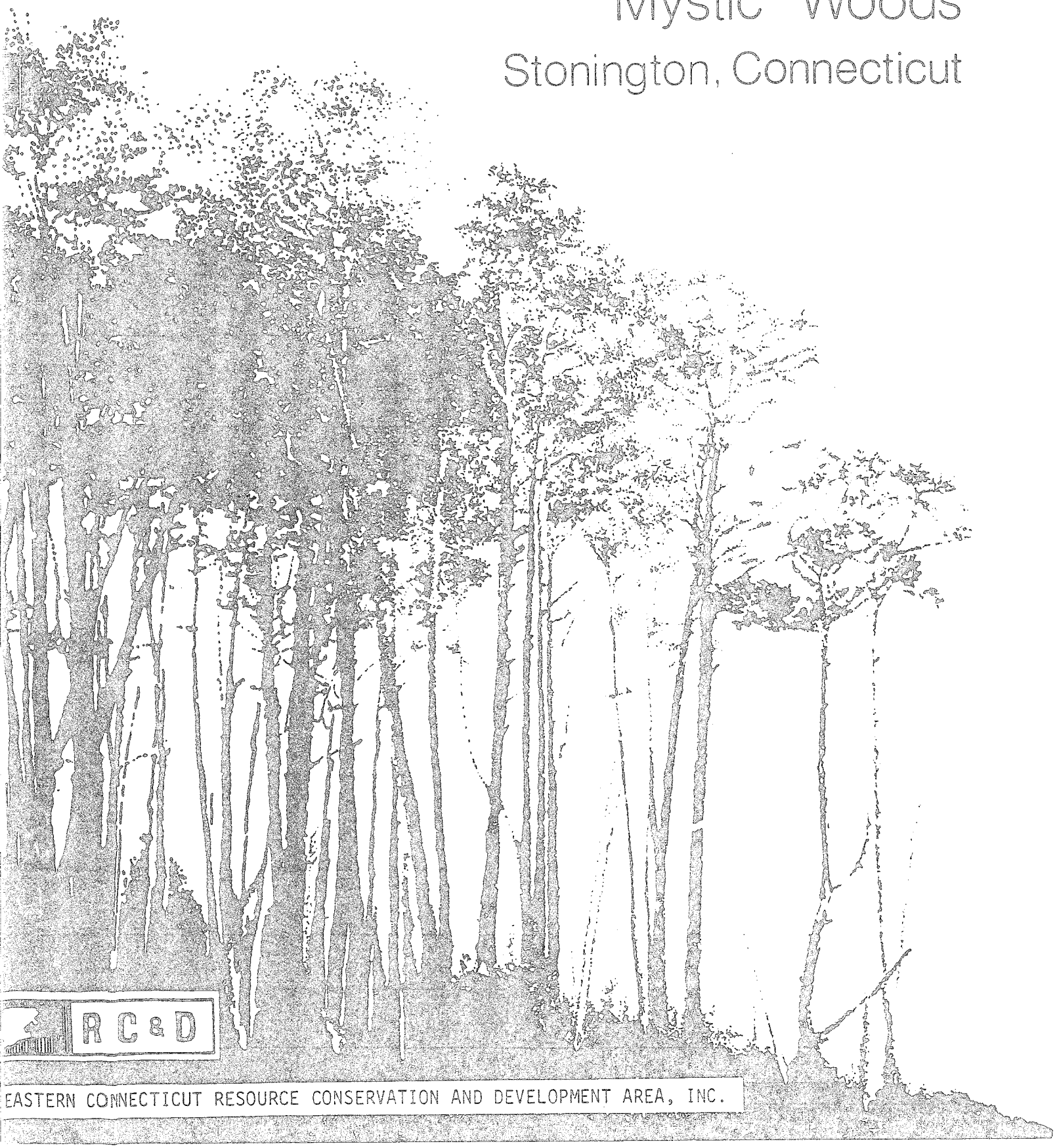
Environmental Review Team Report

Mystic Woods

Stonington, Connecticut



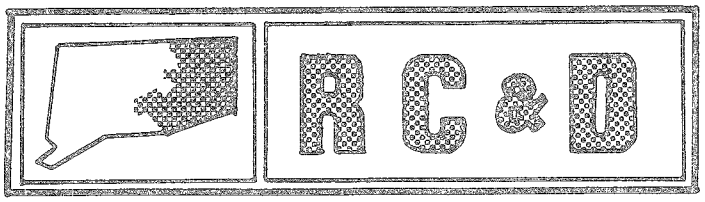
RC&D

EASTERN CONNECTICUT RESOURCE CONSERVATION AND DEVELOPMENT AREA, INC.

Environmental Review Team Report
on

Mystic Woods
Stonington, Connecticut

June 1981

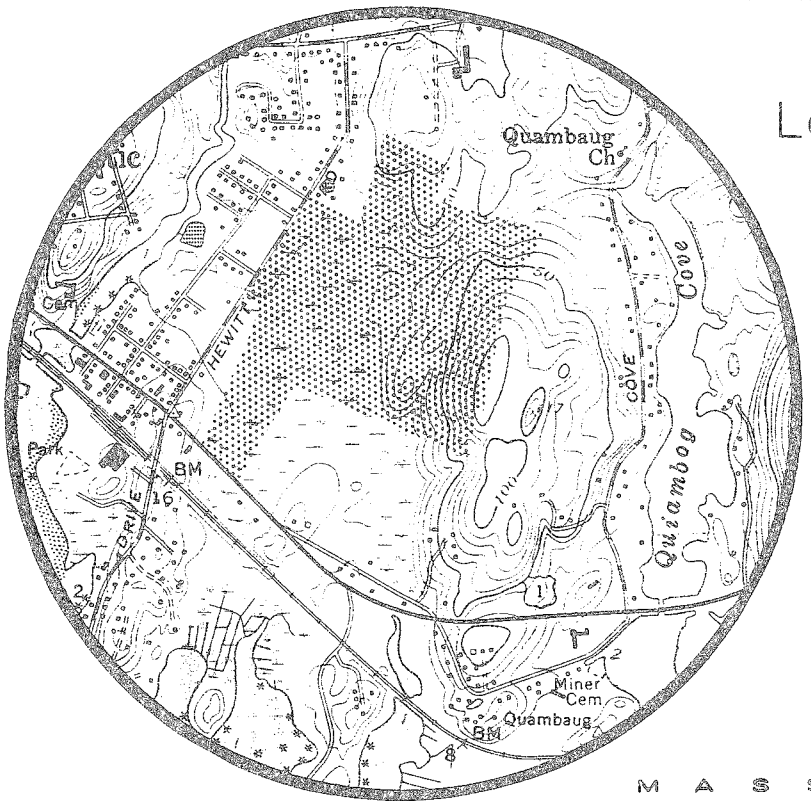


eastern connecticut resource conservation & development area

environmental review team
139 boswell avenue
norwich, connecticut 06360

Location of Study Site

MYSTIC WOODS
STONINGTON, CONNECTICUT



ENVIRONMENTAL REVIEW TEAM REPORT
ON
MYSTIC WOODS CONDOMINIUM DEVELOPMENT
STONINGTON, CONNECTICUT

This report is an outgrowth of a request from the Stonington 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); Rob Rocks, Forester, (DEP); Ron Rosza, Ecologist, Coastal Area Management (DEP); Tom Seidel, Regional Planner, Southeastern Connecticut Regional Planning Agency; Lisa LaSorsa, Wildlife Ecologist, Connecticut College; and Jeanne Shelburn, ERT Coordinator, Eastern Connecticut RC&D Area.

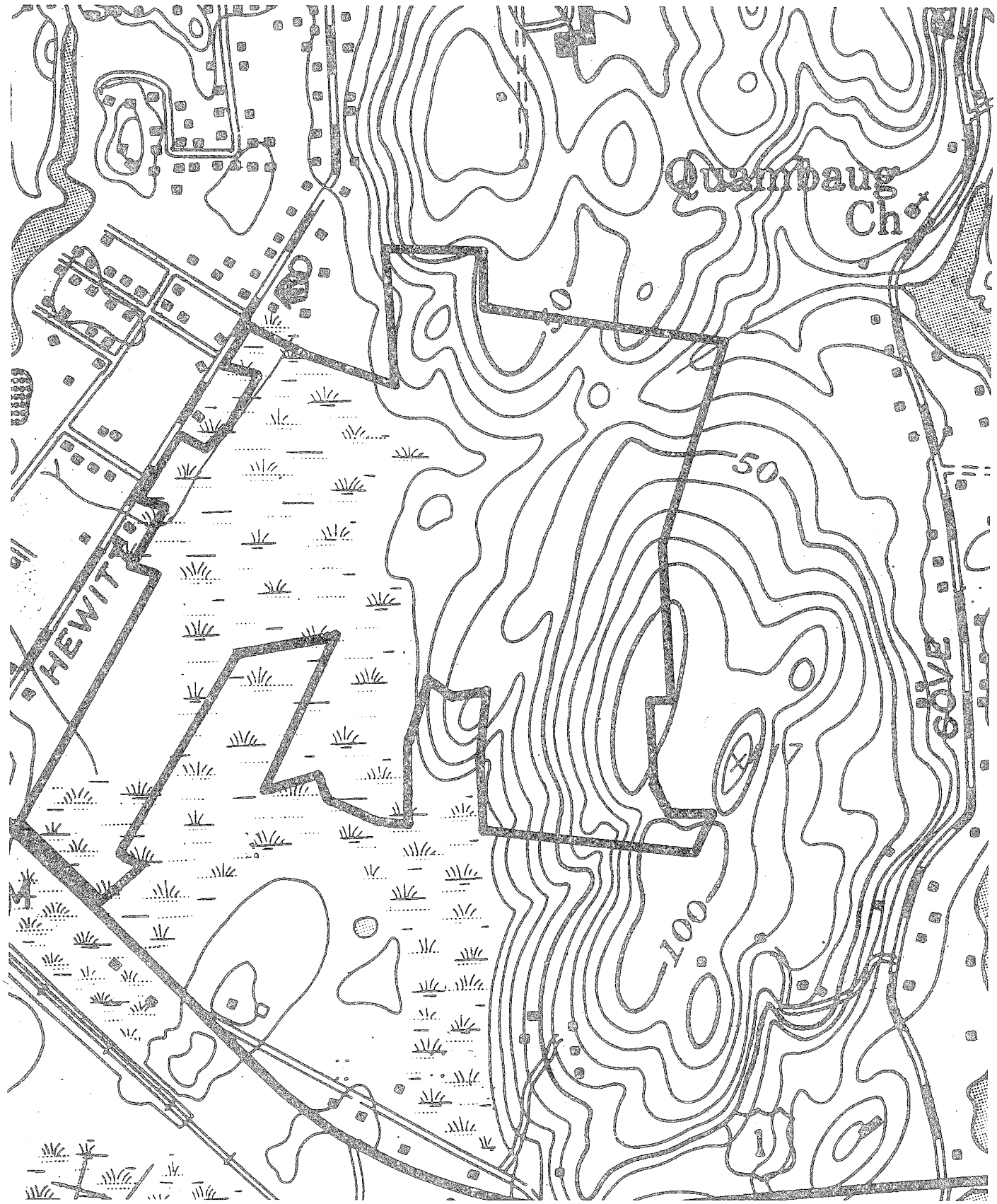
The Team met and field checked the site on Thursday, February 26, 1981. Reports from each Team member were sent to the ERT Coordinator for review and summarization for the final report.

