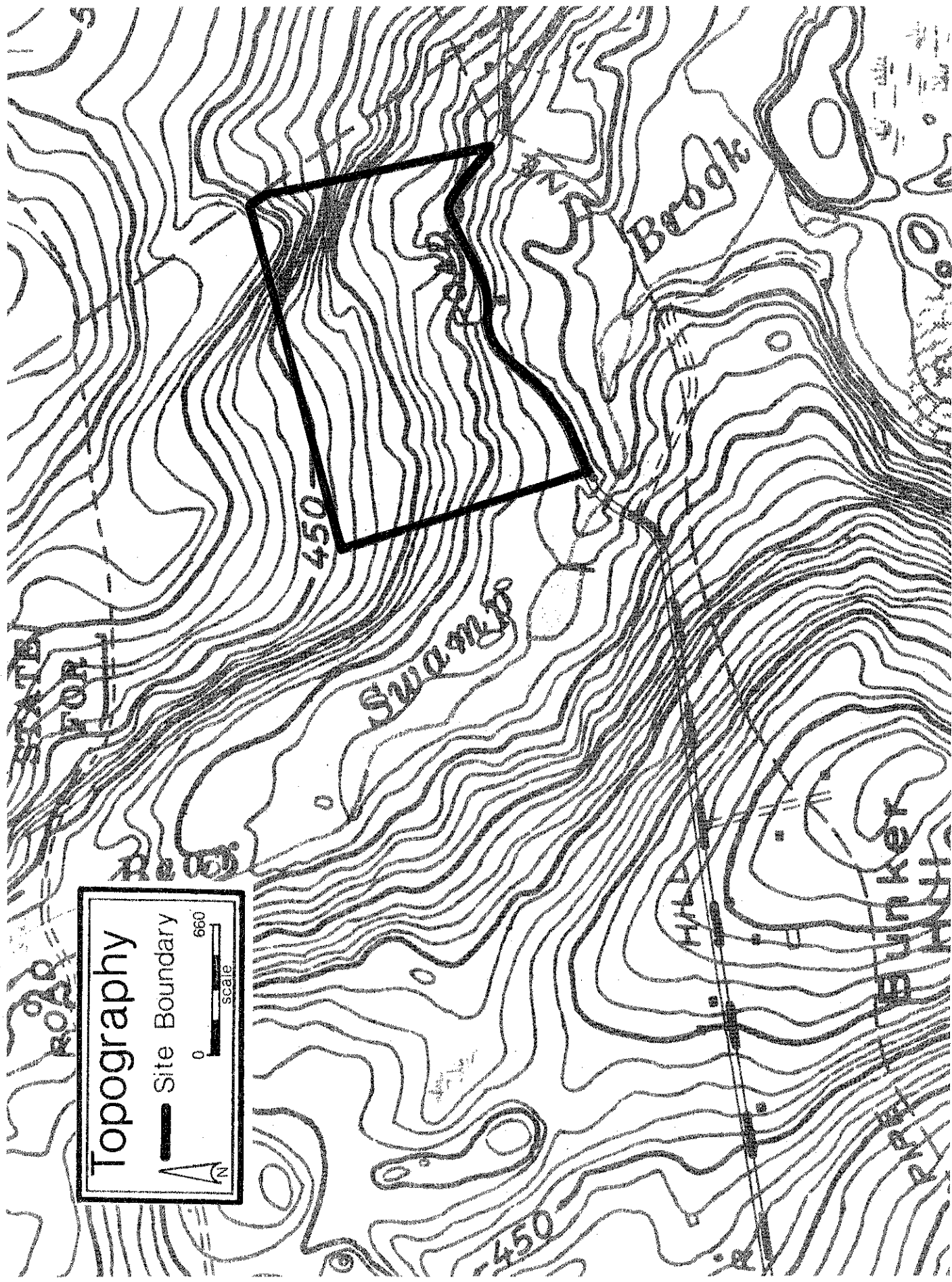
The ERT that field-checked the site consisted of the following personnel: Timothy Dodge, District Conservationist, Soil Conservation Service (SCS), Tom Ladny, Soil Conservationist, (SCS), Michael Zizka, Geologist, Connecticut Department of Environmental Protection (DEP), Rob Rocks, Forester, (DEP), Geoffrey 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 Andover. 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.



