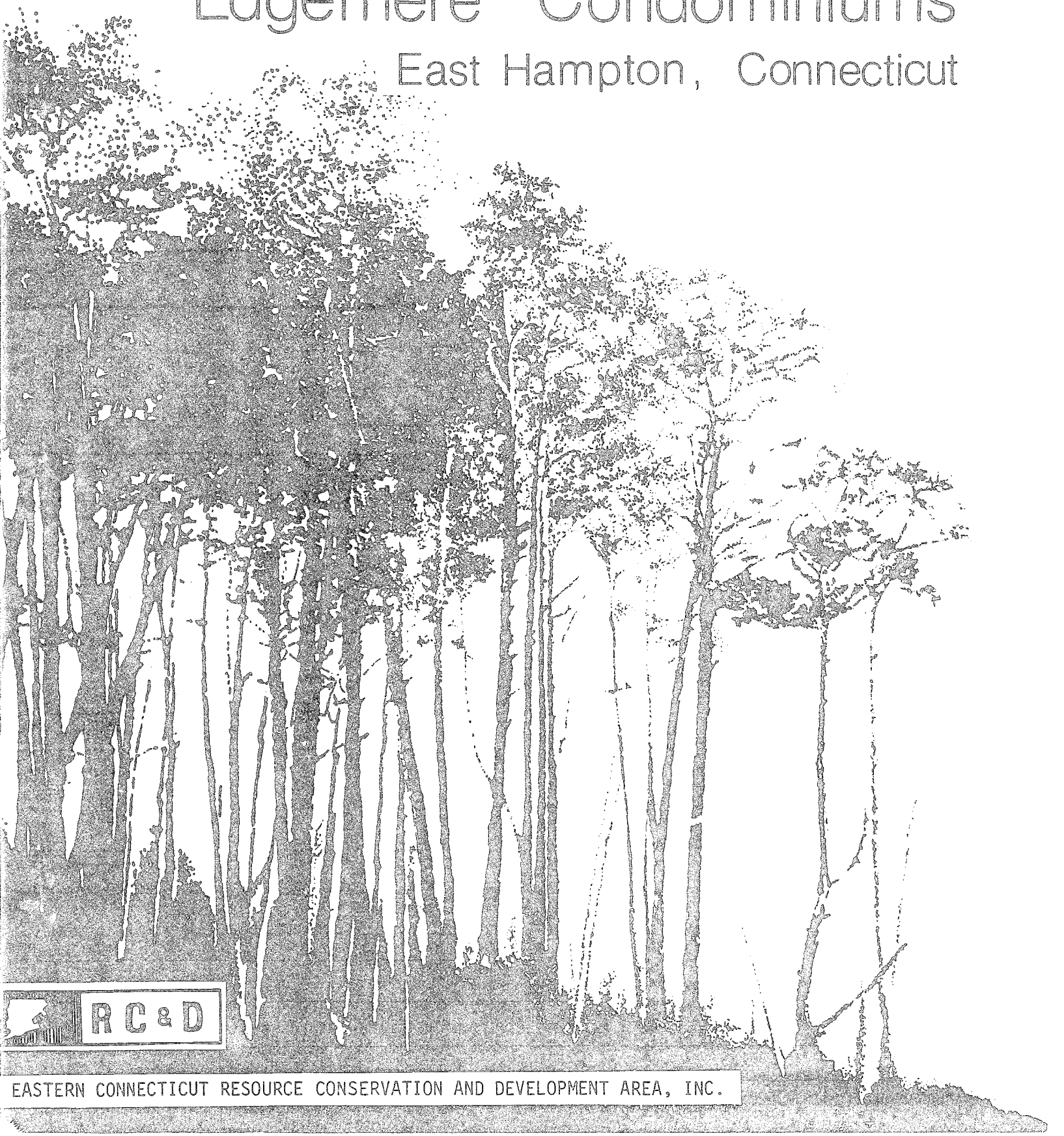
Environmental Review Team Report

Edgemere Condominiums

East Hampton, Connecticut



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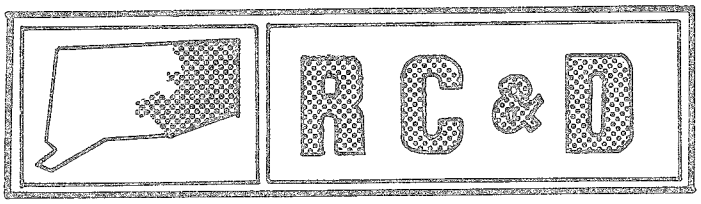
EASTERN CONNECTICUT RESOURCE CONSERVATION AND DEVELOPMENT AREA, INC.

