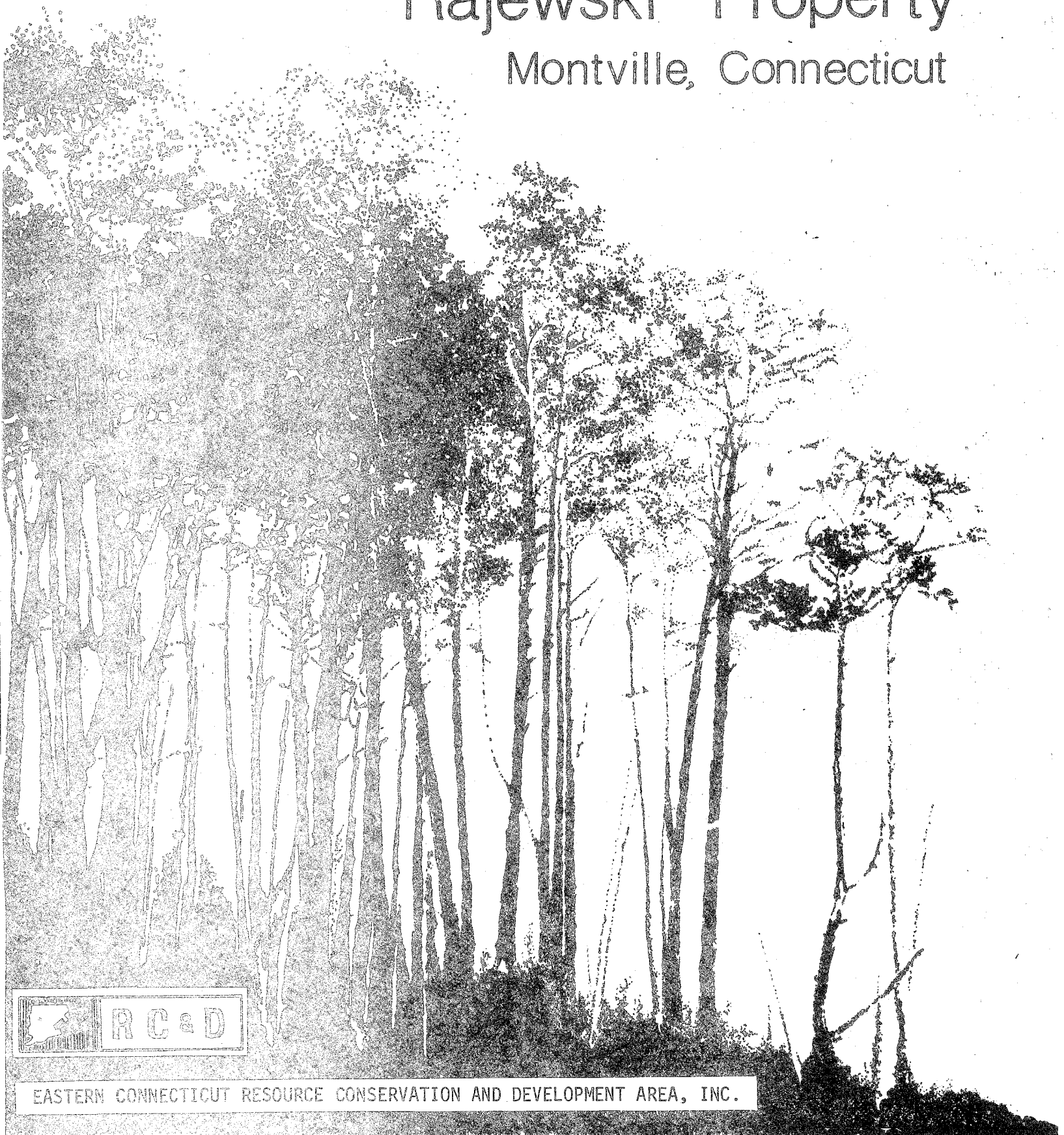
Environmental Review Team Report

Rajewski Property

Montville, Connecticut



R C & D

EASTERN CONNECTICUT RESOURCE CONSERVATION AND DEVELOPMENT AREA, INC.