**Topography**

— Site Boundary

0 660 scale



## INTRODUCTION

The Eastern Connecticut Environmental Review Team was requested to review a subdivision proposal for the second section of Oak Ridge Estates. Oak Ridge Estates is a single family residential subdivision located on the northern side of Bunker Hill Road in the Town of Andover. The 28<sup>±</sup> acre property is currently in the private ownership of Lawrence Nizza, an Andover resident. Volney Blogett, a registered land surveyor, prepared the preliminary subdivision plans. Perc test information and open deep test pits were available for the Team's review.

The site is wooded, with steeply sloping terrain to the northern section of the parcel. Four intermittent streams run through the property. Their associated wetlands may cause development problems for future property owners.

Mr. Nizza is currently planning to subdivide this parcel into six lots of three or more acres each. All lots would have approximately 200 feet of frontage on Bunker Hill Road. Mr. Nizza intends to sell the land, allowing each private lot owner to establish the location of his building site and associated well and septic system.

The Team is primarily interested in the effect of the proposed land use on the natural resource base of this site. Examination of soils information prior to the field review and actual observation of more detailed information at the site reveal severe development limitations related to soil wetness, slope and stoniness. Seasonally high groundwater will pose problems with installation of on-site septic systems. As seen on the date of the field review, location of the test pits on each lot do not demonstrate that the lots should be classified as acceptable for building. There may be areas to the rear of each lot which would be suitable, however, this is not presently shown by test pit data. The Team sanitarian does not feel that lot #11 has a large enough area with suitable soils for accommodation of a building and a septic system, this opinion is elaborated in the Waste Disposal section of this report.

A major concern with this subdivision plan lies in the number of driveway access points which will be entering this winding section of Bunker Hill Road and the related severe line of sight problems from these driveways. Access points should be established on the subdivision plan before final approval is given, in order to assess the amount of road or shoulder reconstruction which will be needed to alleviate this problem.

The Planning and Zoning Commission may wish to consider these suggestions before final approval is granted for this subdivision.

# ENVIRONMENTAL ASSESSMENT

## GEOLOGY

The surficial geologic material on the property is till, a glacial deposit composed of rock particles of various shapes and sizes. The particles were removed from preexisting rock outcrops or soils by overriding glacier ice and were later redeposited directly from the ice. Most of the till probably was deposited while the ice was wasting, with meltwater winnowing away most of the clay- and silt-sized particles. As a consequence, the till on the property is quite coarse and loose, and it is composed primarily of sand, gravel, and boulders. The coarsest till is found in the westernmost lots, but the till in all lots is sandy and stony.

Bedrock outcrops are apparent only in the northern sections of lots 11 and 12. In most other parts of the site, the till is probably at least 10 feet thick. The outcrops occur in the Hebron Formation, a bedrock unit consisting of biotite schist, biotite-hornblende schist, calc-silicate rock, and occasional biotite gneiss. Schist is a type of rock in which platy or flaky minerals, such as biotite (a dark mica), have aligned to form wavy or crinkled surfaces of parting. Gneiss is a rock in which dark and light minerals have aligned to some extent, but because the minerals tend to be rounder, they do not form prominent parting surfaces, as in schist. The two rock types are gradational. In the northern sections of lots 7 and 8, a coarse-grained gneiss, consisting of the minerals quartz, orthoclase, and biotite, underlies the till.

## HYDROLOGY

Runoff leaves the property either by sheet flow or via four intermittent streams that flow through small culverts under Bunker Hill Road. Development should cause a slight to moderate increase in runoff volumes from the lots and at least a small increase in peak flows through the culverts during storms. The percentage of the increase would depend upon the layout of houses and driveways, as well as the amount of clear-cutting of trees to be done on each lot. The culverts, assuming present adequacy, probably can accommodate the peak flow increases. However, the possibility of significant sheet erosion and/or gullyng by the runoff should be carefully weighed and appropriate precautionary measures taken (see section on Soils). Without at least temporary erosion-check procedures during construction, sediment may accumulate either within or near the ends of the culverts.

High groundwater levels were observed during the field review in test pits on lots 8, 9, 10, and 11. Because the pits had been open for several weeks prior to the review, it is likely that fine sediments had accumulated in the bottoms, restricting the infiltration of water and causing the observed levels to be somewhat higher than the true groundwater table. Nevertheless, it seems clear that groundwater rises during wet seasons to within two feet of the surface in at least the southern sections of the four lots.



## WILDLIFE

Wildlife habitat provided by lots 7 through 12 is basically of a woodland nature and of fair value to a variety of game and non-game species.