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 Stonington. 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, 139 Boswell Avenue, Norwich, Connecticut 06360, 889-2324.

Topography



INTRODUCTION

The Eastern Connecticut Environmental Review Team was asked to prepare an environmental assessment for the proposed Mystic Woods Condominium development in the Town of Stonington. The site is approximately 135 acres in size and is located north of U.S. Route 1 and east of Hewitt Road. The property is presently in the private ownership of the Kent Development Corporation of Simsbury, Connecticut. Preliminary site development plans have been prepared by Lindsay Shives, AIA and Ruth, Shives and Williams, Inc., of Boston, Massachusetts. A Traffic and Access Evaluation has been prepared by Wilbur Smith and Associates.

Kent Development Corporation plans to construct 250 to 300 of the 459 condominium units, allowable by zoning, on the site. Construction will be phased at 60 to 75 units per year. All units will be served by public sewer and water. The property falls into three different zones RM-20 (residential moderate density), RC-120 (coastal lands), and GC-60 (general commercial). Zoning accommodates cluster development in these areas to allow a development to be designed around difficult environmental conditions. The developer has prepared detailed computations for arriving at the total allowable units for this site under existing zoning regulations. These are included in the Appendix to this report.

The site can be divided into two major areas, the steeply sloping upland to the east and the flat wetland area to the west. The western section of the site is dominated by open field grass and forb species. The eastern upland is completely forested at present. Soils on the site range from the Charlton-Hollis, Hollis-rock outcrop series to the Ridgebury, Leicester, and Whitman series, a regulated wetland under Public Act 155. A portion of the property lies within the Coastal Zone.

The Team is concerned with the impact of the proposed development on the natural resource base of this site. In this case, the "Mystic Woods" property has many limiting factors presented by the natural elements of the site itself. Although even severe limitations to development can be overcome with proper engineering techniques, these measures can become costly, making a project financially unfeasible for a developer. Hydrology and soil conditions are the Team's major concerns on this site. Other valid considerations include the loss of wildlife habitat, potential destruction of a rare plant habitat, and the increase in traffic which will accompany development on this site. These issues are discussed in detail in the following sections of this report.

Surficial Geology

(adapted in part from U.S.G.S. Map GQ-940).

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scale

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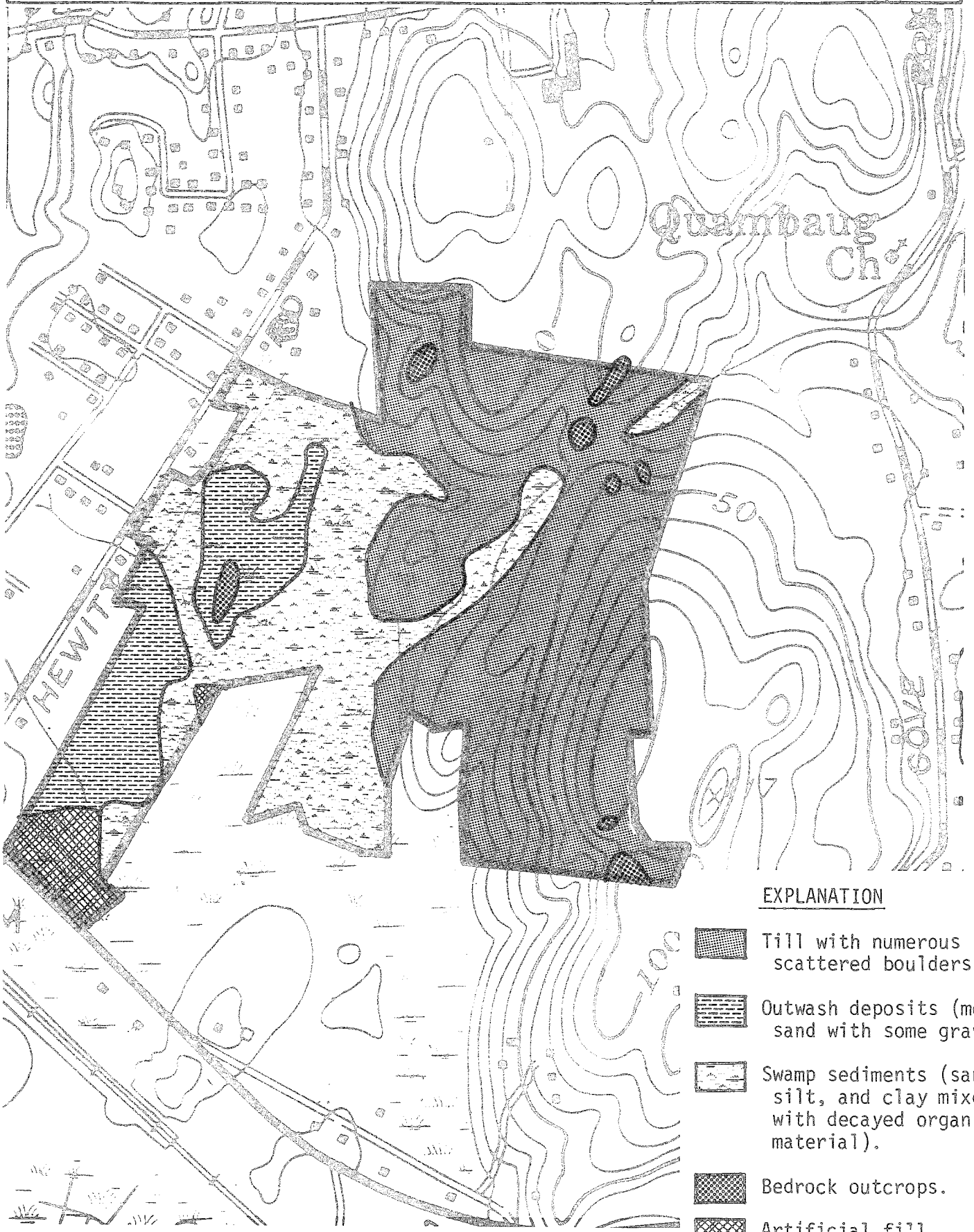


EXPLANATION

- Till with numerous scattered boulders.
- Outwash deposits (mostly sand with some gravel).
- Swamp sediments (sand, silt, and clay mixed with decayed organic material).
- Bedrock outcrops.
- Artificial fill.

ENVIRONMENTAL ASSESSMENT

GEOLOGY

Mystic Woods is located in a part of Stonington that is encompassed by the Mystic topographic quadrangle. A surficial geologic map of the quadrangle, prepared by Joseph E. Upson, has been published by the U.S. Geological Survey (Map GQ-940). Preliminary bedrock information for the quadrangle is on file at the DEP's Natural Resources Center in Hartford.

In terms of surficial geology, which comprises all the materials overlying solid bedrock, the site may be divided into two main sections. The western section is flat and consists of glacial outwash deposits overlain in most places by swamp sediments. Outwash is sediment that was deposited by streams flowing from wasting masses of glacier ice. Most outwash is composed of stratified sand, but gravelly or silty layers may be locally abundant. The swamp sediments consist of partly decomposed organic material mixed or interbedded with silt and sand. The depth to bedrock in the western section is not known and is probably variable. One large outcrop was observed in that section. Little or no development is planned for the western section.