Environmental Review Team Report

on

Rajewski Property

Montville, Connecticut

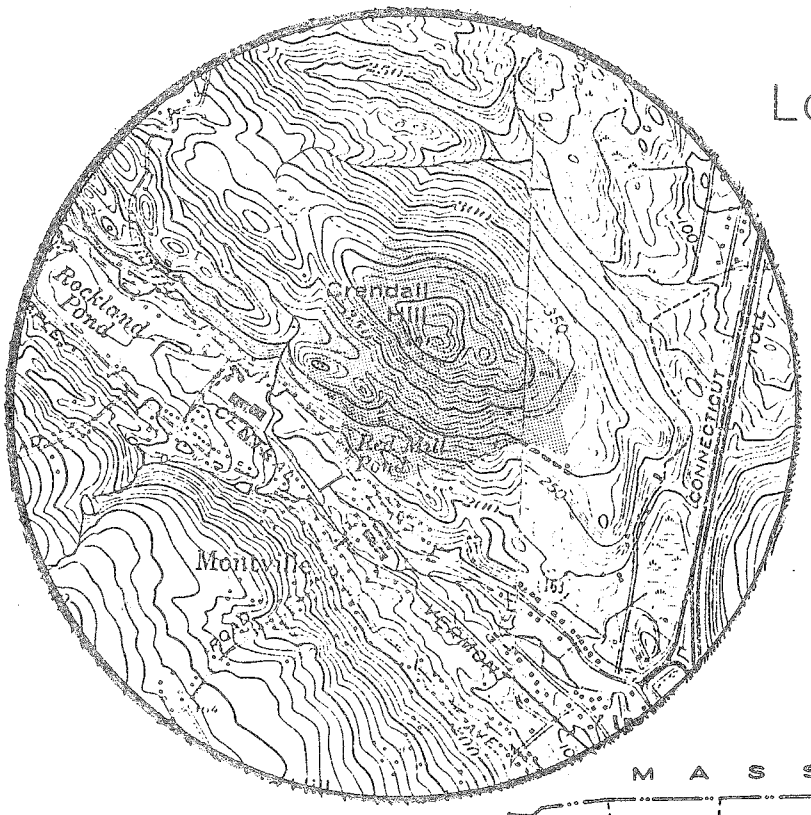
August 1982

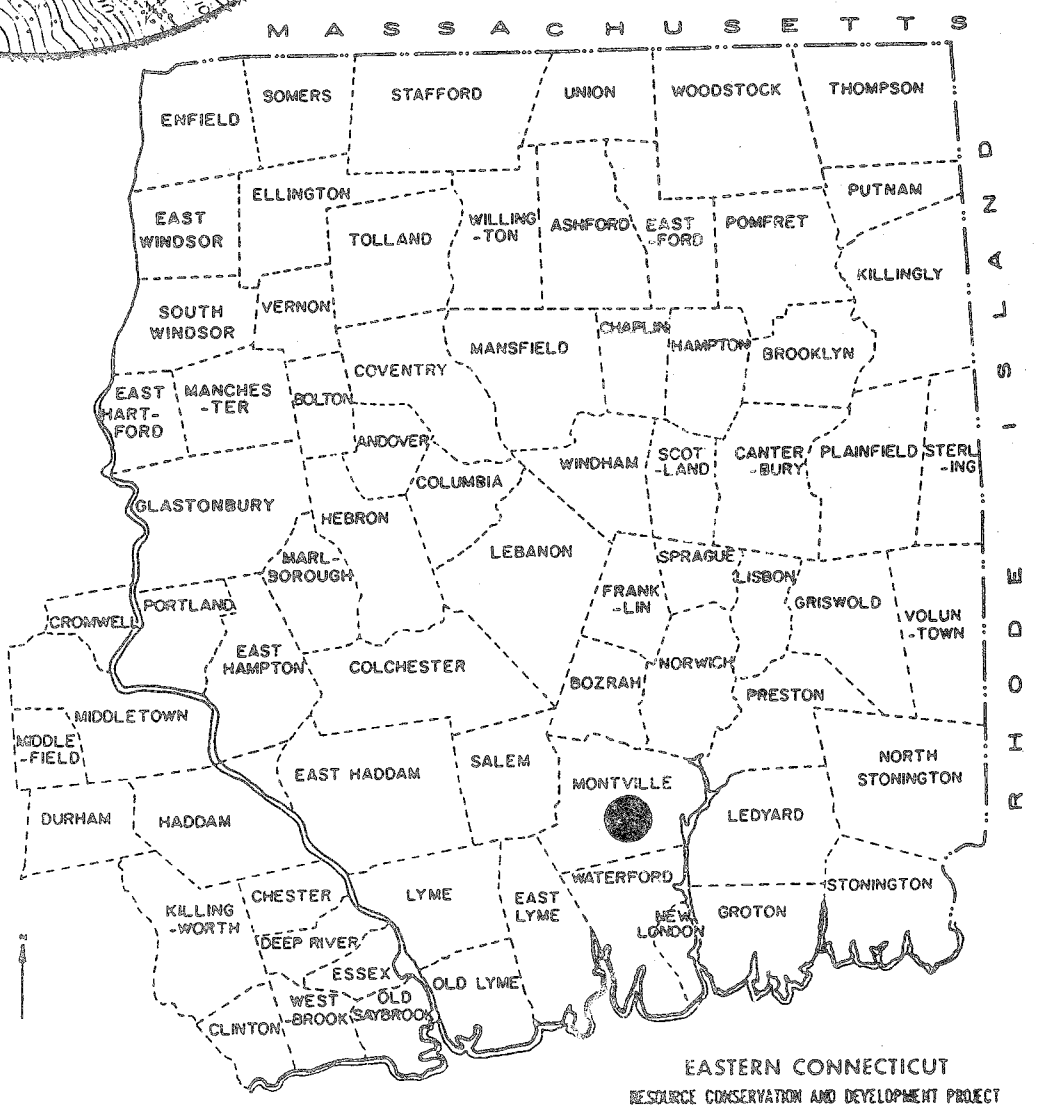
Eastern Connecticut Resource Conservation & Development Area

Environmental Review Team
PO Box 198
Brooklyn, Connecticut 06234

Location of Study Site

RAJEWSKI PROPERTY
MONTVILLE, CONNECTICUT





EASTERN CONNECTICUT
RESOURCE CONSERVATION AND DEVELOPMENT PROJECT

ENVIRONMENTAL REVIEW TEAM REPORT
ON
RAJEWSKI PROPERTY
MONTVILLE, CONNECTICUT

This report is an outgrowth of a request from the Montville Planning and Zoning Commission to the New London 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 as a project measure. The request was approved and the measure reviewed by the Eastern Connecticut Environmental Review Team (ERT).

The soils of the site were mapped by a soil scientist of the United States Department of Agriculture (USDA), Soil Conservation Service (SCS). Reproductions of the soil survey map as well as a topographic map of the site were distributed to all ERT participants prior to their field review of the site.

The ERT that field checked the site consisted of the following personnel: Gary Domian, District Conservationist, Soil Conservation Service (SCS); Mike Zizka, Geologist, Department of Environmental Protection (DEP); Emery Gluck, Forester, DEP; Charles Storrow, Regional Planner, Southeastern Connecticut 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, July 6, 1982. Reports from each 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 Montville. 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.

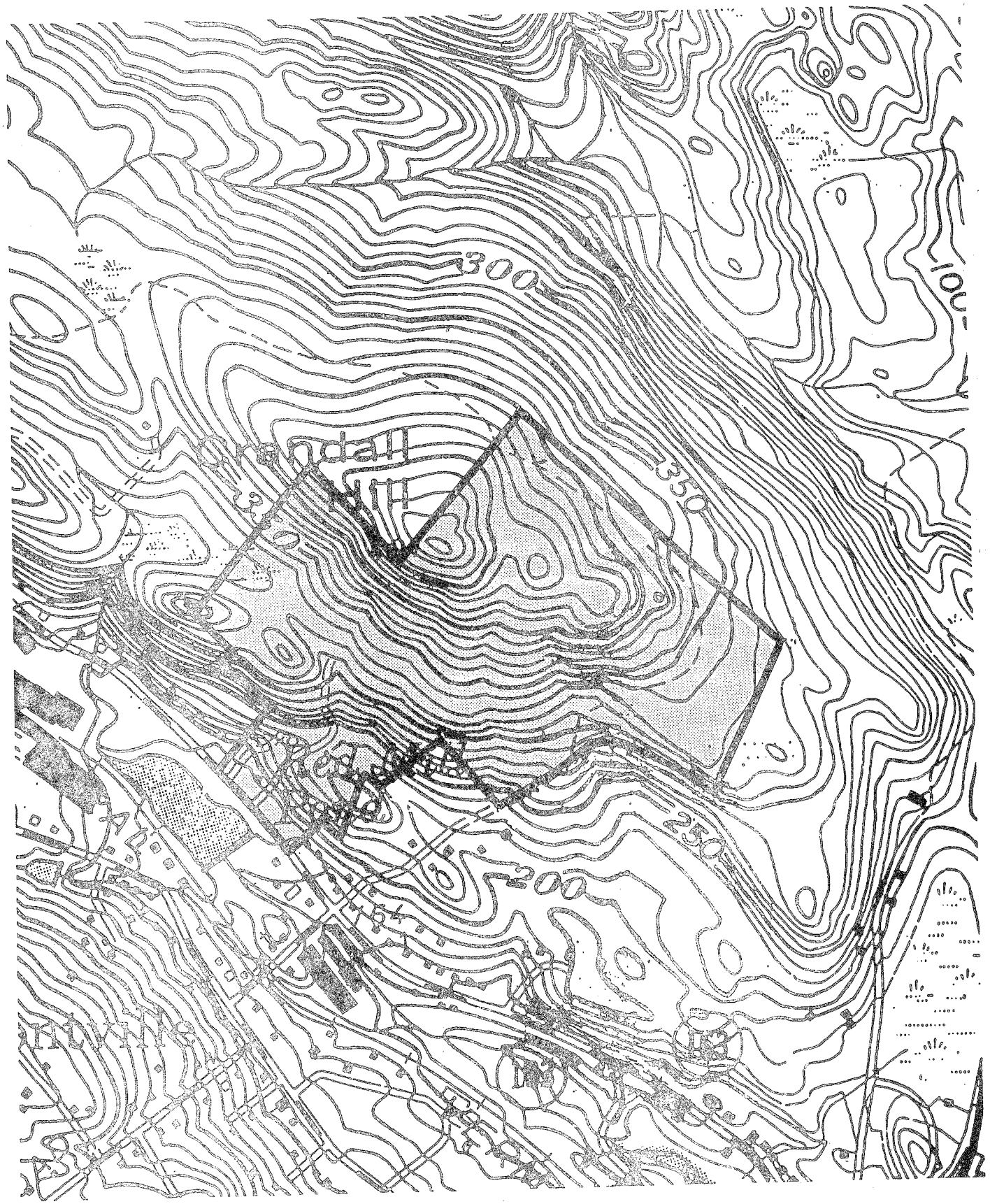
The Eastern Connecticut RC&D Project Committee hopes you will find this report of value and assistance in making your decisions on this particular site.