Environmental Review Team Report on

Edgemere Condominiums

East Hampton, Connecticut

November 1981

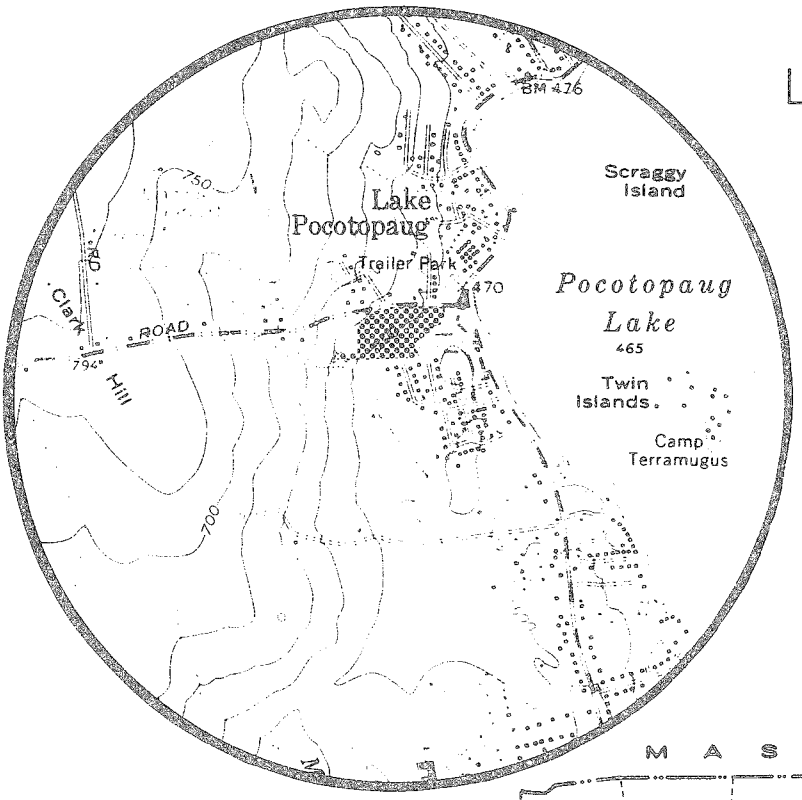


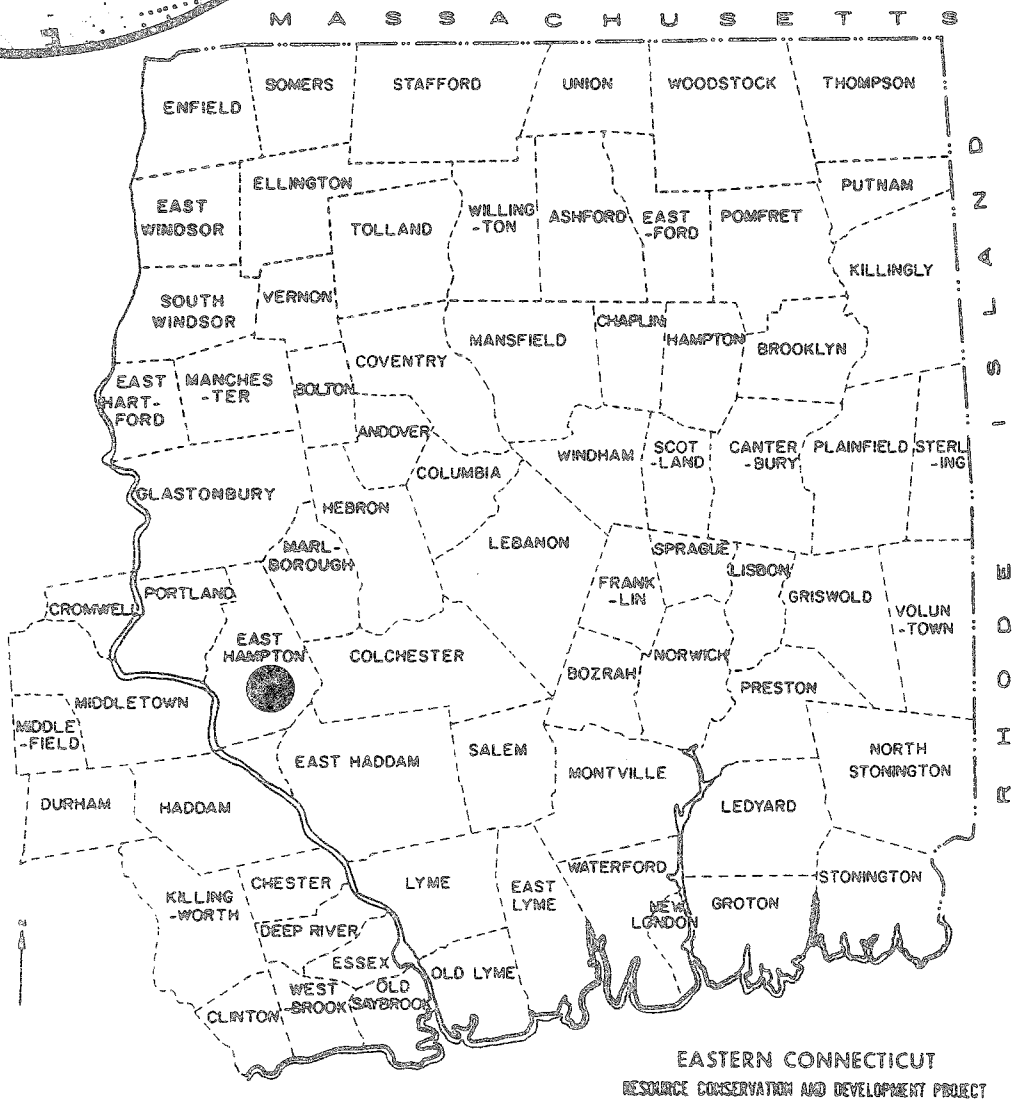
eastern connecticut resource conservation & development area

environmental review team
139 boswell avenue
norwich, connecticut 06360

Location of Study Site

EDGEMERE CONDOMINIUM
EAST HAMPTON, CONNECTICUT





EASTERN CONNECTICUT
RESOURCE CONSERVATION AND DEVELOPMENT PROJECT

ENVIRONMENTAL REVIEW TEAM REPORT
ON
EDGEMERE CONDOMINIUM DEVELOPMENT
EAST HAMPTON, CONNECTICUT

This report is an outgrowth of a request from the East Hampton Planning and Zoning Commission to the Middlesex 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 by the RC&D Executive Committee 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.

The ERT that field-checked the site consisted of the following personnel: Barry Cavanna, District Conservationist (SCS); Mike Zizka, Geologist, Connecticut Department of Environmental Protection (DEP); Rob Rocks, Forester, DEP; Valerie Zampaglione, Engineer, Midstate Regional Planning Agency; Don Capellaro, Sanitarian, State Department of Health; and Jeanne Shelburn, ERT Coordinator, Eastern Connecticut RC&D Area.

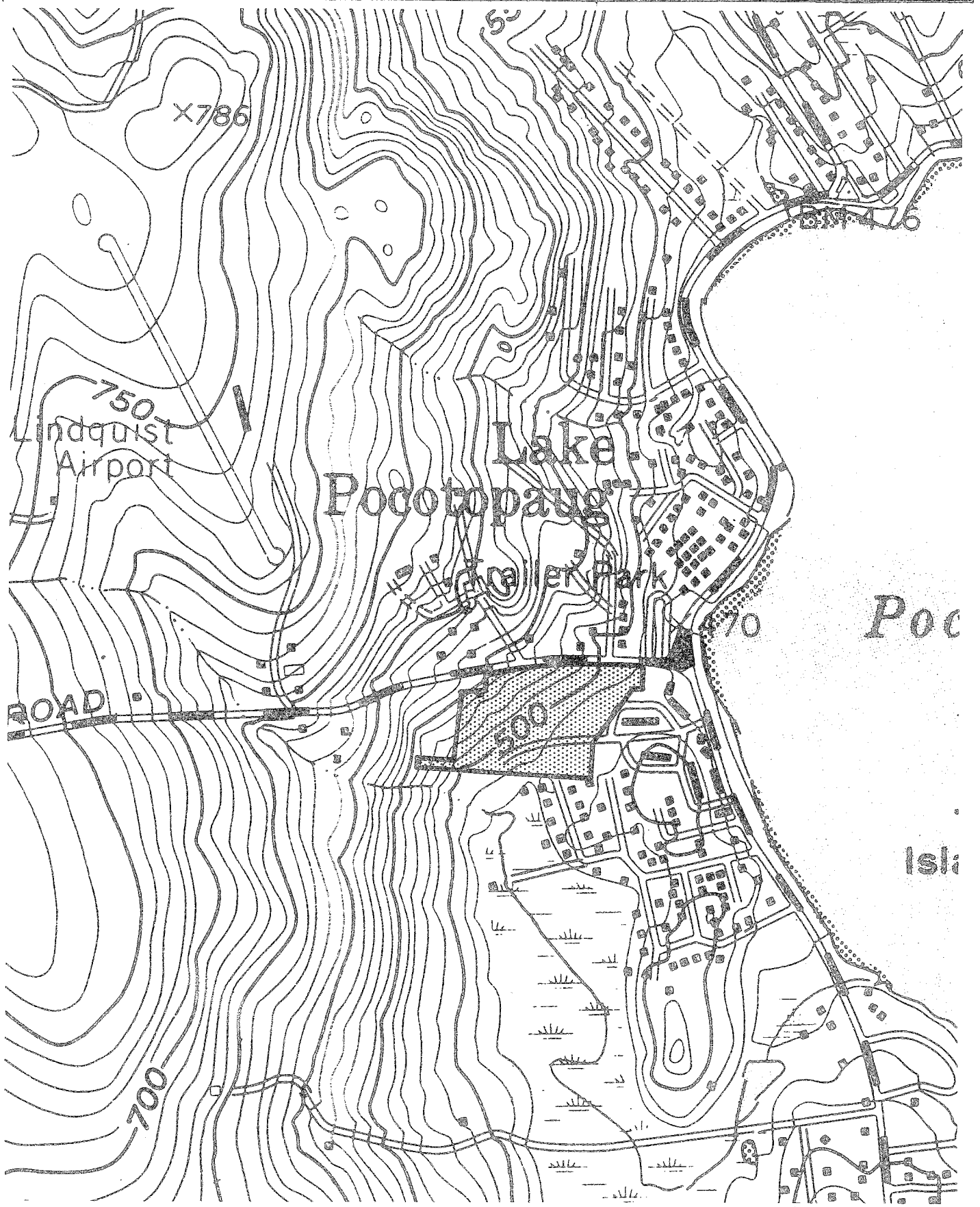
The Team met and field checked the site on Tuesday, June 30, 1981. Reports from each contributing Team member were sent to the ERT Coordinator for review and summarization for the final report.

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 East Hampton. 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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INTRODUCTION

The Eastern Connecticut Environmental Review Team was asked to prepare an environmental assessment for a proposed condominium expansion in the town of East Hampton. The site is approximately 25 acres in size and is located on the south side of Clark Hill Road. The property is presently in the private ownership of the Edgemere Development Corporation of East Hampton. Preliminary development plans have been prepared by David Mylchreest, a consulting engineer.

Plans show an establishment of 120 condominium units in twelve buildings, on the Phase II development site. Phase I was constructed during 1970-71 with road frontage along North Main Street. All proposed units will be served by an existing on-site community supply well and public sewers. A loop road extends south from Clark Hill Road to provide access to the units and off-street parking for residents and guests. This road will also connect to an existing roadway in the Phase I section of this development.