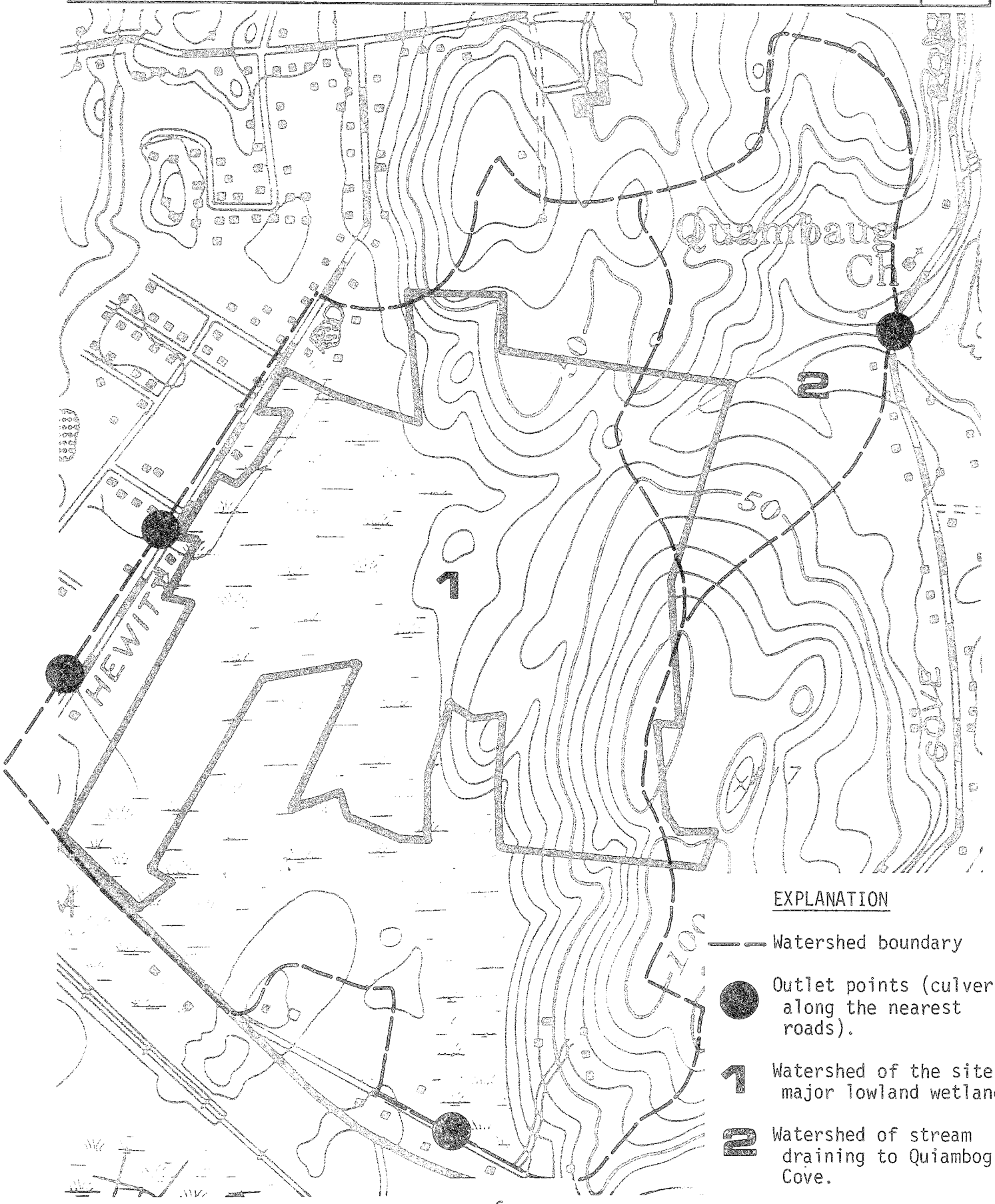
The eastern section of the site is hilly and is generally composed of till. Till is a glacial sediment that was deposited directly from the ice. Generally unsorted and nonstratified, till contains a variable mixture of clay, silt, sand, gravel, and boulders. Till textures range from sandy, stony, and loose to silty, less stony, and tightly compact. The till on the site is probably sandy in the upper few feet, and silty and compact at depth. Large rock outcrops occur near the southeastern corner of the site, indicating a shallow depth to bedrock. Elsewhere in the eastern section, numerous large boulders are scattered about the surface. A few smaller bedrock outcrops not observed by the Team were mapped by Upson in the northeastern corner of the property. All of the foregoing suggests that the till is thickest in the east-central portion of the site, and that variably shallow or deep till may be expected in the northeastern and southeastern areas.

The bedrock itself is composed primarily of granitic gneisses. Gneisses are metamorphic rocks (rocks which have been altered by high pressures and temperatures) in which thin bands of platy, flaky, or elongate minerals alternate with layers of more rounded minerals. The rocks therefore have a streaky or banded appearance. The major mineral components of the gneisses on the site are quartz, oligoclase, microcline, and biotite. Minor mineral components include hornblende, muscovite, garnet, magnetite, and andesine.

HYDROLOGY

The surface drainage patterns in the lower elevations of the parcel were difficult to determine during the field review and a subsequent on-site inspection. Dense growths of shrubbery made it virtually impossible to get to certain sections of the site, and stagnant water conditions hindered the determination of flow

Watershed Areas



directions. Three drainage outlets from the lowland area are evident: two are located along Hewitt Road and one is located along Route 1. Certain portions of the lowland normally drain to each outlet, but the various subareas are physically connected by natural or artificial channels. A series of straight, parallel ditches has been placed in the wetland in the south-central section of the parcel. As a result of the flat topography and the extensive, interconnected channel system, surface water in some channels may flow in different directions under different conditions, and the normal direction of flow in many places may have been altered. For the foregoing reasons, it was not possible for the Team to estimate present or future peak flows at the three outlets.

If the lowland wetlands are considered as a single entity, their watershed comprises approximately 250 acres. All but about 8 acres of the Mystic Woods property is included in the watershed. Only the eastern half of the site, consisting of approximately 50 acres, would be developed under the present plan, but the development would be intensive in that area. According to the developer's estimates, up to 35 percent of the developed area could be covered by impervious surfaces (roofs, pavement, etc.). The combination of impervious surfaces, soil disturbance and compaction, and loss of vegetation will cause runoff from the site to increase.

The SCS runoff curve-number method allows one to estimate the increases in runoff that may result from development of this site. Using precipitation data gathered from numerous gaging stations in and near Connecticut, the following table can be made for five different storm frequencies. All rainfall data are given in inches.

	2-year Storm	10-year Storm	25-year Storm	50-year Storm	100-year Storm
Estimated 24-hour rainfall	3.3"	5.5"	7.0"	8.0"	10.0"
Pre-development runoff depths (developed area only)	0.90"	2.42"	3.62"	4.47"	6.23"
Post-development runoff depths (developed area only)	1.85"	3.84"	5.26"	6.22"	8.16"
Post-development runoff increase	106%	59%	45%	39%	31%

The table shows that substantial runoff increases may be expected from the area of intensive development. Since that area comprises about 20 percent of the lowland wetland's watershed, the peak flows in the outlet streams may be expected to experience significant increases on the whole. However, as suggested above, it is difficult to determine how the overall increases would be apportioned among the three streams.

Whether or not the runoff and peak-flow increases would create any flooding problems in the area depends upon the interplay of several factors, including sea level fluctuations and culvert sizes. Major coastal flooding would have a more widespread effect than stream flooding on land in the vicinity of the site. Runoff increases from Mystic Woods would not noticeably aggravate conditions during a coastal flood. However, if the outlet streams themselves can cause local flooding problems (i.e., in the absence of a coastal flood), then runoff increases from Mystic Woods could have detrimental effects. It would therefore be advisable to obtain a more complete study of the local surface hydrology, including an analysis of the culverts along the outlet streams from the site. Topics of discussion for the study are suggested below.

Concern was expressed by town officials at the Team's pre-review meeting about the adequacy of the culverts along Hewitt Road and Hatch Street. A cursory inspection of the Hatch Street culvert for the southernmost westward-draining outlet stream indicated that the culvert was inadequate to pass large flows and that it was smaller than the Hewitt Road culvert for the same stream. It, therefore, is likely that water occasionally backs up behind (east of) the Hatch Street culvert. What is less clear is whether such back-ups could cause flooding between the two roads, or whether water levels could rise enough to overtop either road. The answer to this rests partly on the interrelationships of not only the Hatch Street and Hewitt Road culverts, but also the two culverts located approximately 375 and 750 feet east of Hewitt Road on the same outlet stream. It is, therefore, suggested that the detailed hydrologic study, if undertaken, include estimates of pre-development and post-development flows in the stream for major storm events (e.g. the 25-year and 50-year frequency rainfall events); a delineation of the subwatershed of the stream and discussion of whether the watershed boundaries may change as water levels rise in the wetlands; and an analysis of culvert capacities, sites of backwater storage, and flooding potential in the vicinity of the site. Similar considerations should be addressed for the northernmost westward-draining outlet from the site. The latter stream passed through a very small culvert under Hewitt Road approximately 200 feet southwest of the intersection of Gieser Street.

Although the Team recommends that the outlet stream flowing south from the site be given consideration in any hydrologic study (indeed, because of the site's extensive ditching and cross-channeling, it may be impossible to evaluate the other outlet streams without considering this one), there seems to be less of a probability of stream-flood hazards along this outlet. Large culverts have been provided along both the old and the new sections of Route 1 and any backups would probably be dispersed in the wetland with no ill effects. It should also be recognized, however, that the major portion of the area to be intensively developed appears to drain through this outlet.

It must be noted that approximately eight acres of the site, in the northeastern corner, drains eastward to Quiambog Cove through a culvert at Cove Road. The watershed at the culvert comprises about 63 acres. This hydrologic subarea is not physically connected to the previously discussed lowland areas. Since the watershed is small and since only a few acres of it would be intensively developed, runoff probably is not and will not be a problem. Nevertheless, some analysis of peak flows for this section of the site would be useful.

As part of the preliminary design, the developer has indicated that a series of artificial ponds would be constructed in the northeastern section of the site. One pond would be in the northeastern corner, serving the eight-acre area discussed immediately above; the other ponds would form a sort of chain leading into the lowland-wetland area. The ponds would be intended to serve an aesthetic, and possibly a runoff-storage function. They would be excavated in areas that are now wooded wetlands. The drainage area of the ponds would be very small and it may be anticipated that the ponds would become stagnant during dry seasons as the connecting stream segments dried up. If the ponds are intended to serve a flow-reduction or runoff-retention purpose, the developers should indicate where the storage would occur and whether such storage would affect nearby residences. A particular concern would be the pond immediately north of the access road: the presently planned condominium layout shows units as close as 25 feet to that pond. Even if no runoff-control purposes are intended for the ponds, the developers should assure that problematic backups would not occur as a result of culvert sizing. It should also be pointed out that excavation of ponds in the proposed areas may be hindered by the proximity of bedrock to the surface.

Runoff retention measures might be more easily established in the wetland-lowland area or in the immediately adjoining portions of the uplands. A run-off-storage pond might be designed in the area south of the proposed tennis courts. Alternatively, the access road itself could be designed to regulate flows to the west by proper placement and sizing of culverts. There may be problems with the latter alternative, though. Rises in wetland water levels due to temporary storage of runoff may affect abutting landowners' properties. In addition, the "diking" effect of the road may result in relatively long-term or even permanent changes in water levels in some areas. This, in turn, could cause the death of some wetland vegetation, again possibly on a neighbor's land. Moreover, the "dike" could force more water to pass through the south-flowing outlet stream than otherwise would be the case. As mentioned above, however, the southern outlet appears to be an unlikely source of problems.