If you require any additional information, please contact: Ms. Jeanne Shelburn, Environmental Review Team Coordinator, Eastern Connecticut RC&D Area, Box 198, Brooklyn, Connecticut 06234, 774-1253.

Topography

Site Boundary

0 660'
scale



INTRODUCTION

The Eastern Connecticut Environmental Review Team was asked to evaluate the impact of a proposed zone change on the property of Charles Rajewski in the town of Montville. The proposal involved a change in zone from RA-120 to R-40. The RA-120 district permits primarily agricultural uses, and single-family houses on lots of 120,000 square feet or more. The R-40 district permits single-family houses on 40,000 square feet lots and in addition, by special permit, garden apartments or condominiums at a density of 10,000 square feet per unit. It is the Team's understanding that should this zone change request be granted, Mr. Rajewski intends to develop the area with condominium units. At the time of the Team review, no preliminary plans had been prepared, so the Team assumed that the developer would construct the maximum number of allowable units on the property.

The project site is approximately 75 acres in size and is located on the north side of Route 163 a short distance northwest of Crandall Hill Road and its extension. Oxoboxo Brook and Red Mill Pond are close to the site. The property is extremely steep in most areas and is presently forested. Numerous rock outcrops are visible on the northeastern section of the site. An electric power line and gas transmission line right-of-way cross through the central portion of the property. Soils typical of the site are stony, with shallow depth to bedrock. Only one area in the western section of the site has a seasonal high water table and portions of a tributary stream to Oxoboxo Brook.

The property has many limitations to development which are discussed in detail in the following sections of this report. Although many severe limitations to development can be overcome with proper engineering techniques, these measures can become costly, making a project financially unfeasible for a developer. On the basis of general planning considerations and severe topographic and water supply limitations, the Team cannot recommend that the Town grant this zone change request.

ENVIRONMENTAL ASSESSMENT

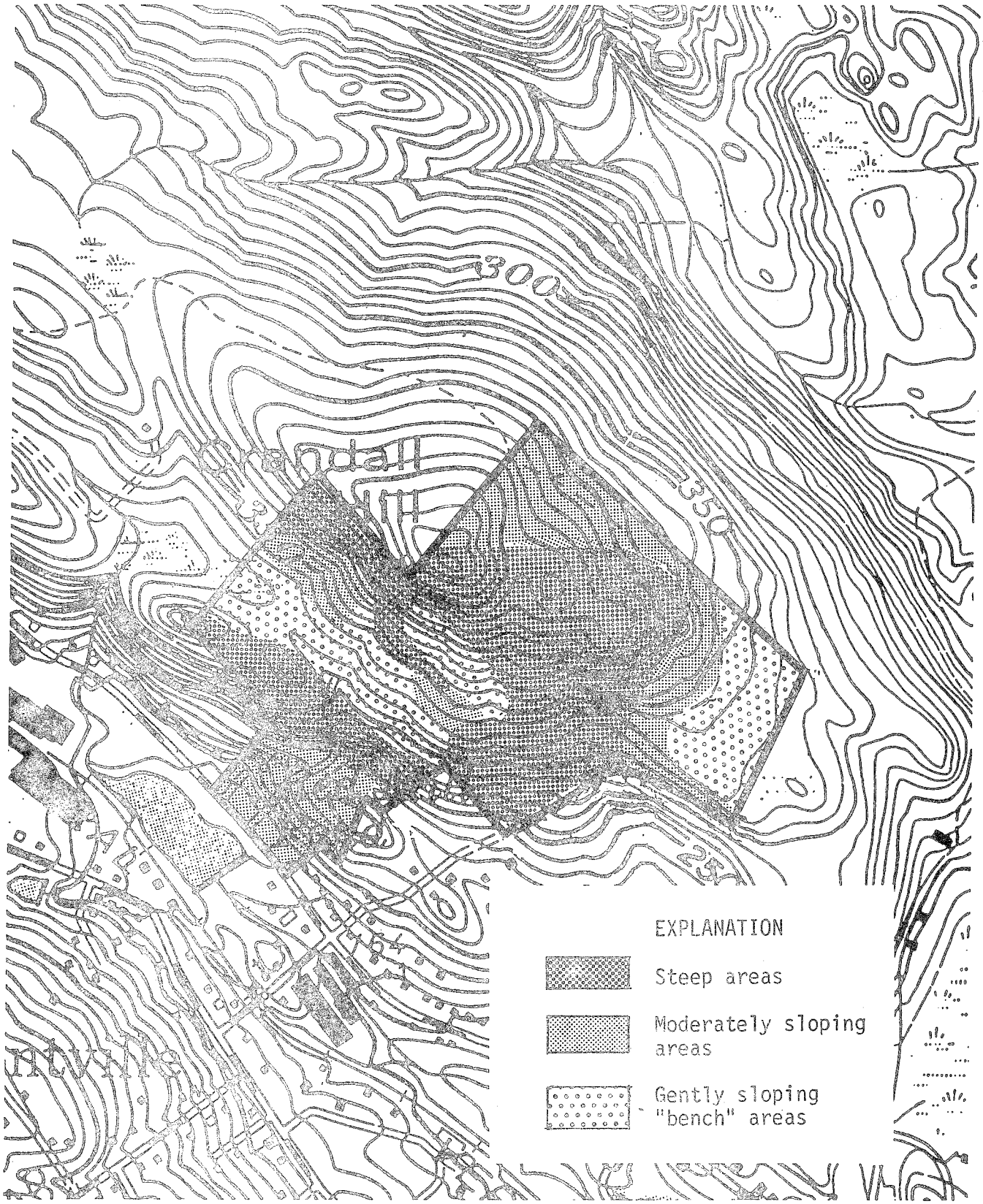
TOPOGRAPHY

The Rajewski property is a combination of steeply sloping areas, relatively flat "benches", and moderately sloping areas. The southern portion of the site, directly adjacent to Route 163, has a moderate to steep slope up to the level of the two existing apartment buildings. Further north, for a distance of 300 to 350 feet, the land becomes very steep. This may be a major hindrance to the development of an acceptable internal road network: it appears that an access road built from Route 163 would have a slope in excess of 10 percent through this very steep section.

SLOPE CONDITIONS

0 660' scale

N



Further north, the site levels off into a "bench" (flat area) approximately 250 feet wide. This bench is occupied mostly by a cleared field. The land rises moderately to steeply from the bench for about 250 feet to a second bench, approximately 200 feet wide. This bench is also occupied by a field. Gas and telephone utility lines cross the upper bench.

The northern portion of the site is a rocky hilltop with steep slopes on the southern side and moderate slopes on the northern side. A moderately to gently sloping wooded area occupies a 500-foot-wide strip along the eastern boundary of the property.

The benches and the moderately to gently sloping land along the northern and eastern boundaries of the site offer the best topographic potential for development. Usable space in the benches is limited by the existing utility lines. The northern bench and the gas pipeline strip afford dramatic vistas south to Groton and Long Island Sound.

GEOLOGY

The Rajewski property consists of a rock-controlled hillside (i.e. the major topographic features are created by the shape of the underlying bedrock surface), thinly covered with glacial till. No test pit information was available for the site at the time of the Team's field review, but it is reasonable to estimate that the till is less than 5 feet thick in the very steep areas, generally between 5 and 10 feet thick in the moderately sloping areas, and variably less than or greater than 10 feet thick on the benches.