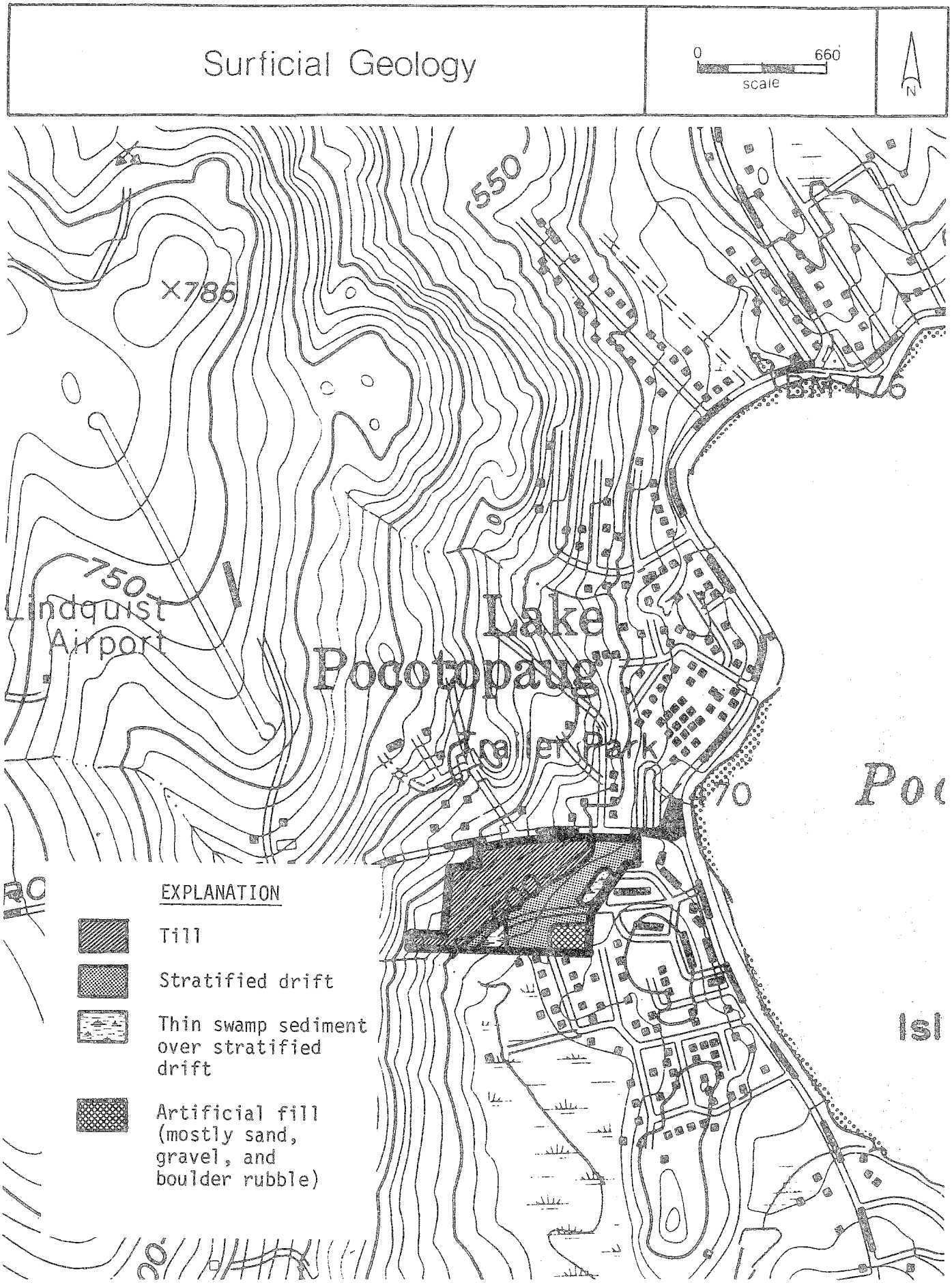
The Team is concerned with the effect of this proposal on the resource base of this site. Although many severe limitations to development can be overcome with proper engineering techniques, these techniques can become costly, making a project financially unfeasible for a developer. Constraints posed by the site's resource base include steep slopes, poorly drained soils and wetlands. The site's proximity to Pocotopaug Lake is also a concern in storm water hydrology planning. Proposed plans address a number of these issues. Concerns of the Planning and Zoning Commission, expressed by the Town Planner at the pre-review meeting, are discussed in detail in the Hydrology, Traffic Concerns, and Road Design sections of this report.

ENVIRONMENTAL ASSESSMENT

GEOLOGY

The surficial geology of the site (those materials overlying solid bedrock) consists largely of glacial deposits. The northwestern half of the parcel is covered by till, a direct deposit from the ice. Till is composed of rock particles ranging in size from clay to boulders. The particles are not sorted by size and they are generally not layered. The till is commonly sandy and friable in the upper few feet, but it may become siltier and tightly compact at greater depths. The southeastern half of the parcel is covered by sandy and gravelly materials that were deposited by glacial meltwater. These materials, collectively known as stratified drift, are often well-layered and "clean" (not mixed with substantial amounts of silt and clay). Thin accumulations of silt, sand, clay, and decayed plant materials overlie stratified drift in two small areas of the parcel.

Bedrock was not observed on the site. Bedrock underlying the property is believed to consist largely of gneiss, a lineated crystalline rock. The major mineral components of the gneiss are quartz, andesine, oligoclase, and biotite.


Surficial Geology
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Lindquist
Airport
Lake
Pocotopaug
Eagle Park
EXPLANATION
Till
Stratified drift
Thin swamp sediment over stratified drift
Artificial fill (mostly sand, gravel, and boulder rubble)

HYDROLOGY

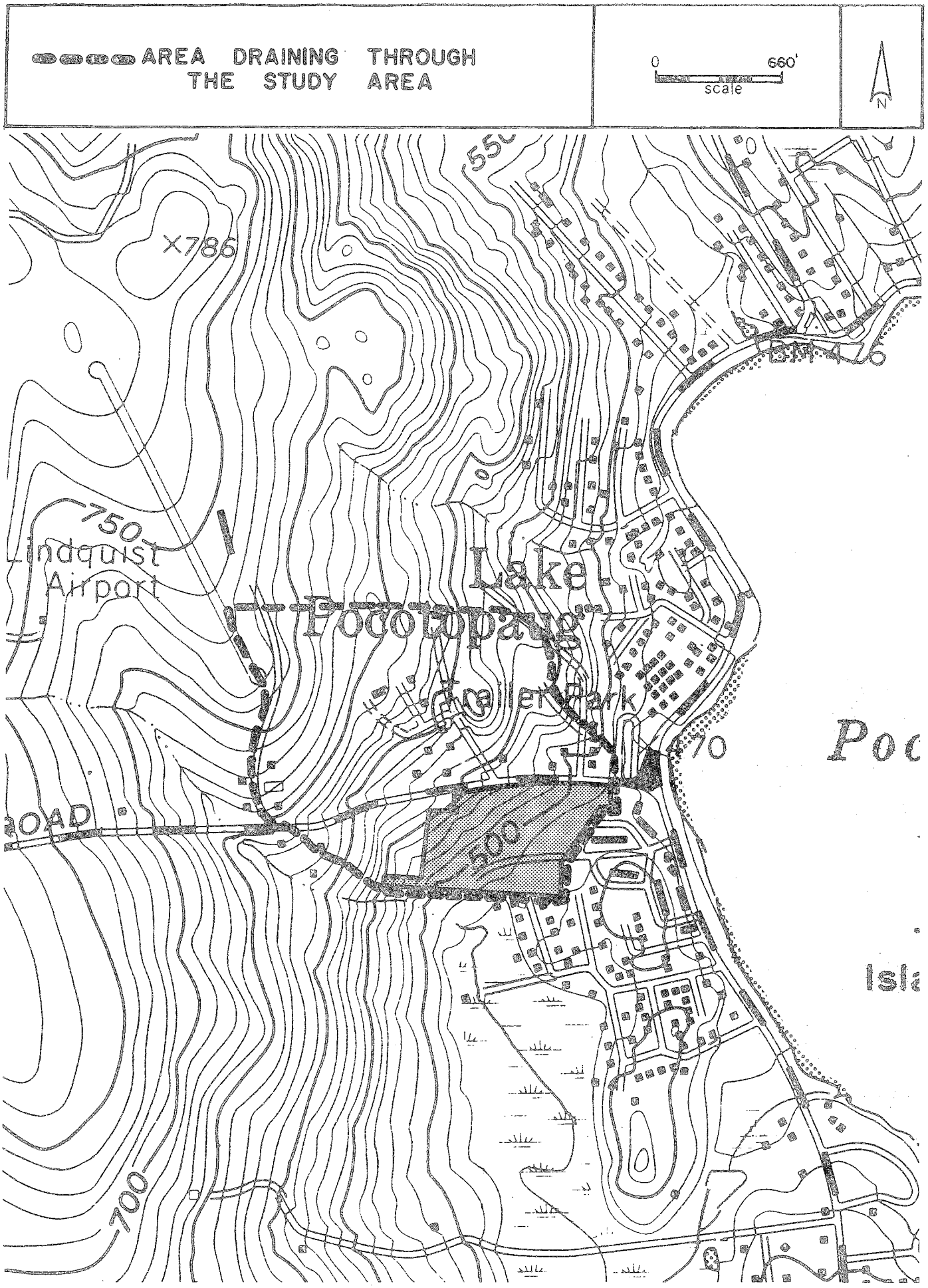
Surface water moves generally by sheet flow across the site in a northwest-to-southeast direction. Surface water from a total drainage area of about 50 acres flows through the site (see accompanying illustration). Water originating in the area north of Clark Hill Road is transmitted to the parcel by a series of culverts under the road. All surface water that passes through the property flows into Lake Pocotopaug. Approximately 30 acres of the site drains into a wetland whose northern edge juts into the southwestern section of the parcel. The wetland, which is about 4,000 feet in length, is drained by a stream that originates on Clark Hill, west of the site. The stream itself does not traverse the property, but it passes very close to the southwestern corner.