Vegetation in the frontage portions of lots 7 and 8 is typical of old fields reverting to hardwood growth. The rear portions of these lots are dominated by mixed hardwoods such as maple, ash, oak and hickory. Lots 9, 10, 11 and 12 are typified by these hardwoods.

The old field portion, while losing its "edge" values to wildlife through natural plant succession, still has a moderately dense understory, resulting in better than average habitat values.

The natural drainage ways and wetter areas of other lots have a sparse understory development of shrub type vegetation due to the dense overstory development of the hardwoods. The dense canopy limits sunlight penetration to the forest floor thus reducing growth potential of shrubs and ground covers. This type of woodland provides elements of habitat through cover, water and food production to a variety of small game and non-game wildlife, including songbirds. Animals which typically utilize this type of habitat include ruffed grouse, gray squirrel, raccoon, opossum, cottontail rabbit, woodpeckers, seasonal songbirds, small rodents and possibly fox and deer.

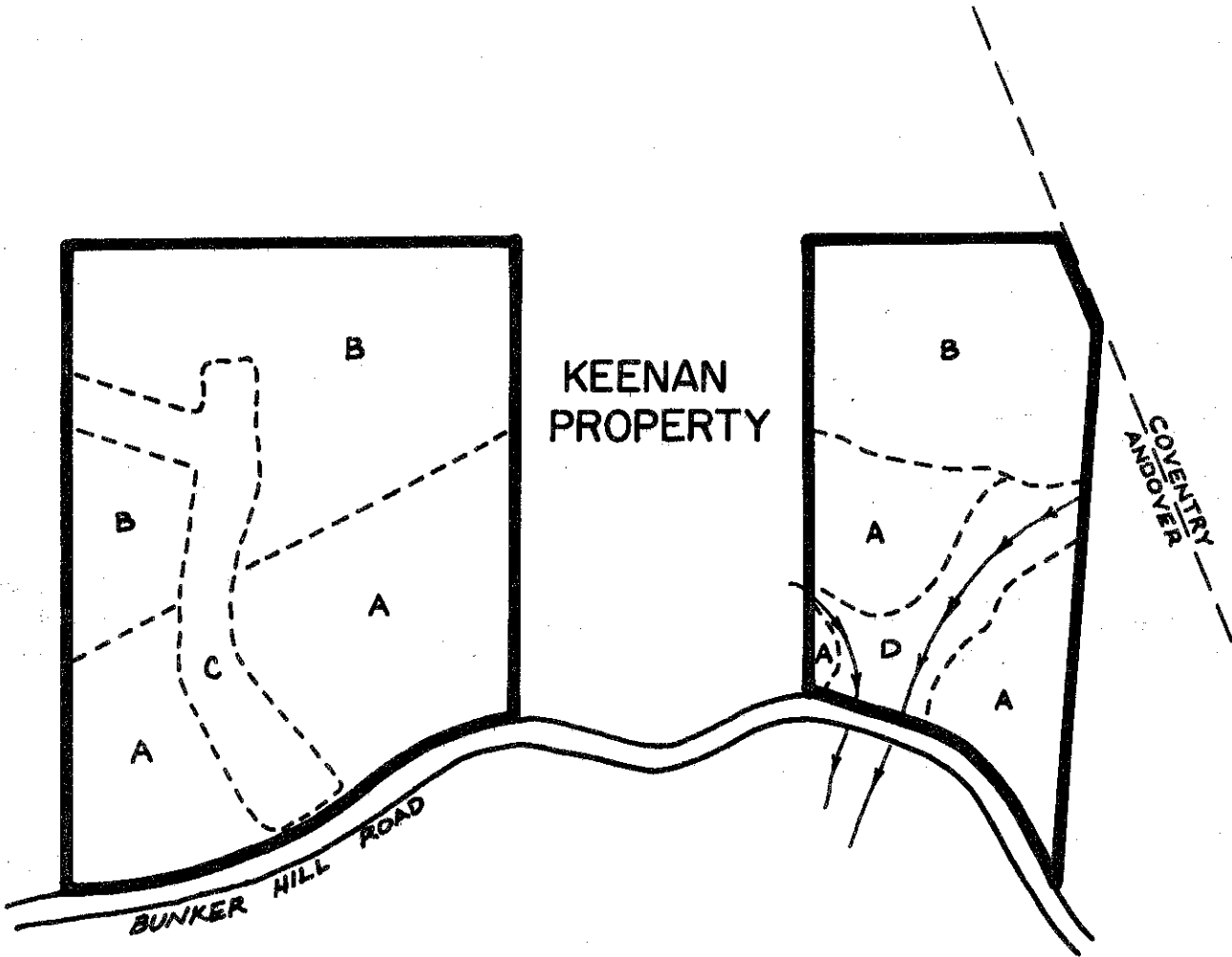
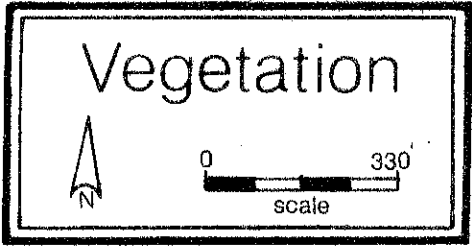
Development of this area as proposed is not likely to restrict the mobility or movement of animals. Development will eliminate native vegetation and increase disturbance factors. Use of fruiting shrubs in clump planting during landscaping can enhance the area's value to songbirds after development. The general habitat value will probably decrease with development.