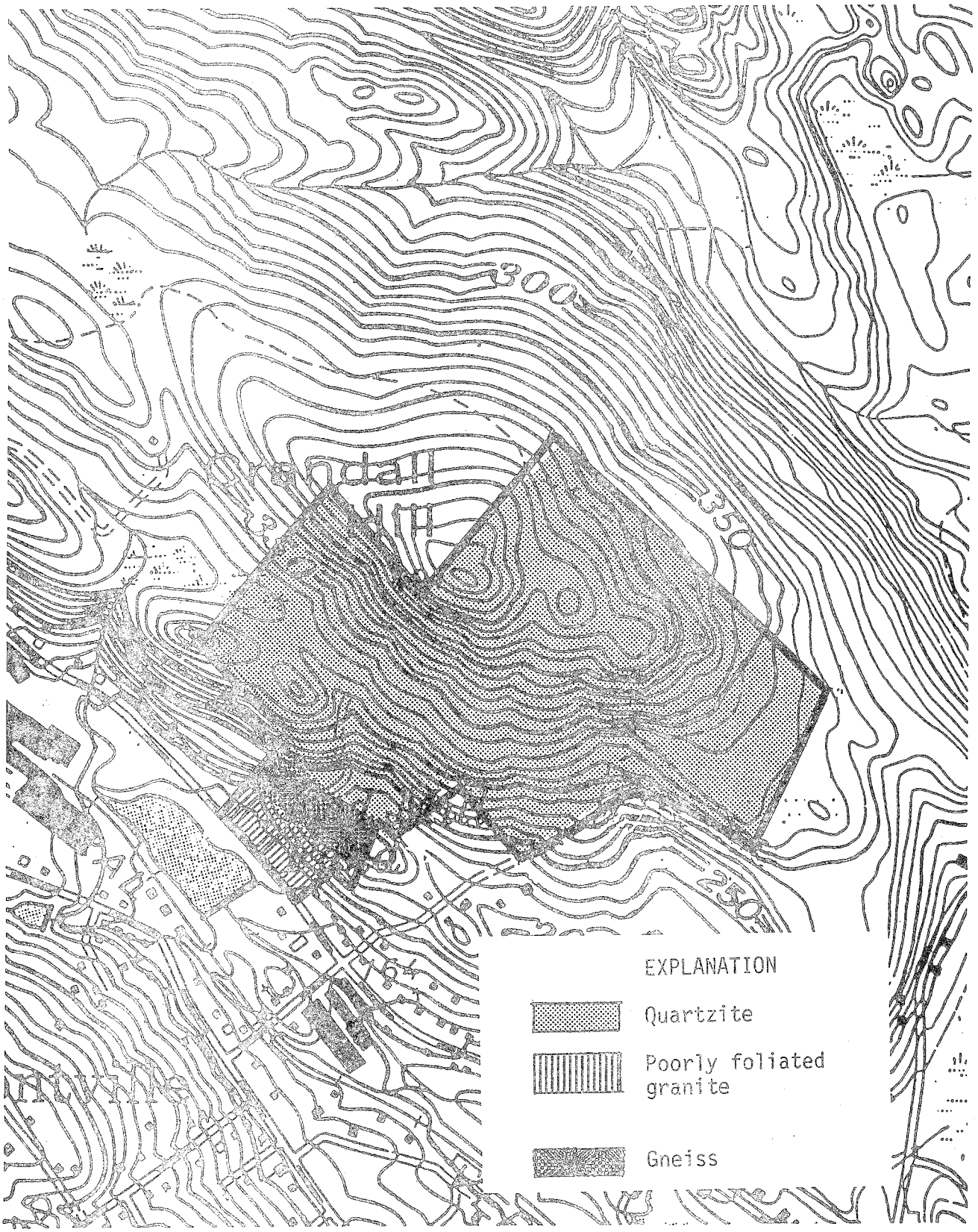
The till consists of nonsorted clay, silt, sand, gravel, and boulders. These materials were deposited directly from glacier ice, which formerly covered Connecticut. Where the till is less than 5 feet thick, its texture is commonly sandy, very stony, and loose. Where the till is more than 5 feet thick, the upper 3 to 5 feet are often sandy as described above, while the deeper portions are siltier, less stony, and tightly compacted.

A narrow strip of the site along Route 163 is composed of stratified drift. This deposit was laid down by meltwater streams that issued from wasting glacier ice. Sand and gravel are the principal components of the stratified drift.

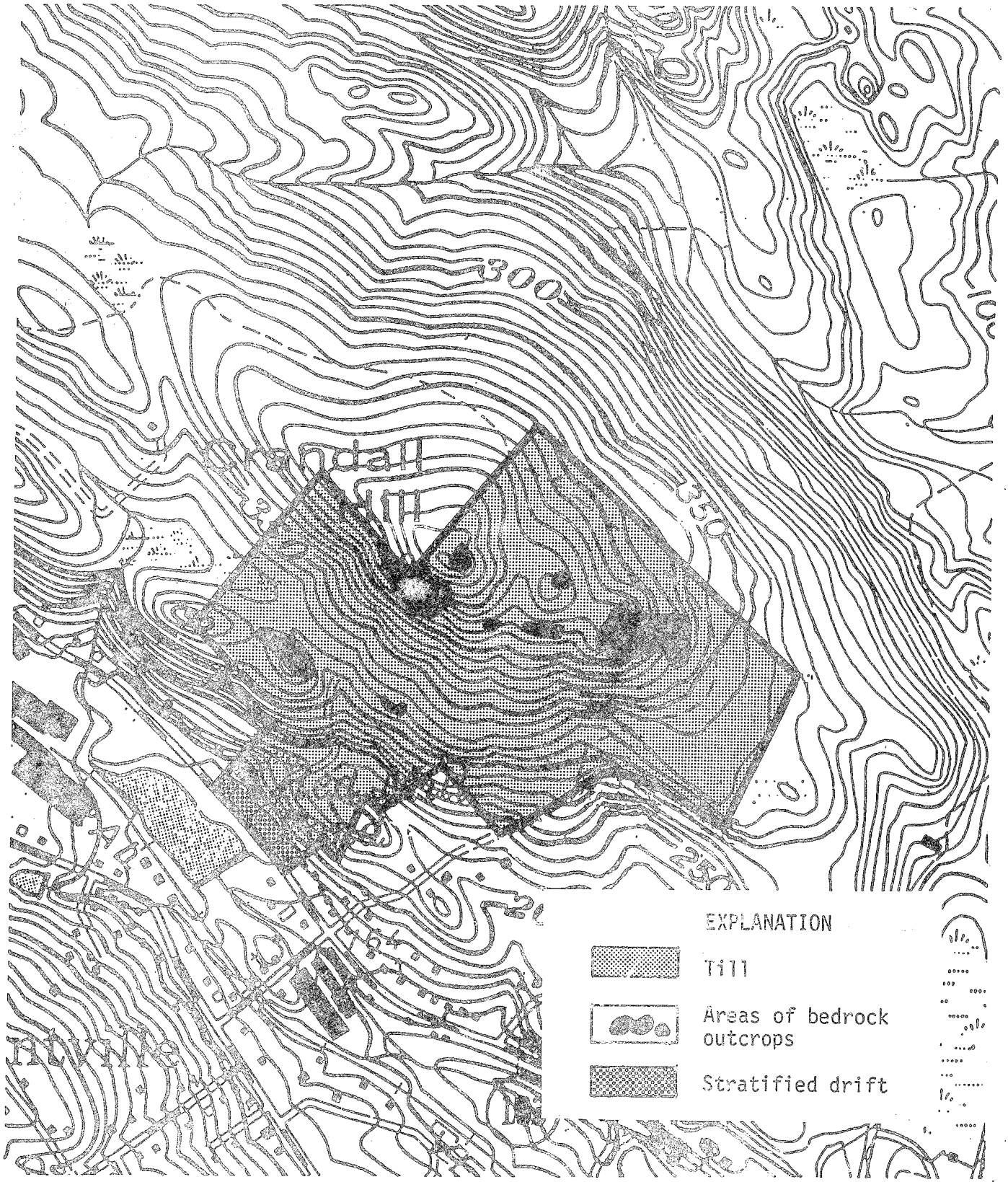
Most of the bedrock underlying the site has been interpreted as quartzite (see U.S. Geological Survey Maps GQ-576 and GQ-609). Other rock types that may underlie the property include poorly foliated granite, which contains equal amounts of the minerals quartz, microcline perthite, and albite, with accessory tourmaline and sillimanite; and a gneiss (a lineated granular rock) composed of quartz, feldspar, biotite, sillimanite, garnet, and calc-silicate minerals.