The access road's passage through the wetland area should be re-evaluated carefully. Road crossings of wetlands are generally less problematic than the one proposed here. What distinguishes this site is the complexity of the wetland system and the relatively long swath of wetland that is planned for filling. It may be stated in the developers' favor that the wetland areas that would be filled have already been drastically altered by man (clearing, ditching, etc.) and may therefore not experience a serious ecological change. It is also noteworthy that much of the more natural wetland area would be left as open space. On the other hand, to the extent that alternative means of access are available, the planned road represents a substantial disruption of wetland areas, with potentially dramatic hydrologic changes as discussed above. The Team is aware that traffic problems could arise if the main access were off Hewitt Road, but perhaps a lower density of development could suitably reduce those problems. It should also be noted that the planned access onto Route 1 is within the coastal flood-hazard zone, as is much of the lowland portion of the site. However, any alternate access onto Hewitt Road would also be within the coastal flooding zone.

In summing up the foregoing hydrologic discussion, the most important comment to be made is that detailed surface-flow information is badly needed. The major wetland area is unusually complex and the proposed upland development could cause substantial changes. The access road is environmentally undesirable, but it may be a reasonable trade-off to preserve the other, more natural wetland areas and it may have runoff-control potential. On the other hand, the road may hydrologically impact abutting parcels of land, possibly leading to legal skirmishes, and it would be periodically "knocked out" by coastal flooding along Route 1. The ponds proposed for the upland area may be difficult to construct due to shallow-to-bedrock soils. They also will probably stagnate during dry seasons, and they may or may not have a beneficial runoff-retention capacity during wet seasons. The pond proposed for the eight-acre drainage area in the northeastern corner of the site seems to have a better runoff-control potential.

A final water-related concern raised by town residents is the possibility that blasting on the site may have an impact on local wells, specifically those along Cove Road. There certainly appears to be a chance that blasting will be necessary, whether for construction of buildings or for the creation of trenches for the public water and sewer lines. However, it does not appear that extensive blasting would be required. It is extremely difficult to evaluate the risks from blasting in any area, but in general it seems unlikely that wells on Cove Road would be damaged by blasting on the Mystic Woods site. Many of the Cove Road residences may be served by shallow wells tapping sand and gravel deposits along Quiambog Cove. The productivity of these wells would depend upon local water-table levels, which should not be affected by the blasting. Deep bedrock wells on Cove Road probably aren't numerous because of the potential salt-water intrusion from the Cove. Bedrock-tapping wells would be more likely to experience changes in yield from blasting, but the probability that the yield would increase seems at least as good as the possibility of a decrease.

SOILS

A detailed soils map of this site and detailed soils descriptions are included in the Appendix to this report, accompanied by a chart which indicates soil limitations for various urban uses. As the soil map is an enlargement from the original 1,320'/inch scale to 660'/inch, the soil boundary lines should not be viewed as absolute boundaries, but as guidelines to the distribution of soil types 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 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, 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.

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 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 gently sloping to sloping land forms adjacent to the highest 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 gently sloping to sloping landforms that are bedrock controlled are occupied by Hollis-Charlton-Rock outcrop complex. The soils are designated by mapping unit symbol 17MC. The letter "M" denotes rock outcrop and the letter "C" denotes a 3 to 15 percent slope. Hollis soils formed in glacial till less than 20 inches thick over bedrock, Charlton soils formed in deep loamy glacial till, and Rock outcrop is exposed, weathered or unweathered rock. The Hollis soils have moderate permeability and the Charlton soils have moderate to moderately rapid permeability. Hollis soils have medium to very rapid surface runoff and Charlton soils have medium to rapid surface runoff.

The gently sloping landforms on the uplands are occupied by Canton and Charlton very stony fine sandy loams. The soil mapping unit is 11XB. The letter "X" denotes very stony surface conditions and the letter "B" denotes a 3 to 8 percent slope. Both soils are well drained. Canton soils formed in soils that have a fine sandy loam mantle underlain by friable gravelly sand glacial till. The Charlton soils formed in friable glacial till. Canton soils have moderately rapid or rapid permeability and Charlton soils have moderate to moderately rapid permeability. Surface runoff is medium for Canton soils and medium to rapid for Charlton soils.

The gently sloping to sloping landforms on the uplands are occupied by Canton and Charlton extremely stony fine sandy loams. The soil mapping unit is 11MC. The letter "M" denotes very stony surface conditions and the letter "C" denotes a slope range of 3 to 15 percent. Both soils are well drained. Canton soils formed in soils that have a fine sandy loam mantle underlain by friable gravelly sand and glacial till. The Charlton soils formed in friable, glacial till. Canton soils have moderately rapid or rapid permeability and Charlton soils have moderate to moderately rapid permeability. Surface runoff is medium for Canton soils and medium to rapid for Charlton soils.

Land areas that have been disturbed, to an extent that the natural layers are no longer recognizable are mapped as Udorthents. These soils are designated with the mapping unit symbol ML2. Interpretations and limitations are too variable to rate because natural soil horizons have been altered.

The nearly level to gently sloping landforms on the uplands are occupied by Sutton extremely stony fine sandy loam. The soil mapping unit is 41MB. The letter "M" denotes extremely stony and the letter "B" denotes a slope range of 0 to 8 percent. Sutton soils are moderately well drained. Sutton soils formed in friable glacial till. These soils have moderate or moderately rapid permeability and a seasonal highwater table at 18 to 24 inches. Surface runoff is slow to medium.

The nearly level to gently sloping terraces or outwash plains are occupied by Ninigret fine sandy loam. The soils are designated by the soil mapping symbol 25A. Ninigret soils formed in water sorted outwash. The soils are moderately well drained and have moderately rapid permeability. The seasonal highwater table is 18 to 24 inches. Surface runoff is slow to moderate.

The nearly level depressional areas within outwash plains, glacial moraines and glacial till plains are occupied by Adrian and Palms mucks. The soil mapping unit symbol is 91. Adrian muck and Palms muck are very poorly drained. Adrian muck formed in mucky organic deposits, 16 to 51 inches thick, over sandy mineral deposits. Palms muck also formed in mucky organic deposits, 16 to 51 inches thick over loamy mineral deposits. Adrian soils have rapid permeability and a high water table at or near the surface 9 to 10 months of the year. Palms soils have moderately slow permeability and a highwater table at or near the surface 9 to 10 months of the year. Surface runoff is very slow to ponded for both of these soils. These soils are designated as wetland soils and are regulated under Public Act 155.

The low lying, nearly level areas along drainageways in the uplands are occupied by Ridgebury, Leicester and Whitman extremely stony fine sandy loams. The soils are designated by the mapping unit symbol 43M. The letter "M" denotes extremely stony. The Ridgebury and Whitman soils formed in compact glacial till; the Leicester soils formed in friable glacial till. The Ridgebury and Leicester soils have moderate to moderately rapid permeability in the surface layer and subsoil and slow or very slow permeability in the substratum (fragipan). The Leicester soils have moderately rapid permeability throughout. The seasonal high-water table for Ridgebury and Leicester soils is at or near the surface 7 to 9 months of the year. The Whitman soils have high runoff potential. Runoff is slow to medium in Ridgebury soils and slow in Leicester soils. This soil is designated as a wetland soil and is regulated under Public Act 155.

The low lying nearly level areas on stream terraces and outwash plains are occupied by Raypol silt loam. The mapping unit symbol is 464. Raypol soils are poorly drained and formed in silty deposits less than 40 inches thick over sand and gravel. These soils have moderate permeability in the surface layer and sub-soil, and rapid or very rapid permeability in the substratum. The highwater table is at or near the surface 7 to 9 months of the year. Runoff is slow. This soil is designated as a wetland soil and is regulated under Public Act 155.

Level or nearly level depressions on glacial outwash plains and terraces are occupied by Scarboro mucky loamy sand. The mapping unit symbol is 75. Scarboro soils are very poorly drained and formed in sandy glacial outwash deposits. These soils have rapid or very rapid permeability. The highwater table is at or near the surface 9 to 10 months out of the year. Runoff is slow. This soil is designated as a wetland soil and is regulated under Public Act 155.

The section of the proposed development zoned as RM-20 has soils within its boundaries that have limitations due to slope, large stones, and depth to bedrock and seasonal wetness. The Hollis portion of the Charlton-Hollis soils (17L, 17LD) has severe limitations to building site development because of slope and depth to rock, which is within 20 inches. The Charlton portion of these soils has moderate limitations due to slope and large stones. Charlton soils in the mapping unit 17LD have severe limitations due to slope. The soils mapped as 17LC and 17LD comprise approximately 25 acres of the RM-20 zone.

Wetland soils that are regulated under PA 155 are mapped as 91 and 43M. These soils are severely rated for most uses because of wetness. These areas are suitable for storage of storm water and can be developed into open bodies of water as design and local regulations allow. Clearing vegetation from these areas and improving flow by channeling will increase the water release rate of these areas. Engineering design will have to accommodate these flows. The approximate acreage of these soils in zone RM-20 is 6 acres.

There are approximately 3 acres of moderately well drained soils (41MB) that have a seasonal highwater table. These soils have severe limitations to most building site developments because of seasonal wetness and large stones. These soils are also moderately rated because of frost action. The remaining soils, 11XB and 11MC have moderate and severe limitations due to unstable soils in shallow excavations, large stones and slope. These soils occupy approximately 25 acres of the RM-20 zone.

Zone RC-120 has a large percentage of soils that are wetland soils regulated under PA 155. These soils are mapped as 75, and 464, which account for approximately 26 acres of the RC-120 zone. An area of moderately well drained soils, mapped as 41MB, occupy approximately 15 acres of this site. These soils have severe limitations to most building site development because of seasonal wetness and large stones. They are also moderately rated because of frost action. An area of several acres mapped as 17MC is severely rated for most building site development because of depth to bedrock and slope.