## FOREST VEGETATION

The major portions of the 28 acre Oak Ridge Estates site is covered by a mixed hardwood forest. Four vegetation types have been identified. (See vegetation map.)

Stand A: (Mixed Hardwoods) This 11 acre stand is fully stocked with pole size (six to eleven inch diameter at breast height-DBH) and occasional sawlog size (eleven inch and greater DBH) trees. Sugar maple, white ash and red oak dominate the overstory. Half of these trees have a single trunk and are free of rot or excess lean. These will grow well and make good shade trees. The other half have multiple trunks, obvious rot, large low branches dying back or excess lean, causing roots to lift out of the soil. This latter half should be removed, if in the area of lawn, driveway, utility lines or house.

A young forest made up of the same species occupies the understory along with spice bush, blue beech, maple leaf viburnum and occasional shad bush. Where gaps in the overstory have occurred, green briar, multiflora rose and wild grape have taken advantage of the increased sunlight. Ground cover, where present, consists of club moss and Christmas fern.



LEGEND

- Road
- Property boundary
- Type boundary
- Intermittent stream

- Stand A Mixed hardwoods. Fully stocked, pole size (6 to 11" d.b.h.).
- Stand B Mixed hardwoods. Over stocked, pole size.
- Stand C Mixed hardwoods. Fully stocked sprouts and seedlings (up to 2 d.b.h.).
- Stand D Mixed hardwoods. Over stocked pole size with shallow root systems.

Stand B: (Mixed Hardwoods) This 12 acre area is occupied by several species of hickories, red oak and white oak with occasional sugar maple, white ash, red maple and black birch. The trees are pole sized, crowded and many are unhealthy. Crowding creates a risk of residual tree breakage and blowdown, if corridors are cleared for driveways leaching fields or buildings. All trees here, have a retarded diameter growth and the resulting low vigor reduces the probability that they will be able to survive soil aeration or soil moisture level changes. The understory is made up of spice bush, blue beech and maple leaf viburnum. Christmas ferns dominate the ground cover in addition to several species of club moss.

Stand C: (mixed Hardwoods) This three acre swath was cleared approximately five years ago for a roadway. Seedling sized sprouts from felled maple, oak and hickory trees are growing vigorously where soil has not been severely altered. Spice bush, blue beech and patchy areas of green brier are becoming dense due to the increased sunlight. On the southern tip of this stand, multiflora rose is also becoming dense. Grasses, goldenrod, sweet fern and staghorn sumac have become established on approximately 1/3 acre where topsoil has been removed.

Stand D: (Mixed Hardwoods) Pole size sugar maple, red oak, black birch, shagbark hickory and red maple are crowded on this two acre site. The understory is dominated by spice bush and viburnum. Ground cover consists of ferns and club moss.

The seasonally high water table and rocky nature of this site caused the development of shallow rooted trees. These trees are growing slowly and have so low vigor that any soil disturbances may result in their death.

Alteration of soil conditions produced by development under a tree's crown may result in the death of the tree. Trees which may be harmed in this manner should be removed.

If shade trees are desired on the house lot, only the healthiest trees with the fewest defects should be kept. Where possible trees should be kept in clumps or islands to minimize soil disturbance losses and to provide wildlife habitat.