The geology and topography of the property are not conducive to high-density development. Some of the flat or gently to moderately sloping areas could accomodate clustered housing, but these areas comprise less than half of the total area

Bedrock Geology



Surficial Geology



of the parcel and they are partly occupied by utility easements. A fair approach might be to allow clustering in the suitable areas by special permit. However, if the choice is strictly between the current zone and the proposed 4-units-per-acre zone, the current zone is much more appropriate for this site form a geological standpoint.

HYDROLOGY

Approximately two-thirds of the property lies within the watershed of Oxoboxo Brook. The remainder of the site drains northward into an unnamed stream that flows eastward into Stony Brook. Both Oxoboxo and Stony Brooks flow into Horton Cove off Thames River.

The major hydrological consideration with respect to the proposed zone change would be the effect on runoff, erosion, and streamflow. The Team analyzed the effect of development on runoff under both the existing RA-120 zone and the proposed R-40 zone. For the R-40 analysis, it was assumed that 4 condominium units per acre would be constructed. It was also assumed that the condominium units would be small enough that the total amount of impervious area created would be similar to the amount that would be created by a standard half-acre residential development. Rainfall data were taken from U.S. Geological Survey records. Runoff amounts were calculated by the SCS runoff-curve-number method.

Table 1. Runoff amounts estimated for present site conditions, developed conditions under the existing zone, and developed conditions under the proposed zone.

Average recurrence interval of storm	2 years	10 years	25 years	50 years	100 years
Rainfall (inches) in 24 hours	3.0	4.7	5.5	6.5	7.75
Runoff, present conditions (inches)	0.72	1.83	2.42	3.21	4.26
Runoff, developed, present zone (Percent increase from present-condition runoff)	0.87 (21%)	2.06 (13%)	2.69 (11%)	3.52 (10%)	4.60 (8%)
Runoff, developed, proposed zone (Percent increase from present condition runoff)	1.25 (74%)	2.63 (44%)	3.34 (38%)	4.24 (32%)	5.39 (27%)

As Table 1 indicates, the runoff increases generated by a condominium development under the proposed zone could be more than three times greater than those that would be generated by a residential development under the present zone. Where slopes are steep, severe problems of erosion and gullying could occur unless adequate precautions are taken. Clearly, erosion may occur no matter what type of development occurs on the parcel. However, the condominium proposal, because of its density, could cause substantially more erosion both because of the additional volume of runoff and because of the concentration of runoff that it likely to occur on parking lots, etc.

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 1320 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 of 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 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, New London County Interim Soil Survey Report, 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 Sutton series, the Hinckley series, the Charlton-Hollis series, and the Canton and Charlton series. Most of these soils were formed in uplands composed of glacial till and are fairly well drained. Detailed descriptions of these soils follow.

The nearly level to gently sloping, very stony, moderately well drained areas on uplands are occupied by Sutton very stony fine sandy loam. This soil is designated by soil mapping unit 41XB. The letter "X" denotes a very stony surface condition. The letter "B" denotes slopes as being 0 to 8 percent. Sutton soils formed in friable glacial till. Permeability is moderate to moderately rapid. A seasonal high water table exists at 18 to 24 inches. Surface runoff is slow to medium.

The gently sloping to sloping terraces or outwash plains are occupied by Hinckley gravelly sandy loam. The soil mapping unit symbol is 60C. The letter "C" denotes a slope range of 3 to 15 percent. Hinckley soils formed in water sorted outwash. The soils are excessively drained and have rapid permeability in the surface layer and subsoil and very rapid permeability in the substratum. Runoff is slow.

The moderately steep to steep land forms adjacent to the highest elevations in the landscape are occupied by Charlton-Hollis fine sandy loams, very rocky. The soil mapping unit is 17LD. The letter "L" denotes very rocky, and "D" denotes a slope range of 15 to 45 percent. Both soils are well drained. Charlton soils formed in deep, friable glacial till, and the Hollis soils formed in shallow glacial till less than 20 inches over bedrock. Charlton soils have moderate to moderately rapid permeability and Hollis soils have moderate permeability. Surface runoff is medium to very rapid for Hollis soils and medium to rapid for Charlton soils.

The gently sloping to sloping land forms adjacent to the hightest elevations in the landscape are occupied by Charlton-Hollis fine sandy loams, very rocky. The soil mapping unit symbol is 17LC. The letter "L" denotes very rocky, and "C" denotes a slope range of 3 to 15 percent. Both these soils are well drained. Charlton soils formed in deep, friable glacial till and the Hollis soils formed in shallow glacial till less than 20 inches deep over bedrock. Charlton soils have moderate to moderately rapid permeability and Hollis soils have moderate permeability. Surface runoff is medium to very rapid for Hollis soils and medium to rapid for Charlton soils.

The moderately steep to steep well drained uplands are occupied by Canton and Charlton extremely stony fine sandy loams. This soil is designated by soil mapping unit symbol 11MD. The letter "M" denotes an extremely stony surface condition. The letter "D" denotes slopes as 15 to 35 percent. Canton soils formed in a fine sandy loam mantle underlain by friable gravelly sandy glacial till. Canton soils have moderately rapid or rapid permeability. Surface runoff is medium to rapid.

The sloping well drained soils on uplands are occupied by Canton and Charlton very stony fine sandy loams. This soil is designated by soil mapping unit symbol 11XC. The letter "X" denotes a very stony surface condition. The letter "C" denotes slope as 8 to 15 percent. Canton soils formed in fine sandy loam mantle underlain by friable gravelly sandy glacial till. Canton soils have moderately rapid or rapid permeability. Surface runoff is medium. Charlton soils formed in friable glacial till. Charlton soils have moderate to moderately rapid permeability. Surface runoff is medium to rapid.

The gently sloping well drained uplands are occupied by Canton and Charlton very stony fine sandy loams. This soil is designated by soil mapping unit symbol 11XB. The letter "X" denotes a very stony surface condition. The letter "B" denotes slopes as 3 to 8 percent. Canton soils formed in a fine sandy loam mantle underlain by friable gravelly sandy glacial till. Canton soils have moderately rapid or rapid permeability. Surface runoff is medium. Charlton soils formed in friable glacial till. Charlton soils have moderate to moderately rapid permeability. Surface runoff is medium to rapid.

Major limitations to development on this site are caused by large stones, excessive slopes, shallow depth of soils to bedrock, and in Sutton soils, seasonal

wetness. These natural conditions which exist on over 80% of the site will escalate the cost of development of this parcel, due to the corrective measures which must be taken to mitigate these limitations during construction. Change of the zone from RA-120 to R-40 as proposed, may compound these problems as higher density development will not allow for many adjustments in housing unit location to avoid some of the more costly to develop areas (i.e. steep slopes, rock outcrops, etc.).

VEGETATION

The vegetation of this woodland tract can be divided into 6 vegetation types. These include 4 mixed hardwood stands; an old field type; and a power line/open land type. These are described in detail below and their locations are shown in the accompanying illustrations.