Surface drainage through the site would be rerouted to some extent by the proposed development. The culverts that enter the property from Clark Hill Road would be tied to a new pipe that would be installed along the road and would discharge directly into Lake Pocotopaug. Three of the new parking areas would also be drained through this system. The central-eastern and southeastern portions of the parcel, including six or seven parking areas, would be drained into an existing 18-inch pipe at the northern boundary of the existing Edgemere Condominiums. This pipe presently discharges, and would continue to discharge, directly into Lake Pocotopaug. An orange-brown-colored scum was observed at the outlet of this pipe, suggesting that the present effluent has a relatively high iron content, or perhaps contains other types of organic nutrients. The remainder of the review parcel, after development, would continue to drain into the wetland area discussed above.

The development of the site as planned will lead to increases in the amount of runoff generated during periods of rainfall. The runoff increases on the sections that would drain directly into Lake Pocotopaug should not causes erosion or flood-related problems since the runoff would be piped and since the lake has tremendous storage capacity. Nevertheless, some contamination or siltation of the lake might occur near the discharge points of the pipes from road sands, salts, oils, or other materials. The Team suggests that winter sanding or salting of the parking areas and driveways be minimized or foregone. It might also be helpful to install sediment traps near the outlets of the pipes, as long as the traps were cleaned regularly. The stone rip-rap at the outlet of the existing pipe has been virtually buried by sediment.

The rerouting of drainage from the Clark Hill Road culverts will effectively reduce the land area that drains to the wetland discussed above by approximately 13 acres. Other on-site drainage patterns will reduce the contributing watershed by another 2 acres or so. In contrast, the remaining portion of the developed site that will drain to the wetland will comprise only about 4 acres. For this reason, the development will actually reduce the peak flows in the wetland's stream by a small amount. The Team, therefore, concurs with the developer's engineer's statement that a retention basin for flow-reduction purposes will not be necessary.

Minimizing or eliminating the application of sand and salt should be the policy for the section of the site that will drain into the wetland. The Team notes that the water-supply well for the present condominiums is located in the wetland. Although the type of well is not known, the large yields which the developer's engineer has attributed to it (140-150 gallons per minute) strongly suggest that it is a gravel-packed well. This type of well would be more likely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than a bedrock-based well to be contaminated by pollutants entering the wetland.

The developer has proposed filling a narrow finger of wetlands between the existing condominium site and the proposed new building #10. This little strip of wetlands is all that remains of a larger wetland that was filled in order to create the present condominiums. Hydrologically, this wetland may still serve as a small source of groundwater recharge and as a detention area for sediment. The groundwater-recharge aspect is not significant in view of the small size of the wetland and the already established water-supply well in the large wetland south of the site. If drainage pipes from the new development are tied to the existing pipe as planned, the sediment-storage aspect of the wetland will be eliminated. As mentioned above, the Team is concerned about sedimentation in Lake Pocotopaug. If artificial sediment traps are utilized along or at the end of the drainage systems, these concerns would be alleviated.

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 feet/inch scale to 660 feet/inch, the soil boundary lines should not be viewed as absolute boundaries, but as guidelines to the distribution of soil types on the site. The soil limitation chart indicates the probable limitations for each of the soils for on-site sewerage, buildings with basements, buildings without 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, Middlesex 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.

Soil series typical of this site include the Canton-Charlton series, the Hinckley series, the Saco series and the Walpole series. Descriptions of these soil types from the Middlesex County Soil Survey follow.

Canton and Charlton (CdC) extremely stony fine sandy loams, 3 to 15 percent slopes: These gently sloping and sloping, well drained soils are on hills and ridges of glacial till plains. These soils have 3 to 15 percent of the surface covered with stones and boulders. Areas of this unit consist of Canton soils or Charlton soils or both. The soils were mapped together because they have no significant differences that affect use and management. The acreage of this unit is about 45 percent Canton soils, 35 percent Charlton soils, and 20 percent other soils.

Typically, the surface layer of the Canton soils is very dark grayish brown fine sandy loam 2 inches thick. The subsoil is dark brown and dark yellowish brown fine sandy loam 17 inches thick. The substratum is light brownish gray gravelly loamy sand to a depth of 60 inches or more.

Typically, the surface layer of the Charlton soils is dark brown fine sandy loam 2 inches thick. The subsoil is 34 inches thick. The upper 30 inches is dark yellowish brown, yellowish brown, and light olive brown fine sandy loam. The lower 4 inches is light yellowish brown gravelly sandy loam. The substratum is brown fine sandy loam to a depth of 60 inches or more.

Included with these soils in mapping are small, intermingled areas of somewhat excessively drained Hollis soils, well drained Paxton and Montauk soils, moderately well drained Woodbridge soils, poorly drained Leicester and Ridgebury soils, and very poorly drained Whitman soils.

The permeability of the Canton soils is moderately rapid in the surface layer and subsoil and rapid in the substratum. Available water capacity is moderate. Runoff is medium to rapid. Canton soils warm up and dry out early in the spring. Unlimed areas are extremely acid to medium acid.

The permeability of the Charlton soils is moderate or moderately rapid. Available water capacity is moderate. Runoff is medium to rapid. Charlton soils warm up and dry out early in the spring. Unlimed areas are very strongly acid to medium acid.

These soils have fair potential for community development. They are limited mainly by stoniness and slope. The removal of stones is difficult. On the steeper slopes of this unit, onsite septic systems need careful design and installation to prevent effluent from seeping to the surface. Quickly establishing plant cover, providing temporary diversions, and establishing siltation basins are suitable management practices during construction.

Hinckley (HkC) gravelly sandy loam, 3 to 15 percent slopes: This excessively drained and gently sloping to sloping or undulating soil is on stream terraces, kames, and eskers. Typically, the surface layer is dark grayish brown gravelly sandy loam 8 inches thick. The subsoil is 19 inches thick. In the upper 12 inches, it is brown gravelly loamy sand, and in the lower 7 inches, it is yellowish brown gravelly sand. The substratum is brown and light brownish gray very gravelly sand to a depth of 60 inches or more.

Included with this soil in mapping are small, intermingled areas of excessively drained Windsor soils, somewhat excessively drained Merrimac soils, moderately well drained Sudbury soils, and poorly drained Walpole soils. Included areas make up 5 to 15 percent of this map unit.