Crowded trees on rocky, wet soils which have produced shallow root systems are susceptible to blow down. Development which opens these areas up may create corridors for wind to flow through rather than over a stand which would lead to increased blow down occurrence. Development in these areas should be carefully planned and kept to a minimum where possible.

## 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 330'/inch, the soil boundary lines should not be viewed as absolute boundaries, but as guidelines to the distribution of soil types of the site. Additional on-site mapping done by a Soil Scientist and included in this report allow for greater detail, therefore natural drainageways and soil boundaries are indicated which do not appear in the published survey. This increased mapping detail allows for additional information to evaluate the suitability of the soils for their intended use. 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.

Four soil series typical of the Oak Ridge Estates site are the Gloucester - Charlton complex, the Leicester, Ridgebury, Whitman complex, the Hollis series, and the Sutton series. These soils limit development due to their slope, stoniness, depth to bedrock and high water table.

Gloucester-Charlton soils comprise approximately 16.5 acres or 59.4% of the site. This soil is deep well drained to somewhat excessively well drained and formed in glacial till from granite and gneiss rock. These soils occur on steeply sloping areas on lots 7, 8, 9, 10, a small frontage portion of lot 11 and a frontage portion on lot 12. Small sections of Gloucester (GeC) located in frontage areas of lots 9 and 10 do not appear large enough for siting both a house and septic disposal system. Future owners of these lots would be well advised to locate their homes on well drained soils toward the rear of these lots. The major limitations for housing development are caused by slope and surface stoniness.

Hollis soil is a shallow well drained soil formed in glacial till. Depth to bedrock varies from 10 to 20 inches. Exposed bedrock is common. This soil occurs on very steep areas. Hollis is found on lots 11 and 12 along the back lot boundary areas. It comprises 3 acres or 10.8% of the site. The shallow depth to bedrock or exposed bedrock areas create severe limitations to development of all types.

The Leicester-Ridgebury-Whitman Soil Complex is present on 1.0 acres or 3.6% of the site. This is a deep, poorly drained inland wetland soil which occurs on uplands and was formed in glacial till. This soil follows the natural drainage way crossing lots 11 and 12. The water table is at or near the surface during winter and spring months. It is seldom greater than 18 inches from the surface. The major limitations to development in stoniness, wetness and frost action. This soil type is a regulated Inland Wetland Soil under Public Act 155.

Sutton is a deep, moderately well drained soil which comprises 7.3 acres or 26.2% of the site. It occurs on lots 8, 9, 10, 11 and 12. This soil was also formed in glacial till and occurs on level to moderately steep areas, usually on lower slopes and in slight depressions. It has severe limitations to development due to a seasonally high water table during the winter and spring months; i.e., November to April. The water table during these periods may be within 18 inches of the surface. Frost action and slope pose additional limitations.

A sediment and erosion control plan to be implemented during construction should be developed for each lot on this site. Connecticut's Erosion and Sediment Control Handbook published by the Soil Conservation Service will aid both the developer and the Town in preparing the approving an adequate erosion and

sediment control plan. Standards and specifications for both mechanical and vegetative practices listed within the Handbook are available at the Tolland County Soil Conservation Service office, Rockville, Connecticut.

#### WATER SUPPLY

Water will be provided to each lot by individual on-site wells. It is probable that these wells will be drilled into bedrock. Ninety percent of the bedrock-based wells that are located in the Shetucket River basin and were surveyed in Connecticut Water Resources Bulletin No. 11 yielded at least 3 gallons per minute, an amount considered adequate for an average home. Although a specific amount of yield cannot be predicted for any particular new well, it is likely that all lot owners will find a suitable well site. It would be preferable to locate the wells at least 75 to 100 feet upslope from the septic systems.

#### WASTE DISPOSAL

On the date of the field review, deep test pits dug at a previous date were observed. From the observed information and from updated soils maps, the following conclusions were drawn:

Lot #7: 0 - 5", topsoil; 5 - 36", sandy silty loam; 36 - 73", coarse and medium sand, some large rocks. No groundwater nor mottling. No ledge. This lot could be used successfully for subsurface sewage disposal.

Lot #8: 0 - 5", topsoil; 5 - ?", silty sand. Groundwater at 37". A stream course and associated wetland runs the length of this lot. The area of the test pit appeared limited. Although soil suitable for sewage disposal purposes appears to exist in the back part of the lot, the great setback required to use this may not be practical. With the stipulation that the rear of the lot be used rather than the front, this lot appears suitable.