The soils mapped as 25A in this zone have moderate to severe limitations due to seasonal wetness, soil instability in shallow excavations, wetness and frost action. These soils account for approximately 10 acres of the RC-120 zone. As previously mentioned, the soils mapped as 11MC have severe limitations soil instability in shallow excavations, large stones and slope. These soils account for approximately 14 acres of this zone. The soils mapped as 17LC have the same limitations as those mentioned for the RM-20 zone. Other soils found within this zone are ML2 soils, that are too variable to rate.

The GC-60 zone has approximately 4 acres of wetland soils (464) and approximately 3 acres of made land (ML2) soils. The wetland soils are regulated under PA 155 and the made land soils are too variable to rate.

The limitations mentioned for the three zones range from moderate to severe, and only indicate where difficulty is anticipated when using these soils for building site development. The limitations of the wetland soils are difficult to overcome. Limitations due to shallow to bedrock conditions are easily overcome when such areas are avoided. Using these areas may require the use of fill over rock or removal of the rock by blasting. The large surface boulders are a limitation because removing them will require the need for large earth moving machinery which increases land preparation expenses. Slope limitations can be overcome by siting roads and clusters of homes along the contours as much as possible. If contouring is not possible, then cut and fill types of operations will be necessary, again increasing time and expense of land preparation. Soils that are seasonally wet can be drained by open drainage or subsurface drainage. Generally, these areas should not be filled because they occupy natural drainage ways in the landscape.

VEGETATION

The 135± acre "Mystic Woods" tract proposed for development, may be divided into five major vegetation types. These include mixed hardwoods, 88± acres; hardwood swamp, 28± acres; open swamp, 8± acres; open field/disturbed area, 6± acres; and open meadow, 5± acres. (See Vegetation type map and Vegetation type descriptions.) It should be noted that the boundaries and acreages of these vegetation types are only approximate. This is due to the wide transition zones which are present between the mixed hardwood stands and the hardwood swamp areas, and also between the hardwood swamp areas and the open swamp areas. Where vegetation types gradually grade into one another, it is not uncommon to find trees which are the dominant component of one type present in another type.

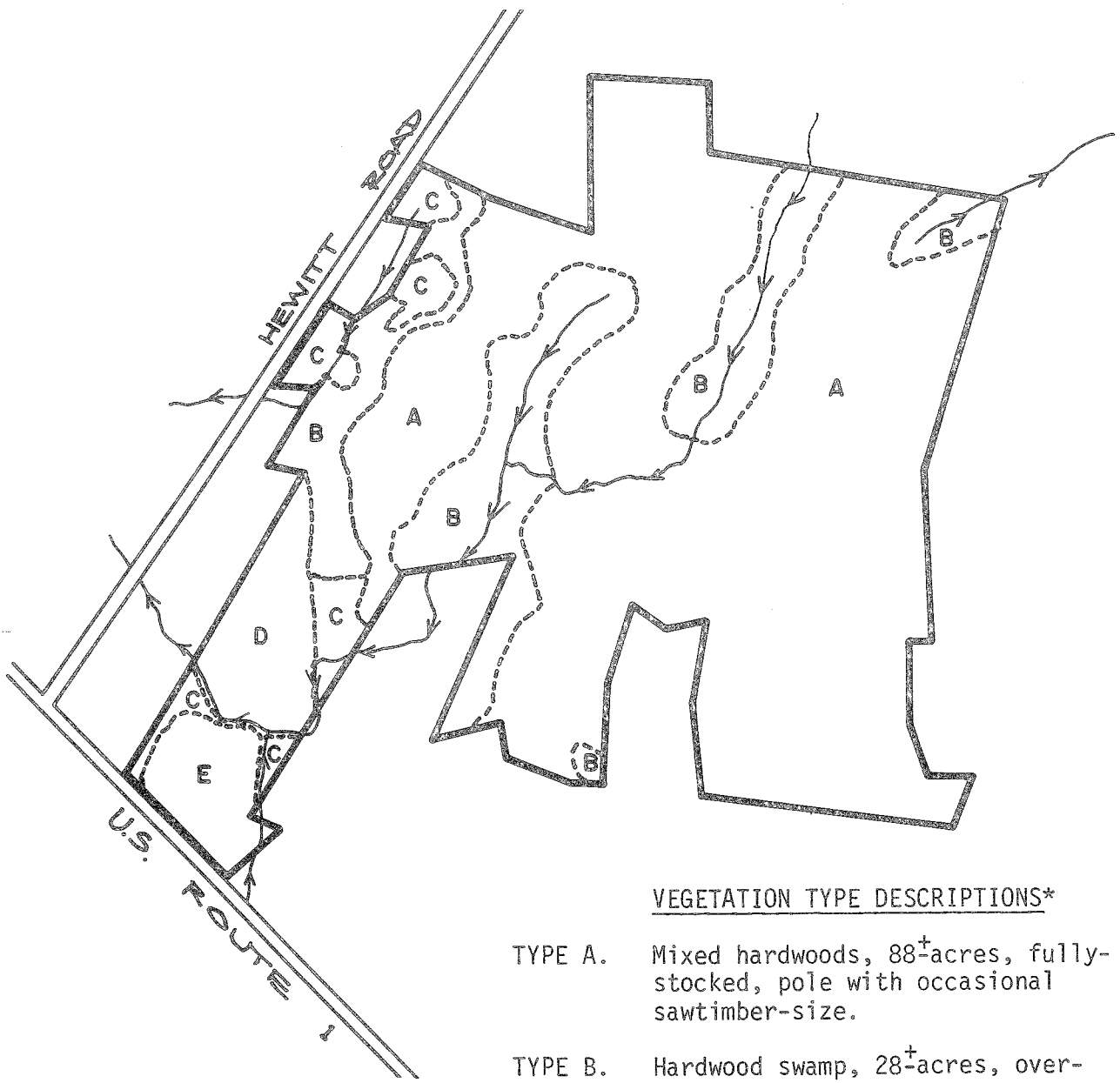
Vegetation Type Descriptions

Type A. (Mixed Hardwoods) This 88± acre fully-stocked stand is made up of medium quality pole and occasional sawtimber-size white oak, black oak, scarlet oak, black birch, red maple, American beech, pignut hickory and scattered black cherry and sassafras. The trees in this stand are beginning to decline in health and vigor. The total volume present in this stand ranges between 17 and 22 cords per acre. The understory is dominated by greenbrier, blue beech, witch-hazel, maple leaf viburnum, highbush blueberry, hardwood tree seedlings and hazelnut. Ground cover vegetation consists of bracken fern, Christmas fern, club moss, grasses, Canada mayflower, partridge berry, striped pipsissewa, rattlesnake plantain, huckleberry and lowbush blueberry.

Type B. (Hardwood Swamp) Pole size red maple in clumps with occasional yellow birch are present in these hardwood swamp areas which total approximately 28 acres. The dense understory which is present is made up of sweet pepperbush, spice bush, highbush blueberry and swamp azalea. Skunk cabbage, false hellebore, tussock sedge, club moss and sphagnum moss are the dominant ground cover plants which are present. The total volume in these hardwood swamp areas is quite variable and ranges between 13 and 20 cords per acre.

Type C. (Open Swamp) Approximately eight acres of open swamp are present within this tract. Red maple seedlings and shrub species including highbush blueberry, swamp azalea, sweet pepperbush, swamp rose and nanny-berry are present. Spirea, meadow sweet, inkberry, bayberry, phragmites, large cranberry, tussock sedge and sphagnum moss form the ground cover vegetation in this area.

Vegetation



LEGEND

- Road
- Property Boundary
- Vegetation Type Boundary
- Stream

VEGETATION TYPE DESCRIPTIONS*

TYPE A. Mixed hardwoods, 88±acres, fully-stocked, pole with occasional sawtimber-size.

TYPE B. Hardwood swamp, 28±acres, over-stocked, pole-size.

TYPE C. Open swamp, 8±acres, understocked with tree species, seedling-size.

TYPE D. Open meadow, 6±acres, grasses, sedges.

TYPE E. Open field/disturbed area, 5± acres, herbaceous and shrub species.

* 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.

Type D. (Open Meadow) This 6± acre open meadow is predominantly vegetated with grasses and sedges. Other weed and wildflower species are no doubt present, however, at the time of the field investigation, none were observed.

Type E. (Open Field/Disturbed Area) Two open field areas which total 5± acres are present in this tract. They are vegetated with grasses, goldenrod, black-eyed-Susans, steeple bush, sweet fern, bayberry and multiflora rose. Autumn olive was planted on the field which abuts Route 1. Phragmites is present along the entire perimeter of this field.

The high water table, saturated soils, and periodic flooding which occurs in vegetation types B and C (Hardwood Swamp and Open Swamp) limit vegetation to species which are tolerant of excessive moisture conditions. The red maple which survive in the hardwood swamp areas are of very poor quality, and will never produce high quality timber. Conditions are more severe in the open swamp areas where standing water and loose soils allow only shrub species to become established and stabilized.

The widespread clearing of vegetation which will accompany development of the proposed intensity may indirectly allow the increased runoff generated from this area to accelerate erosion. The potential for siltation and sedimentation of the wetland areas and proposed ponds within this property will be high under this density of development. The use of proper erosion control techniques, including prompt revegetation of steep areas with sod, and the designation of buffer strips left undisturbed where possible around the wetlands, may help to reduce soil loss and the resulting siltation and sedimentaiton of the sensitive wetland areas.

The construction of roads through and across the wetland areas (Hardwood Swamp and Open Swamp) have been proposed with the development of this tract. It is very important that these crossings do not block or restrict natural or present drainage flows. Blocking or restricting natural flows may cause water to pond up over vegetation roots. This may result in considerable mortality of the trees, shrubs and herbaceous vegetation growing in these areas. Over time, vegetation will become established which is able to adapt to the new water table conditions. It is apparent that this has already happened on the southern portion of this tract. These changes, however, may significantly alter the appearance and character of these wetlands.

Windthrow is a potential hazard in the wetter sections of vegetation type B (Hardwood Swamp). These areas correspond to the forested inland wetland areas. The soils present are saturated and, as a result, tree root systems are shallow and unable to become securely anchored. Clearings in or alongside these areas will increase the windthrow hazard by allowing wind to pass through rather than over these stands. If possible, clearing of the vegetation in these areas should be avoided. Where avoidance is not possible, complete vegetation removal, as in the construction of the proposed ponds, would alleviate the windthrow problem.