Permeability is rapid in the surface layer and subsoil and very rapid in the substratum. The available water capacity is low. Runoff is slow to medium. This soil dries out and warms up early in spring. Unlimed areas are extremely acid to medium acid.

This soil has good potential for community development. The soil is limited mainly by slope and droughtiness. Steep side slopes of excavations are unstable, and onsite sewage disposal systems need careful design and installation. Lawns have many pebbles on the surface. Lawn grasses, shallow-rooted trees, and shrubs require watering in summer. Quickly establishing plant cover is a suitable management practice during construction.

Scarboro (Sc) mucky loamy fine sand: This nearly level, very poorly drained soil is in depressions of broad glacial outwash terraces. Typically, the surface layer

is 3 inches of very dark brown muck over 6 inches of black mucky loamy fine sand. The next 8 inches is black loamy fine sand. The substratum is grayish brown and dark grayish brown sand to a depth of 60 inches or more.

Included with this soil in mapping are small, intermingled areas of moderately well drained Sudbury soils, poorly drained Walpole soils, and very poorly drained Adrian soils. Included areas make up 5 to 15 percent of this map unit.

This soil has a seasonal high water table at the surface from fall until late spring. The permeability of the soil is rapid or very rapid. Available water capacity is low. Runoff is slow or very slow. Unlimed areas are very strongly acid to medium acid.

This soil has poor potential for community development because of the high water table. Steep slopes of excavations are unstable. Extensive filling is needed in areas of this soil used for community development. During construction, quickly establishing plant cover, providing temporary diversions, and establishing siltation basins are suitable management practices.

Walpole (Wd) sandy loam: This nearly level, poorly drained soil is in depressions of glacial outwash plains and terraces. Typically, the surface layer is black sandy loam 10 inches thick. The subsoil is 13 inches thick. The upper 2 inches is brown sandy loam, and the lower 11 inches is dark grayish brown, mottled sandy loam. The substratum is grayish brown, mottled sand to a depth of 60 inches or more. Included with this soil in mapping are small, intermingled areas of moderately well drained Ninigret and Sudbury soils, poorly drained Raypol soils, and very poorly drained Scarboro soils. Included areas make up 5 to 15 percent of this map unit.

This soil has a high water table at a depth of about 10 inches from autumn until spring. The permeability of the soil is moderately rapid in the surface layer and subsoil and is rapid or very rapid in the substratum. Available water capacity is moderate. Runoff is slow. Unlimed areas are very strongly acid to medium acid.

This soil has poor potential for community development. The soil is limited mainly by a high water table. Steep slopes of excavations are unstable. Onsite septic systems need very careful design and installation, and sites generally require extensive filling. If suitable outlets are available, artificial drains can be used to help prevent wet basements, but many places do not have suitable outlets. During construction, quickly establishing plant cover, providing temporary diversions, and establishing siltation basins are suitable management practices.

Storm drainage management is very important in a development with a density such as in this proposed section of Edgemere. The Planning and Zoning Commission or its review engineer should pay careful attention to the storm drainage design, not only to determine its adequacy, but also to determine the impact on the environment and on traffic operations.

The design engineer should submit a plan showing the drainage areas for each basin and "leak-off" in addition to submitting the drainage calculations to

aid in the review process. The drainage calculations should be scrutinized; the coefficient of runoff does not seem consistent with the land use. Therefore, the specified pipe sizes may not be adequate, especially where tied into the storm drainage system in the existing section of Edgemere. The catch basin locations should be analyzed to assure they are adequately spaced to accept the proposed amount of runoff without excessive ponding, and that the locations are consistent with the proposed grading. For instance, catch basins should generally be located on both sides of crowned pavements.

Sediment and erosion control and surface drainage features should also be reviewed. The discharge velocity at the lake outlet is rather high. Some plan is needed to reduce the velocity in addition to the proposed rip-rap. The effect of grading on surface drainage both on and off the pavement, and the method of discharging roof drains should also be examined.

It is recommended that a detailed sediment and erosion control plan be developed, consisting of:

1. Location of areas to be stripped of vegetation, and other exposed or unprotected areas.
2. A schedule of operations to include starting and completion dates for major development phases, such as land clearing and grading, street, sidewalk, and storm sewage installation, etc.
3. Seeding, sodding, or revegetation plans and specifications for all unprotected or unvegetated areas.
4. Location and design of structural sediment control measures, such as diversions, waterways, grade stabilization structures, debris basins, etc.
5. Timing of planned sediment control measures.
6. General information relating to the implementation and maintenance of the sediment control measures.

State DEP Water Compliance Unit should be contacted by the developer to determine the need for discharge permits into Pocotopaug Lake.

FOREST RESOURCES

The parcel proposed for development may be divided into five vegetation types. These include two mixed hardwood stands, totaling 9± acres; an open field/disturbed area, 1± acre; and 2± acres of hardwood swamp. (Please see the Vegetation Type Map and Vegetation Type Descriptions.) Clearing of vegetation for this proposal will be substantial. Where possible, specimen trees should be retained for their aesthetic and shade value. Windthrow is a potential hazard in the western hardwood swamp. Clearing in or near this area may cause increased windthrow. Poor quality and damaged trees should be removed from uncleared areas. All trees that are removed should be utilized. Revenue from timber products should be used for landscaping.

Vegetation

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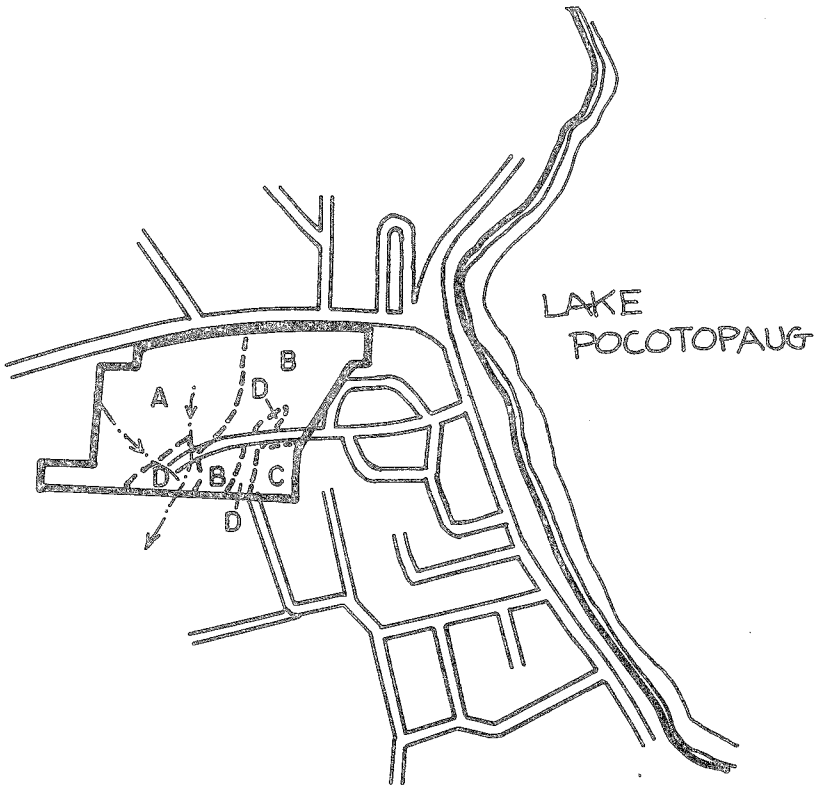

LEGEND

- Roads
- Property Boundary
- Vegetation Type Boundary
- Intermittent Stream
- Lake Pocotopaug

VEGETATION TYPE DESCRIPTIONS*

TYPE A. Mixed hardwoods, 5±acres, over-stocked, sawtimber-size.

TYPE B. Mixed hardwoods, 4±acres, fully-stocked, pole to sawtimber-size.

TYPE C. Open field/disturbed area, 1±acre.

TYPE D. Hardwood swamp, 2±acres, over-stocked, pole to sawtimber-size.