Vegetation Type Description

Type A - (Mixed hardwoods) This 35 acre, fully stocked stand, is made up primarily of low quality poles (trees 6.1" to 11.0" diameter at breast height) and sawtimbers (trees larger then 11" in diameter at breast height) trees. The stand is composed of black oak, scarlet oak, white oak, black birch, pignut hickory, American beech and red maple. The understory is dominated by maple leaf viburnum, flowering dogwood, lowbush blueberry seedlings and mountain laurel.

Type B - (Mixed hardwood) This is a high quality sawtimber stand (9 acres). It is composed of red oak, black oak, white oak, sugar maple, white ash, black birch, hemlock and tulip poplar. The stand is slightly understocked. The understory is composed of blue beech, eastern hophornbeam, flowering dogwood and witch hazel. The ground cover includes: posion ivy, false Solomon seal, Solomon seal and Christmas fern.

Type C -(Old field) This area (10 acres) is in the beginning stages of old field regeneration and will eventually revert back to a forest. The area is presently understocked with sapling oak, red maple, grey dogwood, black birch and trembling aspen. Smooth sumac was the only shrub species noted. Grasses, poison ivy, and dewberry make up the ground cover.

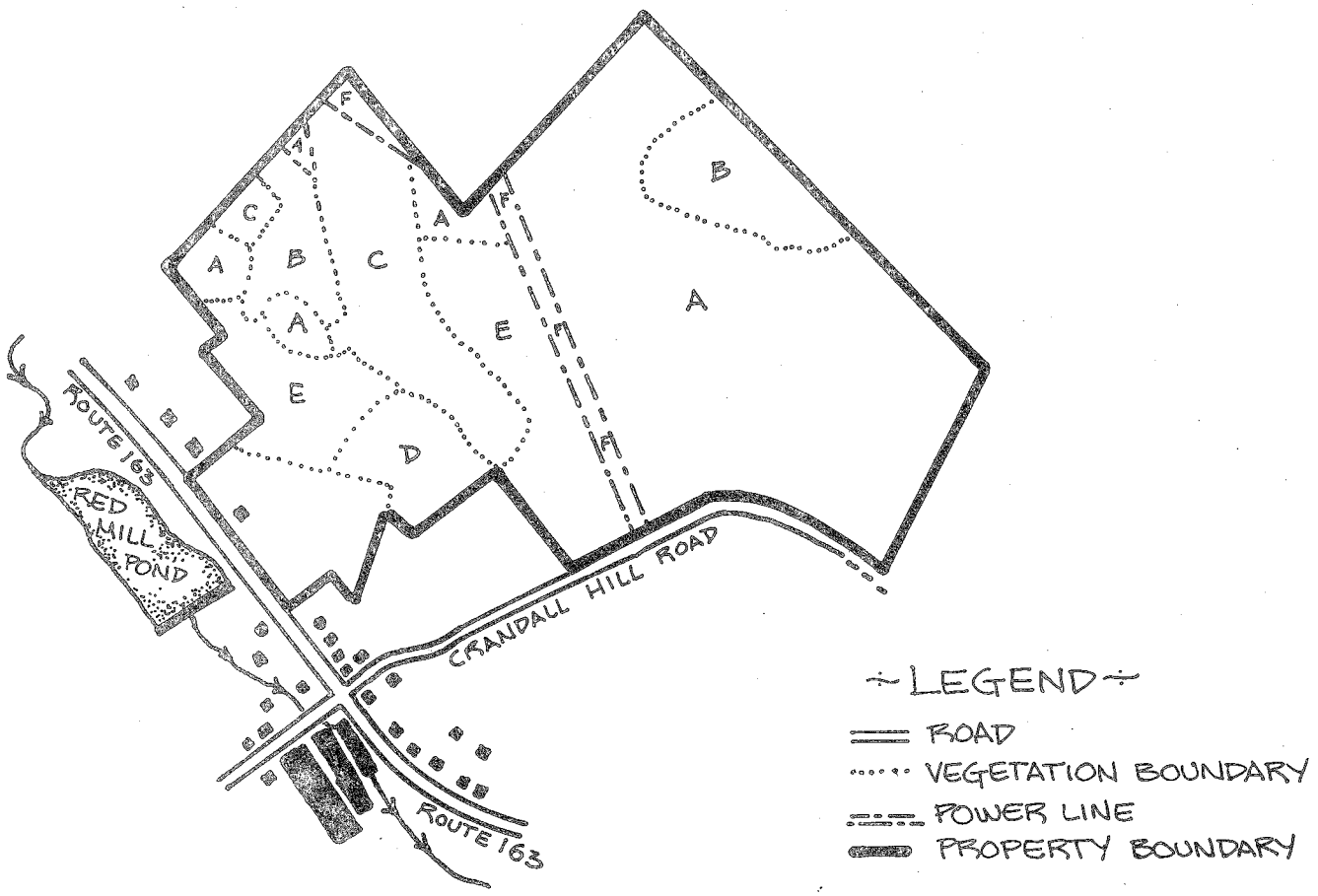
Type D - (Mixed hardwood) This is a medium quality pole stand (3 acres). Black birch, pignut hickory and black oak comprise the tree species. Spicebush and poison ivy are among the understory vegetation. The stand is adequately stocked with trees.

Type E - (Mixed hardwood) This stand (10 acres) contains medium quality poles and sawtimber. Pignut hickory, black birch, black oak, white oak and American beech comprise the tree species. Flowering dogwood, mountain laurel and maple leaf viburnum are among the lesser vegetation. The stand is adequately stocked with trees.

Type F - Open land/power line.

Vegetation

0 660
scale



VEGETATION TYPE DESCRIPTIONS

TYPE A Mixed Hardwoods, fully stocked, pole and sawtimber size, 35± acres.

TYPE B Mixed Hardwoods, understocked, sawtimber size, 9± acres

TYPE C Old Field, understocked, sapling size, 10± acres.

TYPE D Mixed Hardwoods, fully stocked, pole size, 3± acres

TYPE E Mixed Hardwoods, fully stocked, pole and sawtimber size, 10± acres.

TYPE F Power Lines/ Cleared Land, 4± acres.

Sapling Size: Trees 1.1" to 6" in diameter at breast height.
Pole Size: Trees 6.1" to 11" in diameter at breast height.
Sawtimber Size: Trees 11.1" or greater at breast height.

Aesthetic Considerations

Large, healthy trees are usually considered aesthetically pleasing. The retention of these trees could add a considerable amount of aesthetic and shade value to residential areas. Tulip, poplar, beech, red oak, sugar maple and black birch would be the better species to retain for these purposes. Most of the better tree specimens are located in vegetation Type B.

Construction activities should be planned and conducted to minimize disturbances around the trees that are to be saved. Road building, filling and excavation may affect the aeration and moisture of the soil. This could lead to the decline in tree health and vigor and eventually lead to the death of the tree, in 3 to 5 years. Physical damage to the root system and trunk of the tree by machinery may also result in the decline of the individual trees.

The removal of a large percent of the trees may have an adverse effect on the remaining trees. The sudden shock of being left in the open may be too much for a tree grown in the forest all its life. White oak, in particular, has a high mortality rate once it suddenly experiences total exposure. Oak will sprout unsightly epicormic branches along its trunk when the trunk is exposed to direct sunlight. Trees in the open are also more susceptible to damage from ice storms that may cause considerable crown breakage. Windthrow is also more prevalent in areas where a large percent of the trees have been removed.