Suggested Management Practices

The trees in the previously mentioned hardwood swamp are crowded. As a result, they are very susceptible to weather, disease and insect damage. Where trees are not completely removed for pond construction, light fuelwood thinnings

removing approximately one-quarter of the trees in the overstory, will help to reduce the crowded condition and improve the stability of the residual trees over time. These thinnings should be focused on removing the poorest quality trees (damaged trees, trees with excessively small crowns, etc.) and trees which are directly competing with high quality trees. All tree species other than red maple should be favored during these thinnings. To avoid extensive soil damage, these thinnings should take place during the winter months when the ground is frozen or during the summer months when the ground is dry. Implementation of these thinnings will produce between 3 and 5 cords per acre. Areas which are completely cleared for pond construction will provide between 13 and 20 cords of fuelwood per acre.

The trees in vegetation type A (Mixed Hardwoods) are beginning to decline in health and vigor. As stated above, when crowded conditions exist, trees are more susceptible to damage caused by insects, disease and adverse weather conditions. A fuelwood thinning in the portions of this stand which are not to be developed, following the "Crop Tree Selection Method" would reduce the competition between residual trees for space, sunlight, nutrients and water, resulting in a healthier more stable stand over time.

Under the "Crop Tree Selection Method" one hundred of the highest quality trees in each acre should be identified (trees spaced about 20 feet by 20 feet will equal one hundred trees per acre), and one, two, or three trees that are in direct competition with each of those identified should be removed. The one hundred trees per acre that are selected as crop trees should be healthy, large-crowned, and show little or no signs of damage. Trees which are not competing with the one hundred selected trees should not be removed, unless they are severely damaged. This thinning, if implemented, will provide between five and seven cords of fuelwood per acre. A commercial sawtimber harvest is not feasible within vegetation type A at this time without reducing stocking to undesirable levels. It would be advisable to have this stand re-evaluated in approximately ten years for future management needs. A public service forester or private forester should be contacted to help select the crop trees for the thinning in the mixed hardwood stand, mark the trees to be removed from the hardwood swamp area and select the healthy trees to be retained in the construction area.

WILDLIFE

Two distinct wildlife habitats comprise the site of the proposed Mystic Woods development. A steeply sloping woodland dominates the eastern portion. It is totally vegetated at present. This area provides elements of habitat for birds, mammals and game species such as: ruffed grouse, woodcock, seasonal songbirds, woodpecker, gray squirrel, raccoon, fox, and white-tailed deer.

The western section of the property is partially covered by a shallow-water marsh. Water tolerant plants growing in the wetland provide food and protective cover for a variety of water-loving birds and mammals. Some of the wildlife attracted to such areas are: ducks, geese, herons, shorebirds, muskrat, mink and beaver.

The proposed development will eliminate habitat for many native wildlife species. While limiting the suitability of habitat for resident wildlife, urbanization usually results in an increase in species which are more at ease with human intrusion into their habitat. These species would include, but are not limited to raccoon, skunk, gray squirrel, mice, and seasonal songbirds.

There was concern issued regarding the impact this development will have on the deer population that frequents this area. Consultants for the developer have prepared a thorough analysis of the situation. A copy of their analysis should be made available to those interested.

White-tailed deer are found in this area because of the variety of cover and food sources. The habitat ranges from the forested upland to red maple swamps, and to the grassy lowlands. Red maple, as well as white cedar, dogwood, poplar and greenbriars are common food sources that can be found in this area. Grasses and legumes found in the open field also offer a food source. Variety is essential for proper nutrition, as a 150 pound deer needs at least 10 to 12 pounds of good browse daily to satisfy growth requirements. Deer frequently drink water from ponds, springs and streams, and will seek browse within a half mile of the water source.

When this site is developed as proposed, much of the deer habitat will be modified by land regrading, vegetation removal, construction of roads and buildings and by de-watering wet soils that produce browse. The deer will find some habitat available in the wetland and open fields, but because of development, they will migrate from the area, most likely in a northerly directions.

AESTHETICS AND PRESERVATION

Preliminary development plans call for the construction of from 250 to 300 condominium units on approximately fifty acres of this tract. Development at this high density will call for removal of at least 50% of the vegetation from this site. This area (vegetation type A) is scattered with high quality sawtimber size trees which have high aesthetic value. If it is at all possible, these trees should be selected and retained. Incorporation of these trees into the design plan will enhance the character of this development.

Care should be taken during the construction period not to disturb the trees that are to be retained. In general, healthy and high vigor trees should be favored over unhealthy trees because they are usually more resistant to the environmental stresses brought about by construction.

Where feasible, trees should be saved in small groups or "islands." This practice lowers the possibility of soil disturbance and mechanical injury. Individual trees and "islands" of trees should be temporarily, but clearly marked so they may be avoided during construction.

Trees are very sensitive to the condition of the soil within the entire area under their crowns. Development practices near trees such as excavating, filling and grading for construction of roadways and buildings may disturb the balance between soil aeration, soil moisture level and soil composition. These disturbances may cause a decline in tree health and vigor, potentially resulting in tree mortality within three to five years. Mechanical injury to trees may

cause the same results. Dead trees reduce the aesthetic quality of an area and may become hazardous and expensive to remove if near roadways, buildings, or utility lines.

PLANNING CONCERNS

The proposed development is located in the southwest section of Stonington about one mile east, southeast of Mystic. The nearest commercial, institutional, and governmental facilities are located in Mystic. Surrounding land uses are moderate density single and multi-family residential in the Hewitt Road area and low density residential along Cove Road. Some commercial uses are located along Route 1 as well as some low density residential use. The area is zoned for residential moderate density RMD-20 and Coastal Lands (RC-120) which would allow a total of 459 units with public sewer and water available. It was indicated that approximately 240 units of the total allowable units would be built over a four-year period for a rate of about sixty units per year. This would result in an overall project density of 1.8 units per acre, or if just the developable land is considered, 2.4 units per acre.

Major access to the proposed development is Route 1 with Hewitt Road serving as the secondary-emergency exit and entrance. Hewitt Road is scheduled for drainage and resurfacing improvements in the Regional Transportation Plan. Route 1 is scheduled for vertical alignment improvements at its intersection with Hewitt Road according to the Regional Transportation Plan.

A CONNDOT study indicated an average of 5.3 vehicle trips per weekday generated by condominiums.* If sixty units are built per year, this would produce 318 weekday vehicle trips. For four years of growth, this would total 1,272 weekday vehicle trips. The 1979 average daily traffic count was 8,200 for Route 1 between Hewitt Road and 1A (North Water Street). Route 1 between Route 27 and Hewitt Road had a 1979 average daily count of 11,800. Another study of CONNDOT** indicated a volume/capacity ratio of 0.5920 for Route 1 from 0.3 miles east of Hewitt Road to Harborview Terrace. From Route 27 to 0.3 miles east of Hewitt Road, Route 1 had a volume/capacity ratio of 0.8230. A ratio of 0.75 is considered congested and a ratio of 1.25 is considered the intolerable threshold.

In light of the above scheduled improvements and traffic volumes, it would be prudent for the developer, the town and CONNDOT to discuss jointly the best location and timing for new roads and other improvements. Any new work should be coordinated with CONNDOT and the town. For instance, it might be desirable to have turning lanes in Route 1 at the entrance to the development. Their construction should be coordinated with CONNDOT so that when the Route 1-Hewitt Road intersection is improved, Route 1 is not dug up or resurfaced two or more times over a short time period.

Since the 5.3 vehicle trip figure above was developed before the energy price increase of 1979, this figure may now be high. It was also developed in a rural area with no mass transit. The proposed site under discussion here is located along the weekday commuter SEAT (Southeast Area Transit) bus route to the Groton industrial area. Route 1 is also scheduled for corridor bus service in Phase II of the SEAT service plan.

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* Trip Generation of Various Land Uses, Supplement A, CONNDOT, 1975.
** Volume/Capacity Ratio, CONNDOT, 1979.

Coastal Management

COASTAL RESOURCES

0 500 ft.
Approx. Scale

N

LEGEND

- COASTAL HAZARD AREA
- FRESHWATER WETLANDS
- TIDAL WETLANDS
- SHORELANDS
- NON-COASTAL RESOURCES
- PROPERTY BOUNDARY
- COASTAL BOUNDARY
- EM EMBAYMENTS
- STREAMS
- ROADS
- RAILROAD TRACKS

COASTAL MANAGEMENT CONCERNS

As proposed at this time, Mystic Woods, a 250 to 300 unit condominium development, is located partially within the coastal boundary (see accompanying illustration). A coastal site plan application must be prepared at the time that a complete application for a special permit for this project is submitted to the Planning and Zoning Commission. Insofar as a portion of the project or activity lies partially within the coastal boundary, then the entire proposal is subject to the provisions of the Connecticut Coastal Management Act. In order to obtain a valid municipal approval under sections 22a-105 and 22a-106 of the Act, the applicant must demonstrate and the municipal commission must find that (1) the proposal is consistent with all applicable coastal policies, (2) adverse impacts on coastal resources and future water dependent uses are acceptable, and (3) all reasonable measures to mitigate adverse impacts have been incorporated into the project.

Coastal Resources

Technically, there are two main categories of resources on the site, coastal and non-coastal resources. The latter includes all land outside the boundary. As defined in the Connecticut Coastal Management Act, coastal resources located within the boundary and on the site are shorelands, coastal hazard areas, and freshwater wetlands and watercourses. A plan depicting the spatial location of coastal resources on and adjacent to the site must accompany the coastal site plan application. It is also necessary to depict coastal resources adjacent to the site that might be impacted by the project.

The review of activities outside the boundary will focus on potential but indirect impacts to coastal resources located within the boundary. For example, indirect impacts ensuing from sedimentation, erosion, stormwater discharges, subsurface flows from sanitary facilities which could contaminate inland and coastal waters, etc.