* Seedling-size = Trees less than 1 inch in diameter at 4 1/2 feet above the ground (d.b.h.)
Sapling-size = Trees 1 to 5 inches in d.b.h.
Pole-size = Trees 5 to 11 inches in d.b.h.
Sawtimber-size = Trees 11 inches and greater in d.b.h.

Vegetation Type Descriptions

Type A. (Mixed Hardwoods) This 5± acre over-stocked stand is comprised of predominantly high quality sawtimber size red oak, sugar maple, white ash, tuliptree, white oak, black oak, black birch and scattered yellow birch. The total volume in this stand ranges between 5,000 and 7,500 board feet per acre. The understory consists of hardwood tree seedlings, including sugar maple and ash along with flowering dogwood, spice bush and fox grape, which has spread into sections of the over-story. Ground cover vegetation includes Christmas fern, bracken fern, lady fern, enchanter's nightshade, Solomon's seal, false Solomon's seal, Jack-in-the-pulpit, Canada mayflower, wild sarsaparilla, wild leek, white baneberry, barberry, Virginia creeper and isolated patches of poison ivy in this stand.

Type B. (Mixed Hardwoods) Pole with occasional sawtimber-size black oak, white oak, red oak, shagbark hickory, pignut hickory, black birch, red maple, and American beech are present in this 4± acre fully-stocked stand. Total volume ranges between 16 and 20 cords per acre. Understory vegetation includes hardwood tree seedlings, maple-leaved viburnum, flowering dogwood, witch-hazel and highbush blueberry. Ground cover consists of Pennsylvania sedge, huckleberry, club moss, bracken fern, striped pipsissewa, Canada mayflower and rattlesnake plantain. The vine species which are present include summergrape, fox grape, and green brier.

Type C. (Open Field/Disturbed Area) This 1± acre area has been filled with gravel and partially graded. Included with this area is the road which cuts through the property from east to west. The vegetation which is present consists of grasses, sedges, goldenrod, white clover, hop clover, rough-fruited cinquefoil, Queen-Ann's-lace, milkweed, daisy fleabane, ragweed, St. John's wort, yarrow, sweet fern, staghorn sumac, winged-sumac, sweet fern, boneset, phragmities, multiflora rose and aspen seedlings.

Type D. (Mixed Swamp) Approximately two acres of wetlands are present within this tract. The wetland which is located on the eastern portion of the property is vegetated predominantly by shrub species, including button bush, swamp azalea, highbush blueberry, spice bush and sweet pepperbush with occasional red maple seedlings intermixed. The wetland area to the west is over-stocked with pole to sawtimber size red maple along with scattered white ash, yellow birch and black gum. The understory in this area is made up of spice bush, sweet pepperbush, winterberry, highbush blueberry and swamp rose. Ground cover vegetation throughout this area consists of skunk cabbage, touch-me-not, Virginia creeper, Jack-in-the-pulpit, blue violet, tall meadow rue, spirea, green brier, cinnamon fern and sensitive fern.

The impact of the proposal on vegetation will be significant. Approximately 85% of this 12 acre tract will have to be completely cleared of its vegetation for the construction of the apartment buildings, roadways and parking lots.

This widespread clearing of vegetation has the potential to result in accelerated erosion and sedimentation, therefore, during construction on this parcel, a sediment and erosion control plan should be drafted and followed. Vegetation plays an important role in reducing erosion and stabilizing soils. It is imperative to revegetate areas with grasses or other suitable ground cover as soon as possible after construction.

There are many trees on this tract which are healthy and of high enough quality to be considered for retention. If it is at all possible, some of these trees should be retained to provide shade and improve the aesthetic quality of the area once development has occurred.

It should be noted that trees are very sensitive to the condition of the soil within the entire area under their crowns. Soil disturbances which alter the balance between soil aeration and moisture levels, or change soil composition may cause a decline in tree health and vigor and potentially result in mortality within three to five years. Mechanical damage to trees or tree's root systems may cause the same results. Trees that are to be retained should be included in the final site plan. These trees should be clearly but temporarily marked in the field so that they will not be damaged during construction. It would also be helpful to retain trees in small groups or "islands," when possible. This practice allows trees to be more easily avoided during construction.

Windthrow is a potential hazard especially in the western hardwood swamp area (see Vegetation Type Map). The trees in this area are shallow rooted and unable to become anchored in these saturated soils. Openings which are made in or along side this stand may accelerate the loss of trees to windthrow and should, therefore, be avoided. Ideally, clearing operations should also be avoided in a 30 to 50 foot wide buffer area surrounding this hardwood swamp. Windthrow is not a critical concern in the eastern hardwood swamp area where trees are not large enough to be susceptible to windthrow at this time.

Management Suggestions

Areas such as the "Buffer Zones" which were proposed along Clark Hill Road and the proposed wetland buffer area will not be completely cleared of vegetation. However, poor quality and damaged trees should be removed from these areas to reduce potential hazards, improve aesthetic quality, and allow space for the continual growth of residual trees.

Trees that are to be removed during clearing operations should be utilized as fuelwood and, where possible, as sawlogs. Revenues from timber products could be used for landscaping after construction is completed.

WILDLIFE

This property is heavily wooded with a mixed hardwood stand of oak, ash, red maple, and tulip poplar. There are two distinct habitat types found on this property; an upland area with little to no understory and a wet area along a stream located in the northern end of the property. The understory in this wet area includes green brier, sumac, spice bush, and grape. These plants are all good food sources for wildlife. The majority of the overstory on this property has been heavily defoliated by the gypsy moth caterpillar.

The overall quality of this woodland habitat for wildlife is fair to good. The wetter area is the most valuable for wildlife and appeared to be utilized the most. The upland area was limited in use, probably due to the sparse understory and minimal mast (nuts and fruits) production. Both of these factors

could probably be improved with a selective timber cut. This would reduce the overcrowded state of the trees and improve the growth rate which would, in turn, increase the mast production. Cutting selectively would also allow more sunlight to reach the forest floor which would increase the amount of understory food sources.

During the field inspection, several squirrel nests were located and a variety of tracks including deer, raccoon and opossum were seen. Also, a number of songbirds were heard and seen in the area.

If this area is developed as planned, there will be an immediate negative impact on wildlife on this property. However, this parcel is in close proximity to the Meshomasic State Forest and borders some abandoned fields. These areas are favorable for wildlife utilization and should keep much of the affected wildlife nearby.

Every effort should be made to preserve the quality of the stream passing through this property because it provides a good water source for wildlife and its bordering vegetation provides habitat for certain bird and mammal species. Construction of roads or parking lots near the stream may have significant negative impact on the stream due to storm water runoff and silt deposition.

When landscaping the planned complex, I would recommend using trees and shrubs which are beneficial to wildlife, rather than the conventional ornamental species. These would include species which have prolific production of fruits and nuts which can be used as food sources. Assistance with choosing appropriate trees and shrubs for wildlife can be obtained by contacting the Wildlife Unit, Department of Environmental Protection. Local wildlife populations will decrease in the immediate area, but the urbanization process will, no doubt, attract more urban wildlife forms such as various songbirds, raccoons, skunks, and gray squirrels.

WATER SUPPLY

The presently existing condominiums are supplied with water by a well located in a wetland to the south of the review parcel. The nature of the well is not known, but the developer's engineer reported that it yields 140-150 gallons per minute (gpm). This suggests strongly that the well taps the stratified drift (sand and gravel) deposit in the wetland area rather than the underlying bedrock.

Assuming that the existing well is capable of yielding 140 gpm on a continuous basis, the potential daily yield is 201,600 gallons. If it is assumed further that the new condominiums would have an average occupancy of three persons per unit and that each person would require 60-100 gallons of water per day to meet his or her needs, the total demand of the new development would be 21,600 gallons to 36,000 gallons per day. This is less than 20 percent of the existing well's presumed potential. If the well continued to operate properly, it probably could serve the new units as well as the present units.

A second well may be needed for the new units in order to comply with regulations or policies of the Department of Health Services. Presumably this could be a back-up well rather than a simultaneously operating well. The

preferable option would be to locate such a well in the same stratified drift deposits as the existing well is tapping. If possible, the two wells should be spaced apart by a distance that is equal to twice the thickness of the stratified drift deposit. This would reduce the risk of mutual interference if the wells are ever operating together.