Most of this woodland tract is particularly susceptible to infestation by gypsy moth because of its large component of oak and location on a dry ridge. Favoring trees that the gypsy moth does not like to feed upon would make the area less susceptible to defoliation. Black birch, sugar maple, pignut hickory and tulip poplar are some of these species that are not readily defoliated.

Flowering dogwood and mountain laurel are the major flowering shrubs. These species should be retained for their aesthetic value. Where these species are present, some of the overtopping trees should be removed to allow more sunlight to reach the understory. This will stimulate the flowering of these shrubs.

Limiting Conditions and Potential Hazards

A large percent of the larger trees in Type A are defective. Many tree crowns show signs of extensive damage that was probably caused by the 1938 hurricane. The crown breakage that these trees experienced during that time provided an entry point for decay. As a result, advanced decay is prevalent among the storm damaged trees. The most damage was experienced on the south slope and ridge. The north slope was the lee side of the storm and has fewer defective trees.

Fire scars are also evident throughout vegetation Type A. Some of the trees that have fire scars show signs of advanced decay. The trees that are defective due to damage from fire or the hurricane are more susceptible to top breakage, windsnap or windthrow. These trees should be removed before development since they represent a hazard to the future inhabitants of the development.

Management Considerations

The maintenance of healthy and vigorous trees should be a major concern in the development of this tract. Unhealthy trees are more susceptible to insect and disease problems. Trees that are not growing vigorously, due to crowded conditions, are under stress and will decline in health. Improvement thinnings will increase the health of the remaining trees by removing some of their competitors. The poorer trees that compete for growing space with the better trees should be removed.

The trees in Type A are not overcrowded but would benefit from an improvement thinning that removes the culls (defective trees) and some of the poorer, smaller trees should also be removed at the same time.

Although vegetation Types B, D and E are not experiencing excessive crowding, their overall condition would benefit by a fuelwood thinning, following the "crop tree selection method." Under this system, the best 100 trees per acre are retained as crop trees. The trees should be spaced approximately 20' apart. These trees should be healthy, larger trees. Only the 1 or 2 trees that are competing for growing space for an individual crop tree should be removed.

It would be beneficial to have a commercial fuelwood harvest a few years prior to development, if feasible. This will allow the residual trees time to become more wind firm and obtain larger tree crowns before the construction begins.

WATER SUPPLY

As the Town of Montville does not have a municipal water supply and no other municipal water facilities are available near this section of town, it would be necessary to develop an on-site community or central water system utilizing several wells as the source of water. Major concerns for a public well(s) are: A suitable location which will afford an adequate distance around the well site for protection and control purposes; also the yield or output of the well must be capable of supplying an adequate daily water for an estimated total number of persons who would be residing at the development. An average per capita allowance of 75 gallons per day is utilized which in turn would result in a substantial total water demand.

As the supply would be classified as a public water supply, approval for well locations is to be obtained from the Water Supplies Section of the State Department of Health Services. Water quality, yield data along with the plans for pumpage, storage and distribution would also be reviewed and approved by that section. The S.E. Connecticut Water Authority should also be contacted as they own and operate community water systems in the area having State empowered authority for such activities. In accordance with Section 13 of Special Act 67-382, as amended by Special Act 73-133, of the Connecticut General Assembly, the Water Authority may exercise jurisdiction when it is the intention of the applicant to develop a well water supply on the basis of studies which indicate a maximum requirement in excess of fifty gallons per minute, or when the tract to be subdivided contains

fifty acres or more and is intended to contain two or more dwelling units to be served by a single water supply.

The only aquifer on the site that appears to have practical water-supply potential is bedrock. Water is transmitted through the bedrock almost entirely by way of an interconnected series of fractures. The amount and quality of groundwater obtainable from a given bedrock well therefore depends to a large extent on the number and size of water-bearing fractures that the well intersects and on the specific rock formation through which the fractures pass. Most bedrock wells are capable of supplying small but sustainable yields of groundwater, but some wells must penetrate more than 200 feet of rock to achieve a suitable yield.

From rainfall and other water-resources statistics compiled by the U.S. Geological Survey, it is reasonable to estimate that approximately 7 inches of rainfall per year makes it through the soil and into the bedrock aquifer. This amount would be sufficient to meet the needs of about 7 persons per acres if all of it could be recaptured (an unlikely event). A development composed of 4 condominium units per acre probably would have a resident density of 8 to 16 persons per acre. Where the area to be developed is small, the lack of adequate recharge on the property itself may be offset by groundwater obtained from recharge in other areas (i.e. the recharge in other areas passes into fractures which are connected to fractures underlying the developed area). However, a large area developed at a high density may be unable to procure sufficient, substainable yields over the long term. Even if such yields are obtainable, the withdrawal of water may affect the ability of nearby landowners to procure sufficient groundwater on their own land.

On this site, there is little opportunity for a development to include the entire piece because of difficult slope and geological problems. From a water-supply standpoint, a "safe" density would probably be an average of no more than 2 units per acre, or a total of about 150 units. It would not be necessary to spread out the units evenly; a cluster design would be appropriate with a central public water-supply well field. This is not meant to suggest that 150 units is the "correct" figure for the parcel; it merely suggests that a greater number of units may pose difficult water-supply problems. It should also be noted in this respect that since the area would be sewered, the water used by residents would not be returned to the ground, further depleting the available recharge to the bedrock aquifer.

WASTE DISPOSAL

The property and site conditions, particularly the areas having steep slopes and shallow soil depth to underlying ledge rock would severely limit the possible use of on-site sewage disposal systems. However, as there is a municipal sewer line in the area of Route 163, connection to the public sewerage system should be feasible by gravity flow. Therefore, it would be expected the development would be served by that facility. Public sewers are a means of public health necessity when considering dense development under marginal and unsuitable conditions. This

matter would be reviewed and evaluated by Montville's Water Pollution Control Authority.

In addition to water supply and sewage disposal another major factor that would need careful study and review is means of proper access and roadway development through the site. Because of slope conditions, measures to prevent and control soil erosion and sedimentation would also be most essential.

PLANNING CONCERNS

The property is located on Crandall Hill, a very steep and prominent landmark in the Town of Montville. It has frontage on Route 163, about 1.75 miles west of Route 32. Service by the Town sewer system is available. As a point of departure, it is well to review the categories assigned to this land by the Regional Development Plan and the two Montville Town Plans, the adopted plan of 1964 and the draft plan of 1979. On the Regional Development Plan, the area is included in the category of "Low Density Uses," described as "scattered residential uses at greater than one acre per unit; agricultural, conservation, recreation and water supply uses." On the adopted Town Plan map of 1964, the property is included in the "Mountain Reserve" category. In the draft Town Plan of 1979, which has not yet been adopted by the Zoning and Planning Commission, the property is shown in the "Conservation" category, which is described in part as containing "...physically sensitive areas which have severe limitations for development..."

The principal reason for the planning designations described above is because of the steep slope of the site. In addition, the site seems to be too far from the town center along Route 32 to be ideally located for high density residential use. There is no bus transportation along Route 163 at the present time, and discussions with the planner for SEAT (Southeast Area Transit) indicate that no such service is contemplated in the foreseeable future. 1.75 miles seems a long distance for residents to walk to shopping and the institutions of Uncasville; therefore, they will have to use their automobiles for travel for this purpose. As discussed in greater detail below, this could cause an adverse effect on traffic along Route 163. In these times, when the future of energy supplies is uncertain, it does not seem wise to permit high intensity uses to be scattered throughout the town. In addition to energy problems, such a policy would cause problems with many types of services such as fire protection, school transportation, and water supply.