Coastal Policies

Identification of all applicable coastal resources and use policies* follows from the identification of coastal resources and the types of uses or activities proposed. Insofar as this project is concerned, based upon the "conceptual plans," the applicable coastal policies (as referred to in CAM Planning Report No. 30) are:

A. Coastal Resource Policies

1. General Resource IA (A-C)
2. Freshwater Wetlands and Watercourses IG (A)
3. Tidal Wetlands IE (A,D)
4. Coastal Hazard Area IH (A)
5. Shorelands IK (A)

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* Refers to policies not identified in the site plan.
Planning Report #30 Coastal Policies and Use Guidelines 1979. Department of Environmental Protection, Coastal Management Program.

B. Coastal Use Policies

1. General Development IIA (A)
2. Sewer and Water Lines II I (A)

The applicant must demonstrate to the Planning and Zoning Commission that the development and all its associated activities are consistent with the policies. Given the preliminary nature of the Mystic Woods plans and that these plans are subject to change, then only a preliminary determination of the project consistency with the coastal policies can be formulated. Overall, it appears that consistency problems in regard to the freshwater wetland policies is the primary policy issue. However, assuming that the concerns discussed below, regarding potential adverse impacts, are resolved, the project would appear to be consistent with these policies.

Adverse Impacts: Recommended Mitigation Measures

All applicable potential adverse impacts as defined in Section 22a-92 of the Connecticut Coastal Management Act must be identified. If a project is to receive coastal site plan approval, the applicant must demonstrate to the satisfaction of the local commission that any adverse impacts generated would be acceptable. The following adverse impact considerations, as defined in the Act, may be of concern with respect to this project and should be addressed by the applicant.

- "Degrading natural or existing drainage patterns through the significant alteration of groundwater flow and recharge and volume of runoff."

- "Degrading water quality through the significant introduction into either coastal waters or groundwater supplies of suspended solids, nutrients, toxic, heavy metals or pathogens, or through the significant alteration of temperature, pH, dissolved oxygen or salinity."

- "Degrading or destroying essential wildlife, finfish or shellfish habitat through significant alteration of the composition, migration patterns, distribution, breeding or other population characteristics of the natural species or significant alterations of the natural components of the habitat."

- "Degrading tidal wetlands, beaches and dunes, rocky shorefronts, and bluffs and escarpments through significant alteration of their natural characteristics or function."

As the property is not a waterfront site, and the proposed development will not affect the use of the waterfront, potential adverse impacts on future water dependent development opportunities is not an applicable consideration.

When the applications for this project including a coastal site plan are formally submitted to the Planning and Zoning Commission, the applicant must demonstrate the acceptability of adverse impacts and identify the mitigation measures incorporated into the project so as to minimize or eliminate potential adverse impacts. Based on the preliminary plans, the following general impact matrix has been formulated. This will facilitate the identification of (1) all potential impacts, and (2) the potential adverse impacts. Obviously, activities such as grading, excavation, construction will create an impact to the land at

Resource Impact Matrix

ACTIVITY	COASTAL RESOURCES					NON COASTAL RESOURCE
	ON-SITE			ADJACENT		
	SH	CHA	FW	EM	TW	
Site Preparation						
1. Grading	X	X	X			X
2. Excavation	X	?				X
3. Filling	X	?	X			X
Construction Activities						
1. Condominium	X	?				X
2. Garages						X
3. Paved Parking						X
4. Roads	X	X	X(PS)			X
5. Retention Basins						X
6. Tennis Courts	X	X				
Placement of Pipes						
1. Sewer	X	X	?			X
2. Public Water	X	X	?			X
3. Stormwater	X	?	?			X
4. Catch Basins	X	?				
Discharges						
1. Stormwater		X	X	?		
Sedimentation	X	X	X(PS)	?	?	X

SH - shoreland
CHA - Coastal Hazard Area
FW - Freshwater Wetland/Watercourses
EM - Estuarine Embayment
TW - Tidal Wetland

X - impact will occur
? - indeterminate, plans do not provide sufficient detail
PS - potentially significant impact

the site of the activity, but these will not necessarily represent severe or adverse impacts. The intensity of the impact is, to a large extent, contingent upon the sensitivity of the resource.

The central concern of this review is consistency with the policies for and potential adverse impacts to the freshwater wetlands and watercourses. Activities that could generate significant adverse impacts to this resource are (1) road construction, (2) alteration of the hydrologic characteristics of the wetlands, (3) sedimentation, and (4) stormwater damage and discharge. Each of these will be briefly discussed below:

(1) Road Construction. Construction of the road network as proposed will culminate in the filling of nearly two acres of wetland representing about 7% of the freshwater wetlands located within the coastal boundary. The proposed main access road from Route 1 will account for 90% of this figure. This represents a direct and irreversible impact to the wetland below the road. These figures are based solely upon a width of 50' without any consideration for shoulders or lateral embankments. Furthermore, construction without any mitigation measures will result in sedimentation in the wetland and construction equipment operating outside the "road area," will impact additional wetland area.

(2) Hydrologic Modifications. The main wetland area in the lowland is generally devoid of well defined drainage channels. Drainage is probably diffuse both as subsurface flow and surface or sheet flow. This complicates the evaluation of the impact of the road upon the wetland. In light of the length of road which traverses the wetland, especially if facilities for lateral drainage such as adequate sized culverts are not incorporated, the effect could be to significantly alter the hydrologic flow and thereby modify and change the existing biological characteristics and increase the flooding and flood frequency.

(3) Sedimentation. Sediments, generated from upland site preparation and construction, if not controlled, could change the physical and biological character of the wetland. It could also change the flood elevation in the lowland area at least during design storms of short duration.

(4) Stormwater Discharge. Release of stormwater without any retention from a project of this size has the capabilities to significantly alter the extent and duration of flooding, cause modifications to the biological characteristics of the wetlands, and degrade water quality through the introduction of sediments and chemicals derived from lawns, condominiums and especially paved areas.

Mitigation measures which could be incorporated into the project design so as to eliminate or minimize adverse impacts to the wetlands are:

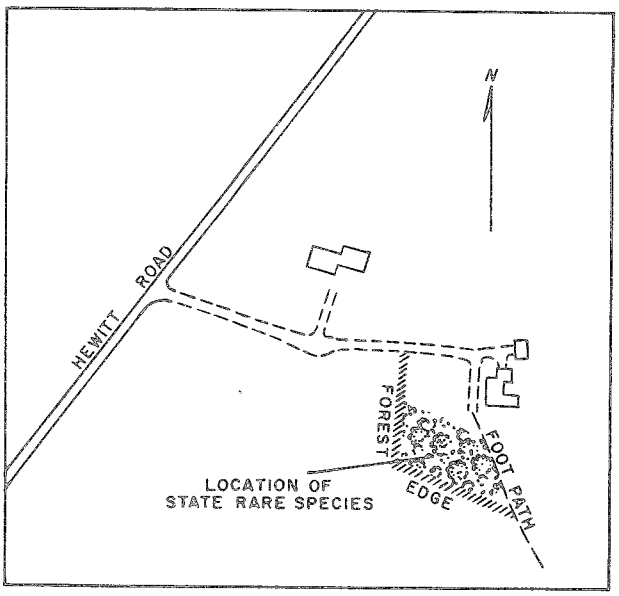
- Elimination of the main access route from Route 1 and convert the "emergency road" to Hewitt Road into the primary traffic corridor. This would reduce direct wetland impacts by 90% and reduce the impacts resultant to changes in the hydrologic character of the lowlands. The following guidelines should be incorporated into the design and construction of the traffic corridor: (1) use the best available mitigation technologies to reduce controllable sedimentation, (2) locate the corridor so as to minimize the

encroachment on the wetland, (3) use low impact pile construction over wetlands and watercourses when feasible, and (4) avoid construction in the habitat of the state rare plant (discussed below).

- Prevent sediments, generated during site preparation and construction, from entering the wetland. This can be achieved through a combination of adequate natural buffers of soil and vegetation (should be widest in areas of steep slope) and haybale erosion controls, preferrably two alternating rows of haybales.

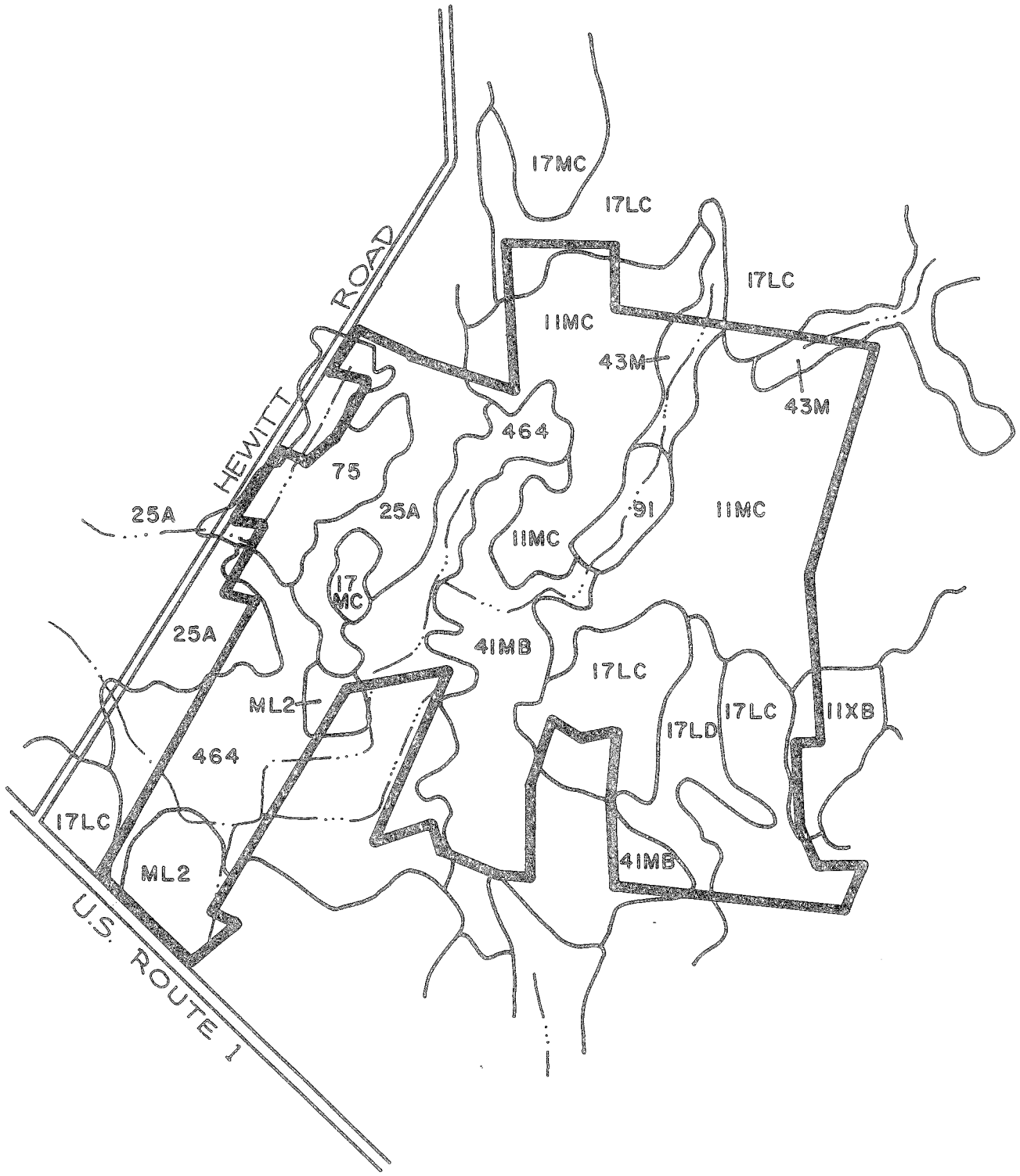
- The stormwater system should be designed such that there is no increase in discharge from the site. This will necessitate a design based upon at least a 25-year storm and a stormwater retention system. Rather than replace the wetland which have some intrinsic capacity for stormwater retention, with a series of retention ponds, the ponds should be constructed on upland soils. This will minimize wetland impacts while providing the desired pond retention system. Moreover, there should exist an adequate number of catch basins which are cleaned regularly so as to prevent sedimentation into the wetland. The magnitude of nutrients and toxic chemicals entering the wetland and ultimately coastal waters could be an important concern given the magnitude of the project.