Lot #9: The test pit on this lot was full and overflowing with water. Based on this, the lot would appear unsuited for sewage disposal purposes. Better land may exist in other areas of the lot.

Lot #10: 0 - 8", topsoil; 8 - 75", sand and gravel. No groundwater. Possible mottling at 54". The area represented by this pit appears adequate for the purposes of subsurface sewage disposal.

Lot #11: Groundwater at 21"; mottling at 24". This lot does not appear to be suited for sewage disposal purposes for reasons of high groundwater and tight soil. Areas of suitable soil are too limited for usage.

Lot #12: Has a large area of suitable soil near the front of the lot and could be successfully utilized for sewage disposal purposes.

Seasonally high groundwater levels are the most obvious impediments to the establishment of septic systems on the property. This problem will have to be overcome either by relocating the proposed sites for some of these systems to drier ground or by very careful engineering. It may be difficult to lower the

water table by artificial means because of the coarse, sandy and gravelly nature of most of the till.

The need for caution cannot be too strongly emphasized in areas with high groundwater levels. Inadequate installation or site selection may result in the seasonal flooding of the systems, causing backups and, possibly, the plugging of tile lines with fine sediments. Sufficient dry soil must be available to renovate the septic effluent; that is, to remove harmful bacterial, viral, and chemical constituents. Much of the wastewater will resurface before reaching Bunker Hill Road because of the general geologic-hydrologic conditions of the area; this underscores the need for renovation of the effluent.

Suitable and sufficient area appears available for a single-family subsurface sewage system on every lot excepting #11. This lot should not be utilized as an individual residential lot. Alternatives could be combining this lot with #12, or its designation as open land.

Accessibility of suitable soils may be a limiting factor for lots 8 and 9. Suitable areas begin 300 to 700 feet back from the road. If the construction and maintenance of access roads of this length would be too expensive, lots 8 and 9 could be combined with lots 7 and 10, respectively.

Further soil investigations on lot #9 may show more suitable area in a better location.

In lot #10, although suitable area exists for sewage disposal in an elevated area near the front of the lot, it is not excessive in size, and care should be taken to properly position well and building sites so as not to infringe upon the area available for a septic disposal system.