If the developer must locate the second well on the site itself, the southeastern corner of the parcel hold the best potential for a high-yielding well. A well yield of at least 15 gpm would be needed to serve the residents of the new condominiums, again if the same assumptions as the Team used above are valid. The chances of achieving this yield in the northwestern section of the parcel, where bedrock would probably be the most suitable aquifer, may be less than 40 percent. Bedrock yields are generally small (less than 10 gpm). Of course, there is no guarantee that a 15-gpm yield will be achievable in the southeastern section of the site either, but the probability is greater in that area.

At the present time, the system has sixty services supplying an estimated population of 180. As the proposed project would substantially increase the overall number of services and population on the system, plans for expansion of the existing system including any necessary treatment in accordance with Section 19-13-B102 of the Public Health Code would need to be prepared and submitted to the Water Supplies Section of the State Department of Health Services for review and approval purposes.

Application of sand and salt to the driveways and parking lots should be minimized, particularly in those areas that will drain into the large wetland south of the site. If surface water in the wetland is contaminated by urban runoff, there is a risk that the water-supply wells would be affected.

WASTE DISPOSAL

Revised plans which were submitted to the Team on September 11, 1981 indicate that the developer will not proceed with this proposal until public sewer service is available for the entire project. Prior to this date, the developer intended to construct approximately one quarter of the proposed units with on-site septic systems. These units would later have been tied into the sewer system when it became available.

STORM DRAINAGE

A new storm drainage system would be installed along Clark Hill Road just beyond the intersection with Old Clark Hill Road. Also, a spur line from a parking area for the condominiums would be connected to the system. This, in effect, will tend to divert and remove some of the upper drainage from the Edgemere property. While this should be beneficial for the land, it will afford a more direct route to the lake, as the storm sewer will outlet directly into the water. As a result, there could be some increase of gasoline, oil spilled or leaked from vehicles along with additional roadway salt to the lake. Deposition of sediment may also increase, particularly if catch basins are not routinely cleaned of accumulated sand and dirt. A sediment trap should be

installed at the lake outlet to help settle out soil particles and foreign matter before storm water enters the lake.

A sample of surface water was collected from a storm drain outfall at the lake located directly in front of the existing apartments. The visual discoloration would indicate the water contains a high iron content. The sanitary quality, however, would seem to be good as the reported number of fecal coliform organisms was very low.

TRAFFIC CONSIDERATIONS

The number of vehicle trips per day generated in condominium developments ranges from a low of five trips per unit to a high of twelve trips per unit. The average falls in the range of six-eight trips per unit.[1] The number of trips generated per unit increases as the number of two and three bedroom units increase. The availability of public transit, and the proximity of stores, schools, and recreational facilities within walking distance are also important factors.

The existing sixty unit development consists of 40% one bedroom units; the remainder are two bedroom units. For this discussion, an equal distribution will be assumed for the new development, but a greater percentage of two and three bedroom units may be built. Also some trips will be generated because the proposed development is close to Lake Pocotopaug, a recreational facility. Thus, the average range of six-eight trips per unit is applicable for both sections.

The existing sixty unit section would generate a range of 360-480 trips per day. The proposed 120 unit section would generate 720-960 trips per day. Therefore, the entire development would generate 1080-1440 trips per day.

The main interior road basically forms the pattern of traffic curculation throughout the development. This road shall be referred to as "Edgemere Avenue" as it is in the existing portion of the development. Edgemere Avenue is proposed to intersect with Clark Hill Road, and with North Main Street through the existing section of the development.

The proposed parking areas have access to Edgemere Avenue with the exception of two parking areas. These two connected parking areas have one access onto Clark Hill Road approximately 110' east of Edgemere Avenue. The proximity of the two proposed intersections and the intersections of Clark Hill Road Extension and Old Clark Hill Road with Clark Hill Road presents the possibility of many vehicular conflicts. The situation may be improved by having all parking areas ultimately access Edgemere Avenue, or, as a less desirable alternative, by locating the parking lot access directly across from Old Clark Hill Road.

Parking spaces located such that cars would back directly onto the main interior road should be discouraged. The volume of traffic generated within the development could cause numerous conflicts. A majority of the parking spaces access onto loops or dead end aisles which then connect to Edgemere

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[1] The figures on trip generation are from a number of reports, by various sources, made available by the Engineering Data and Inventory Division of CONNDOT.

Avenue. There are two parking areas where cars would back onto Edgemere Avenue. One is proposed in the new section and the other is located in the existing section near North Main Street. The parking plan should be redesigned to eliminate any backing onto Edgemere Avenue.

The parking area adjacent to the west boundary line has access to Edgemere Avenue through a parking area in the existing section of the development. This could cause confusion and delay to any emergency vehicle trying to gain access to the building. The parking area should access directly onto the proposed section of Edgemere Avenue either instead of or in addition to the proposed access.

Not all trips from the development will use North Main Street, but it would be a fair assumption based on the recent traffic count data indicating that a high percentage of the traffic uses North Main Street to reach Route 66. Based on recent traffic counts by Midstate Regional Planning Agency, the existing peak hour weekday traffic on North Main Street is approximately 25% of the maximum capacity volume. The proposed section of the development would increase the peak hour weekday traffic volume to approximately 30-33% of the maximum capacity if all the trips were on North Main Street.

The sight distance at the existing driveway on North Main Street is more than adequate to the north. To the south, the sight distance is blocked somewhat by a mound and tree. While the available sight distance is somewhat less than desirable, it will be adequate; especially considering that most exiting vehicles will be making a right turn. A stop sign may be desirable at the intersection of Edgemere Avenue and North Main Street.

On Clark Hill Road, the sight distance would be adequate from driveways at most any point along the frontage with proper clearing and grading. There is a slight curve in the road approximately 250' west of the east property corner. A driveway located on the curve would best be centered on the curve rather than located just slightly to the east or west. The driveway should be located as far away from the curve as practical for the optimum sight distance. The best locations for the driveways would be directly across from Clark Hill Road Extension and Old Clark Hill Road. No matter where the driveways are located, a minimum sight distance of 350' in both directions should be provided by the developer through clearing, grading, and/or moving telephone poles.

The sight distance to the south from Clark Hill Road to North Main Street is blocked by a large evergreen. The sight distance should be improved not only because two parking areas have no access to Edgemere Avenue, and thus will have to use Clark Hill Road, but because the existing conditions are unsafe to all motorists who use Clark Hill Road. The method of improving the sight distance will depend on whose property the evergreen is located.

The East Hampton Zoning Regulations state that in a planned apartment zone, all roads, public and private, shall conform to the Town Road Specifications, but the Commission may modify the requirements as deemed reasonable. The Regulation goes on to state that road access and circulation shall permit fire fighting equipment, moving vans, fuel trucks, deliveries, and snow removal in a safe and efficient manner.

Due to the volume of traffic which will be generated in the Edgemere Development, the main interior road should be designed to Town Standards for a feeder street. The parking lot aisles and access roads should be designed to local road standards. The Commission may find it reasonable to modify the requirements in some areas as indicated in this report.

The design speed for a feeder street is 30 mph, which is reasonable for the main interior street. The design speed for a local road is also 30 mph, but it would be reasonable to modify the design speed for the parking lot access roads to 20 mph. A design speed is usually a little higher than the posted speed to attain a higher degree of safety.

Although the Zoning Regulations require the paved width of a feeder street to be 24' or 30', twenty-four feet should be adequate for the main interior road. With adequate parking available, no parking should occur on Edgemere Avenue, thus the thirty foot paved width is unnecessary. The main entrance of the condominium units should always face the parking area to discourage any parking along Edgemere Avenue and to eliminate any confusion to emergency vehicles. It is especially important that emergency vehicles have easy access to all units of all buildings.

The required paved width for a local road is twenty-four feet, which is necessary to allow safe backing out of parking spaces in the parking lot aisles. The paved width for the parking lot access roads should also be twenty-four feet. Parking along the access roads should be discouraged, but the twenty-four feet will allow a car to pass when cars are parked on both sides of the road. A narrower paved width may tend to discourage curbside parking, but if all close parking spaces are full, drivers would probably park along the access road rather than walk from a distant parking lot.