In the following discussions, the Team Planner has a "worst case" condition, that is, that the site is to be developed for the maximum allowable number of condominium units. Since the site contains about 75 acres, the theoretical maximum number of units permitted in the R-40 zone would 75 acres times 4.35 units per acre, or 326 units. If we assume a 20% allowance for roads, and other utilized portions of the property, then a practical maximum, disregarding development limitations, would be about 260 units.

The accompanying illustration shows a simple slope map derived from the USGS topographic map. The areas of the three categories shown on the figure were

measured with a planimeter. About 38 acres, or 51% of the property, have slopes of 20% or greater, and about 24 acres, or 32% of the property, have slopes between 20% and 10%. This leaves about 13 acres or 17% of the property with slopes less than 10%. While this situation does not mean that it is impossible to develop roads and housing on the property, it suggests that the number of units that it is feasible to construct will be substantially less than the 260 which might be assumed to be feasible under the regulations of the R-40 zoning district.

The steep slopes also make very difficult the problem of access to the site for roads. Two access routes seem possible, one directly into the property from Route 163, and the other utilizing Crandall Road. The property has about 500 feet of frontage on Route 163. It does not appear feasible to construct a road to Town standards from Route 163 to the interior of the property, since the maximum slope permitted is 8% and there does not appear to be sufficient space to bring the road in at a small angle to the contours in order to achieve that slope. However, it is important to note that a detailed design study has not been done. Such a study might show that such a road was feasible.

The other possible access is from Crandall Road. Currently, the property does not adjoin this road, and thus additional land would have to be purchased in order for this route to be used. Although this is a town road, it is narrow and contains section of quite steep slopes.

The property is transversed by two major utility easements, the power lines belonging to Northeast Utilities, and the pipeline of the Algonquin Gas Transmission Company. Without a site layout plan, it is difficult to evaluate their impact on development, but it does seem that they should be well screened with planting from any housing units.

TRAFFIC CONCERNS

Connecticut Department of Transportation data* indicate that an apartment or condominium complex will generate an ADT (Average Daily Traffic) of 6.8 trips per unit. If we assume a project of 260 units, that means we could expect the project to cause 1,768 trips daily. No matter which access scheme, as described previously, is to be utilized, this traffic would be added to that already existing on Route 163. The 1980 ADT on the segment of Route 163 between Route 52 and Chesterfield Road was 3,900 trips.** Thus, the condominium complex could be expected to increase traffic on that road by about 45%. If the condominium complex only consisted of 100 units, then its contribution to traffic would be 680 trips, or an increase of about 17% in the traffic on Route 163. At the present time, the section of Route 163 which borders on this property is a comparatively narrow two-lane highway. Inspection of the Connecticut Department of Transportation

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* Trip Generation Study of Various Land Uses by Israel Zevin, CONNDOT, 1974.

** Traffic Volumes on State Roads, 1980, CONNDOT.

Geometric Highway Design Standards suggests that this route is already operating at close to its designed capacity. Thus, the traffic from the proposed condominium complex would have a significant impact on its ability to continue to function.

Appendix

Soils

0 660'
scale

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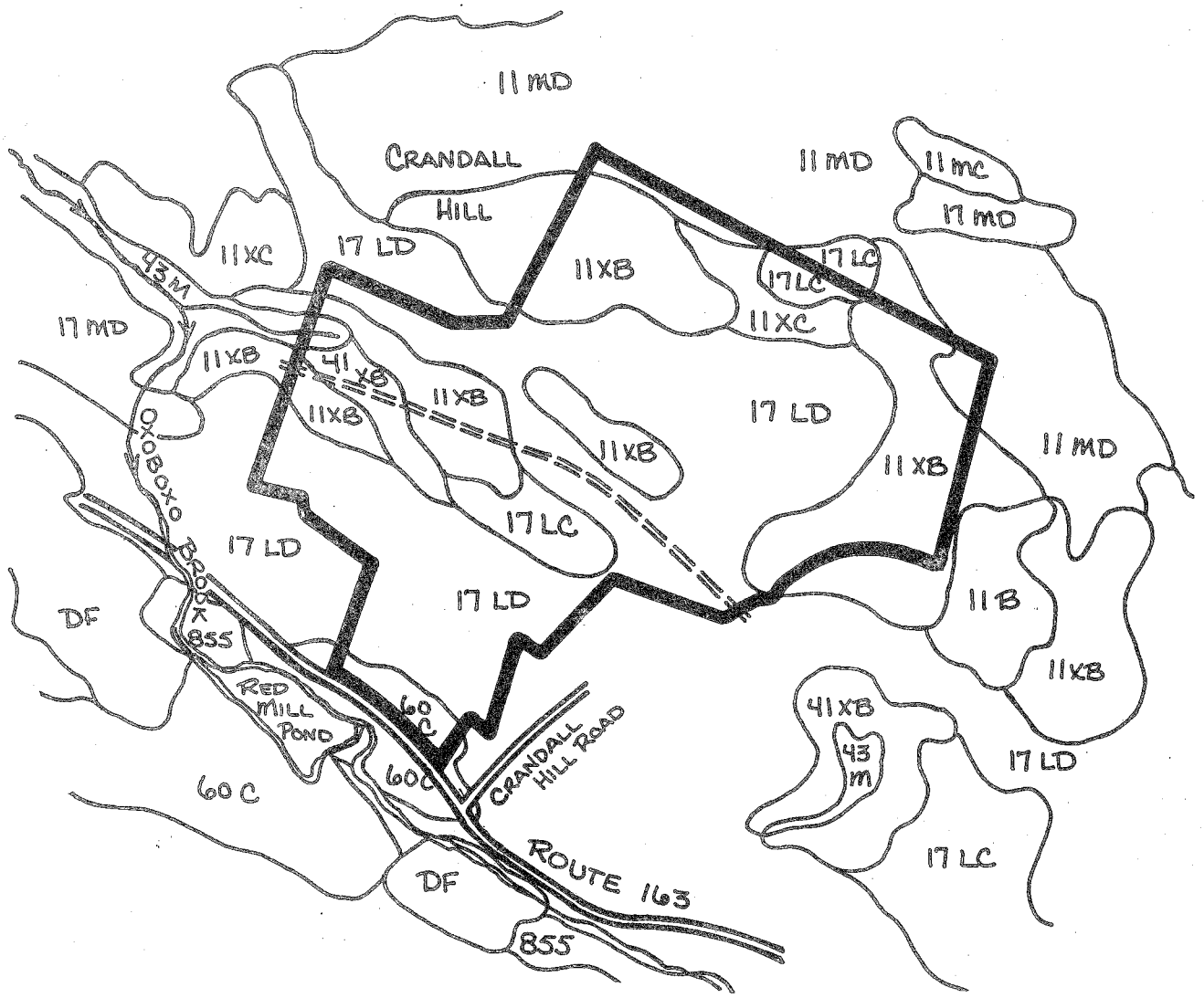

RAJEWSKI PROPERTY
MONTVILLE, CONNECTICUT

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	11XB	25	30%	Large stones	2	2	2	2
Canton-Charlton	11XC	3	4%	Slope, large stones	2	2	2	2
Canton-Charlton	11MD	4	5%	Large stones, slope	3	3	3	3
Charlton-Hollis	17LC	40	50%	Slope, depth to rock				
Charlton Part					2	2	2	2
Hollis Part					3	3	3	3
Charlton-Hollis	17LD	3	4%	Slope, depth to rock	3	3	3	3
Hinckley	60C	2	3%	Slope, droughty	2	2	2	2
Sutton	41XB	3	4%	Wetness	3	3	2	2
		80	100%					

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 consistant 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 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 activitis. 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 (774-1253), Environmental Review Team Coordinator, Eastern Connecticut RC&D Area, P.O. Box 198, Brooklyn, Connecticut 06234.