## SITE DESIGN

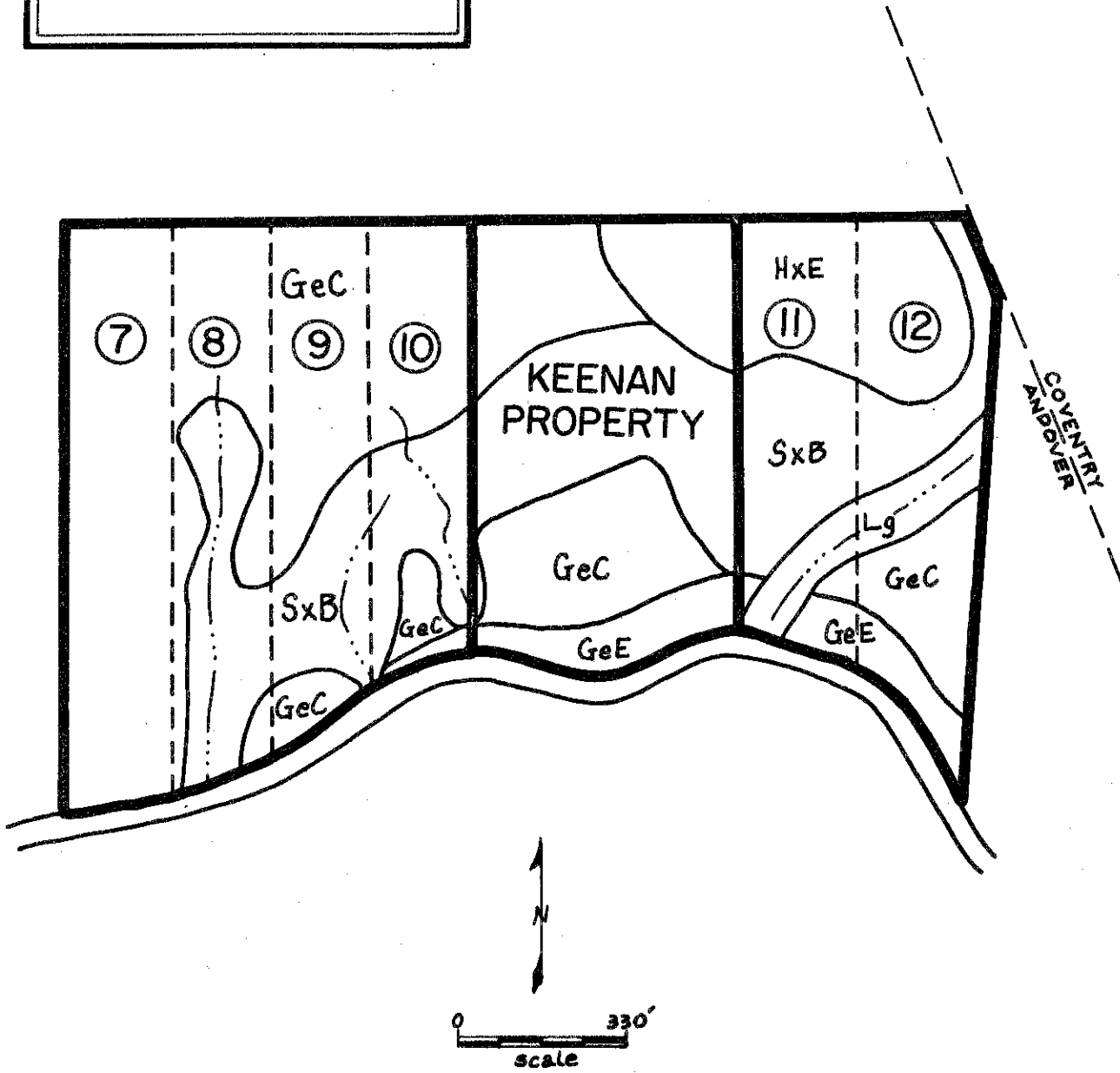
The 28 acre parcel has been divided into six lots ranging in size from three to five acres. Each has approximately 200 feet of frontage on the north side of Bunker Hill Road. As these lots are long and narrow, they all include large areas of steep slope which will impose limitations for establishment of buildings and septic leaching fields. Examination of soils data and observations on the date of the field review indicate that areas which are currently proposed for building (those areas where test pits and perc tests were done) may not be satisfactory during all months of the year due to seasonally high water tables. Unless further testing was done, it would be difficult to assess the current proposal's ability to produce six buildable lots. Building locations and driveway access points should be established on the subdivision plan before final approval is given.

Of major concern are the number of driveways which will be entering this very winding portion of Bunker Hill Road. Field inspection revealed severe line of sight problems with driveways exiting from lots 9, 10, 11, and 12. Although remedial measures were discussed at the field review, they did not appear to be adequate for the existing problem. In order to provide adequate visibility from lots 11 and 12, trees and a stone wall to the south side of Bunker Hill Road in the vicinity of those lots would have to be removed. Alterations to the north side of Bunker Hill Road have been discussed by the developer, but should be staked in the field to assess their adequacy before final approval is given for this subdivision plan.

# Appendix

**Soils**

OAK RIDGE ESTATES, SECTION II  
ANDOVER, CONNECTICUT



This map is an enlargement from the original 1,320'/inch scale to 330'/inch.

Information taken from: Soil Survey, Tolland County Connecticut, 1966; soil survey sheet No. 44; prepared by the United States Department of Agriculture, Soil Conservation Service. Advance copy, subject to change.



OAK RIDGE ESTATES, SECTION II  
ANDOVER, CONNECTICUT

PROPORTIONAL EXTENT OF SOILS AND THEIR LIMITATIONS FOR CERTAIN LAND USES

Soil Series	Natural Soil Group	Soil Symbol	Approx. Acres	Percent of Acres	Principal Limiting Factor	Urban Use Limitations*			
						On-Site Sewage	Buildings with Basements	Streets & Parking	Land-Scaping
Gloucester-Charlton		GeC	10.9	39%	stoniness, slope	2	2	2	2
Gloucester-Charlton		GeE	1.7	6%	stoniness, slope	3	3	3	3
Hollis		HxE	3.4	12%	slope, depth to bedrock stoniness	3	3	3	3
Leicester, Ridgebury & Whitman		Lg	1.1	4%	high water table, stoniness	3	3	3	3
Sutton		SxB	10.9	39%	wetness, large stones	3	3	2	2
			28.0	100%					

Urban Use Limitations: 1= slight, 2= moderate, 3= severe.

## 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.