Three additional potential adverse impacts should be addressed in the coastal site plan application. These are (1) possible sedimentation into and degradation of water quality in Pequotesepos Brook and Cove, (2) possible sedimentation in the offsite tidal wetland, and (3) destruction of a state rare plant and its habitat by road construction. In regard to the latter, it appears that the emergency road to Hewitt Road passes through or very close to some rare plants in a moist to wet shrubby field. The general location is shown in the accompanying illustration. This impact can be mitigated by relocating this traffic corridor. If the destruction of these rare plants are unavoidable, then the state botanist, Leslie Mehrhoff, should be consulted so that the plants can be transferred to a similar habitat. The success rate of this last technique is unknown.



Appendix

Soils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11XB
464
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ML2
41MB
U.S. ROUTE 1

MYSTIC WOODS

STONINGTON, 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
**	Adrian-Palms	91	3	3	Wetness, Floods	3	3	3	3
	Canton-Charlton	11XB	2	2	Large stones	2	2	2	2
	Canton-Charlton	11MC	37	27	Large stones	3	3	3	3
	Charlton-Hollis	17LC	19	14	Slope, large stones				
	Charlton Part					2	2	2	2
	Hollis Part					3	3	3	3
	Charlton-Hollis	17LD	7	5	Slope	3	3	3	3
	Hollis-Rock Outcrop	17MC	1	1	Slope, depth to bedrock	3	3	3	3
	Ninigret	25A	10	7	Wetness	3	3	2	1
**	Ridgebury, Leicester, Whitman	43M	6	4	Wetness, Stones	3	3	3	3
**	Scarboro	75	7	5	Wetness	3	3	3	3
	Sutton	41MB	16	12	Wetness, Frost action	3	3	2	3
**	Walpole	464	20	15	Wetness	3	3	3	3
	Udorthents	ML2	7	5	Limitations determined on-site				
			135	100					

* Limitations: 1=slight, 2=moderate, 3=severe

** Regulated wetland soil under Public Act 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

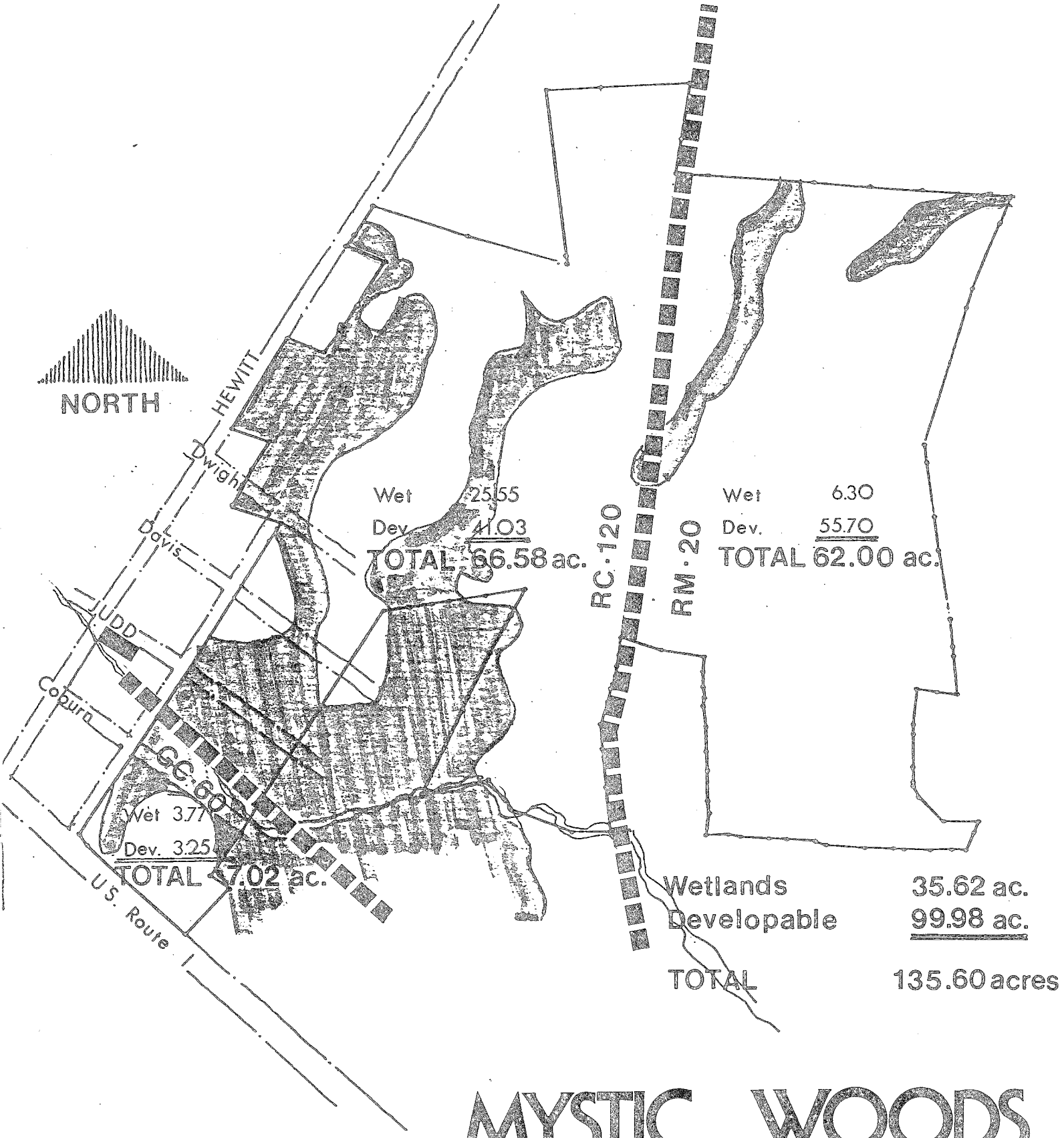
Areas rated as slight have relatively few limitations in terms of soil suitability for a particular use. The degree of suitability is such that a minimum of time or cost would be needed to overcome relatively minor soil limitations.

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.



MYSTIC WOODS

1-15-81

KENT DEVELOPMENT Corporation
Suite 3
Fiddlers Green
6 Wilcox St
Simsbury, Ct 06070
(203) 658-9242

ZONING CAPACITY ( ) refers to Section of Zoning Regulations.

1. RM-20

wet	6.30 ac.
developable	55.70 ac.
Total	62.00 acres
% Transferrable	10.2% wet = 75% (7.82B)
75% x 6.30 ac. =	4.73 ac. Transferrable

Therefore: $\frac{473 \text{ ac.} + 55.70 \text{ ac.} \times 43{,}560 \text{ s.f.}}{6{,}000 \text{ s.f./unit}} = 438.72 \text{ units}$

2. RC-120

wet	25.55 ac.
developable	41.03 ac.
Total	66.58 acres
% Transferrable	38.4% wet = 60% (7.82B)
60% x 25.55 ac. =	15.33 ac. Transferrable

Therefore: $\frac{15.33 \text{ ac.} + 41.03 \text{ ac.} \times 43{,}560 \text{ s.f.}}{120{,}000 \text{ s.f./unit}} = 20.46 \text{ units}$

TOTAL ALLOWABLE DWELLINGS

RM-20	438.72 units	
RC-120	20.46 units Transferrable	(7.521)
TOTAL DWELLINGS	459.18	
TOTAL ALLOWABLE DWELLINGS	459	

3. GC-60

wet	3.77 ac.
developable	3.25 ac.
Total	7.02 acres

4. TOTAL SITE

wet	35.62 ac.	26.3%
developable	99.98 ac.	73.7%
GRAND TOTAL	135.60 acres	100.0%

NOTES:

(1) The wetlands were determined from Soil Conservation maps and field inspection.

(2) Although not totally classified by soil as wetlands, approximately 90% or 6.6 acres out of a total of 73 acres in GC-60 and RC-120 are below the designated 100 year flood hazard (12' contour line) and therefore are not developable unless filled to that level.

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.