All parking spaces should have an adequate area to back out of a space in one manuever. The width of the aisle adjacent to the spaces should be a minimum of 24' in all cases. Back-around areas may have to be provided for the end parking spaces in some of the lots. The turning radius for the back-around should be 15' and the back-around should be at least 9' wide by 10' long.

ROAD DESIGN

The horizontal alignment of the proposed roads should reflect the minimum design standards to achieve the safe minimum sight distance and to provide safe maneuverability on curves. The design standards are based on the design speed for the type of road proposed.

Based on "Recommended Practices for Subdivision Streets," by the Institute of Traffic Engineers, the minimum center line radius for roads without superelevation would be 375' for roads with a design speed of 30 mph and 160' for roads with a design speed of 20 mph. This means that the main interior road, Edgemere Avenue, should have a minimum center line radius of 375' and the parking lot loop road should have a minimum center line radius of 160'. The minimum center line radius can be reduced by the application of superelevation or by similar modfication of the cross section in the area of the curve.

It is especially important that the design standards for horizontal curves be adhered to on steep grades, at intersections, and where the horizontal curves are combined with vertical curves. In the proposed Edgemere Development, there is one potentially dangerous curve on the main interior road which has a center line radius of approximately 45'; it should be redesigned.

All intersections should be designed with center line intersection angles as close to ninety degrees as possible for the safe and efficient movement of vehicles. The pavement turning radius at the intersection with the main road should be a minimum of 25' to 35'. All other pavement radii, including those in parking lots, should be at least a minimum of 15' to accommodate passenger cars. Many of the proposed intersections have turning radii less than 10'.

Sharp changes in grade on the main road, parking lot access roads, and parking lot aisles should be avoided. The grading should be designed with smooth transitions from steep to more level grades using vertical curves as is common practice in designing roads. AASHTO* standards can be used to determine the minimum length of vertical curve required to provide minimum sight distance given the design speed and the algebraic change in grade.

The main interior road should be graded at a maximum grade of one-half percent to assure adequate surface runoff. The Subdivision Regulations allow the Commission to modify the maximum grade from 8% and 10% maximum, respectively, for feeder and local streets for short stretches if a better overall grading plan would result, but care should be taken that the road safety is not sacrificed. The parking lot access roads should have a maximum grade of ten percent and a minimum grade of one-half percent.

Parking lots and aisles in excess of six or seven percent are undesirable. Drivers find it difficult to maneuver in and out of parking spaces in steeper lots, especially in inclement weather. When the slope is across the parking stall there exists the difficulty of maneuvering in and out of the car without smashing the car door into a car parked in the downhill stall. Parking lots should have a minimum grade of one percent to provide adequate surface drainage.

Intersections should be graded with a fairly level area not steeper than three percent to allow a storage area for stopped vehicles and for smooth, safe stopping and accelerating. The level area should extend at least sixty feet from the edge of the intersected road on the main interior road, and at least forty feet on the parking lot loop roads and aisles. In addition, the grade of the through road of the intersection should be no more than six percent to allow a smooth, gradual crown transition.

Much of the proposed grading in this development is not desirable and does not meet the design standards for the type of road as specified in the Town Regulations. Much of the grading is too steep, and, in some cases, it is too flat. The changes in grade are not smooth transitions. The intersections are often too steep and are located at through sections with grades in excess of six percent.

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* AASHTO - (American Association of State Highway and Transportation Officials)

The main interior road should be crowned at the center with a cross slope of 1/8" to 3/8" per foot. The parking lot aisles and access roads should also be cross sloped at the same rate, but the crown should be applied either at the center or at one edge. Care should be taken to assure that the parking lot aisles which also act as access roads are not cross sloped at a greater rate than specified above. The cross slopes should accurately be reflected in the proposed grading plan.

All roads should be curbed on both sides as required in the Regulations. A graded, grass shoulder at least four feet wide should be provided for a snow shelf. The shoulder should be graded at one inch per foot towards the road. The shoulder grading should be shown on the proposed grading plan.

All sidewalks should be located outside the shoulder rather than next to the road to allow for snow storage. The sidewalks should be cross sloped at 1/4" per foot towards the road. Handicap ramps should be provided wherever the sidewalk meets the road. The proposed plans should show how the sidewalks will be connected to the condominium unit's doors and the parking areas, where the handicap ramps will be located, and the proposed grading should be accurately shown on the grading plan.

Appendix

Soils

0 660'
SCALE

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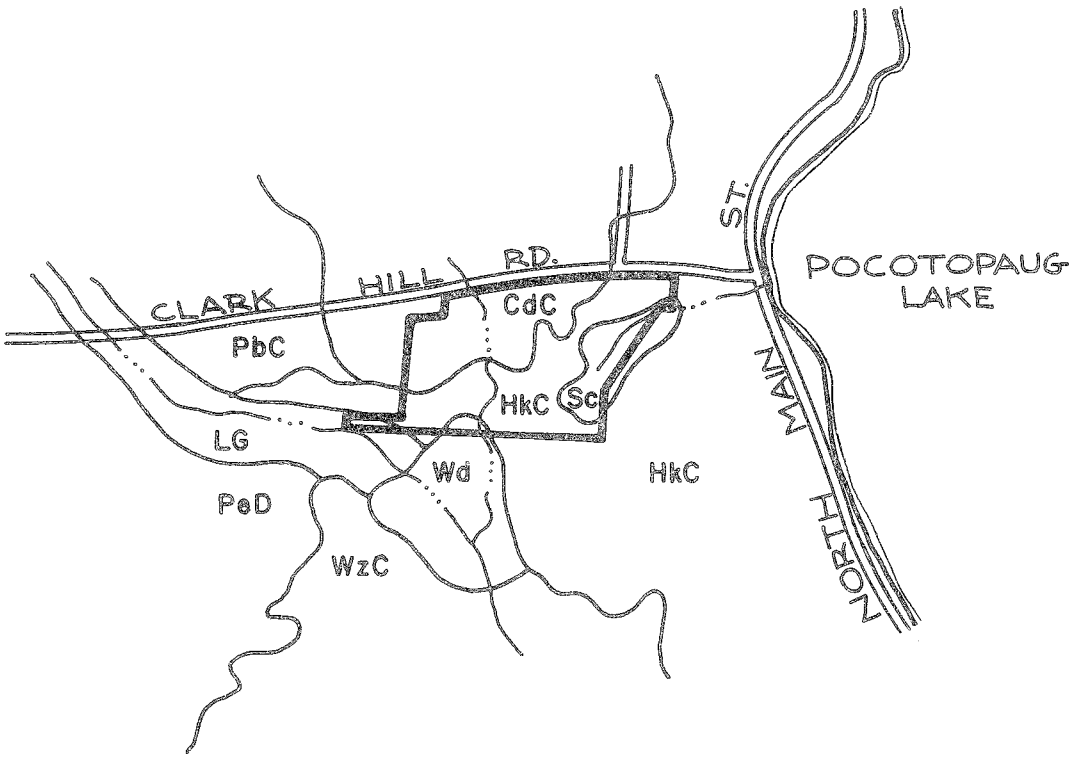

EDGEMERE APARTMENT COMPLEX
East Hampton, Connecticut

PROPORTIONAL EXTENT OF SOILS AND THEIR LIMITATIONS FOR CERTAIN LAND USES

Soil Series	Soil Symbol	Approx. Acres	Percent of Acres	Principal Limiting Factor	Urban Use Limitations*			
					On-Site Sewage	Buildings with Basements	Streets & Parking	Land-Scaping
Canton-Charlton	CdC	4	34	Large stones	3	2	2	3
Hinckley	HkC	4	34	Slope	2	2	2	3
**Leicester, Ridgebury and Whitman	Lg	1	8	Percs slowly, Large stones, frost action	3	3	3	3
**Scarboro	Sc	2	16	Wetness	3	3	3	3
**Walpole	Wd	1	8	Wetness, Frost action	3	3	3	3
		12	100					

LIMITATIONS: 1=slight; 2=moderate, 3=severe.

** Regulated wetland soil under P.A. 155.

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.