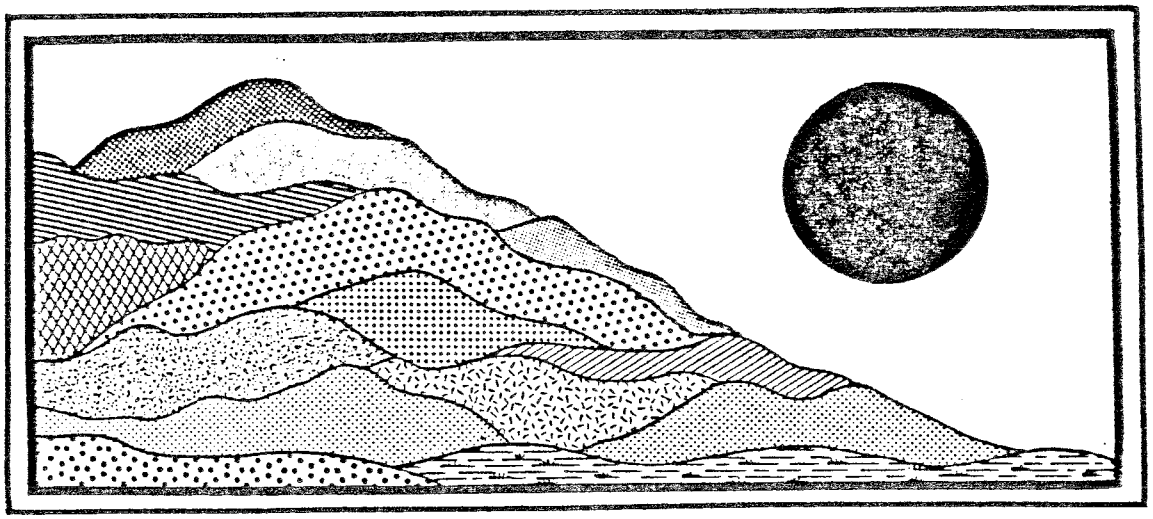
Laurel Heights II

Old Lyme, Connecticut

January 1987



ENVIRONMENTAL REVIEW TEAM REPORT

EASTERN CONNECTICUT RESOURCE CONSERVATION AND DEVELOPMENT AREA, INC.

Laurel Heights II

Old Lyme, Connecticut

Review Date: DECEMBER 22, 1986

Report Date: JANUARY 1987

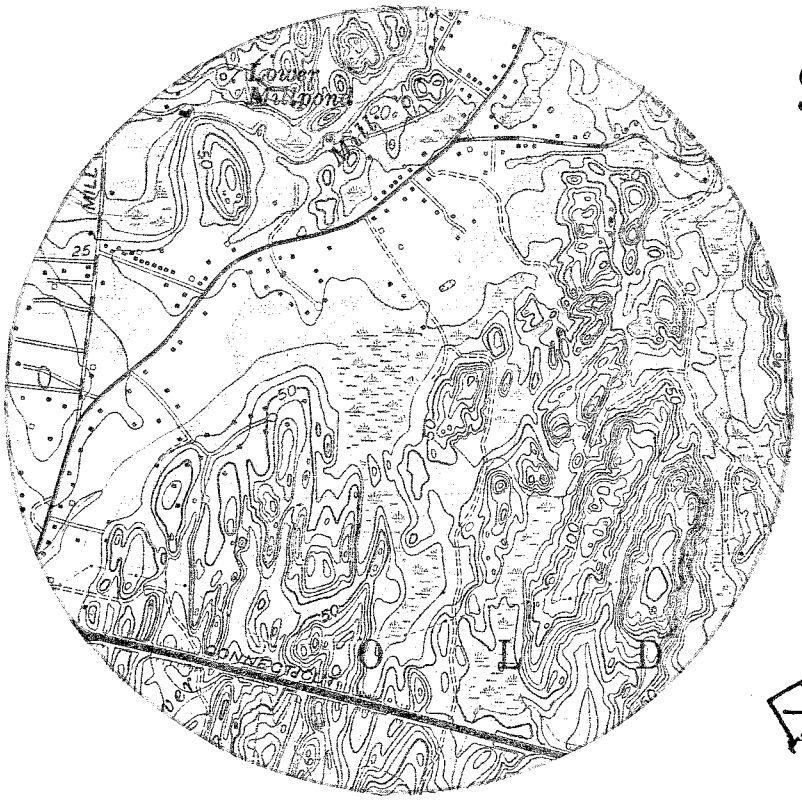
RC&D

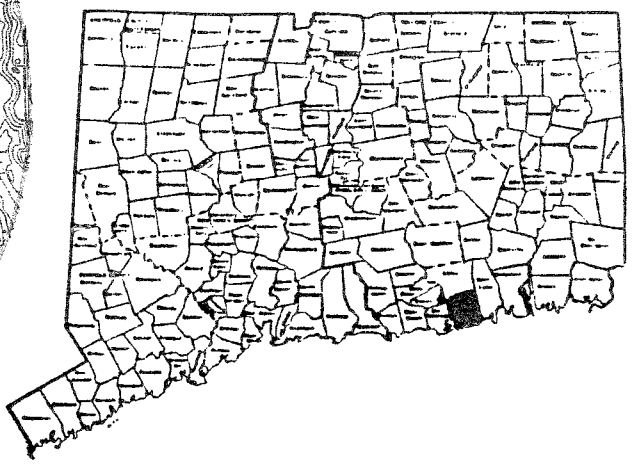
ENVIRONMENTAL REVIEW TEAM
PO BOX 198
BROOKLYN, CONNECTICUT 06234

Site Location

LAUREL HEIGHTS II

OLD LYME, CONNECTICUT





EASTERN CONNECTICUT

RESOURCE CONSERVATION

& DEVELOPMENT AREA

ENVIRONMENTAL REVIEW TEAM REPORT
ON
LAUREL HEIGHTS II
OLD LYME, CONNECTICUT

This report is an outgrowth of a request from the Old Lyme Conservation 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. The request was approved and the measure reviewed by the Eastern Connecticut Environmental Review Team (ERT).

The ERT met and field checked the site on Tuesday, December 22, 1986. Team members participating on this review included:

Don Capellaro	--Sanitarian - Connecticut Department of Health
Liz Rogers	--Soil Conservationist - U.S.D.A. - Soil Conservation Service
Dwight Southwick	--Engineering Specialist - U.S.D.A. Soil Conservation Service
Elaine Sych	--ERT Coordinator - Eastern Connecticut RC&D Area
Bill Warzecha	--Geologist - DEP - Natural Resources Center

Prior to the review day, each Team member received a summary of the proposed project, a list of the Town's concerns, a location map, a topographic map and a soils map. During the field review the Team members were given site plans and test hole information. The Team met with, and were accompanied by the Project Engineer and his associates. Following the review, reports from each Team member were submitted to the ERT Coordinator for compilation and editing into this final report.

This report represents the Team's findings. It is not meant to compete with private consultants by providing site designs or detailed solutions to development problems. The Team does not recommend what final action should be taken on a proposed project--all final decisions and conclusions rest with the Town and landowner. 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. The results of this Team action are oriented toward the development of better environmental quality and the long-term economics of land use.

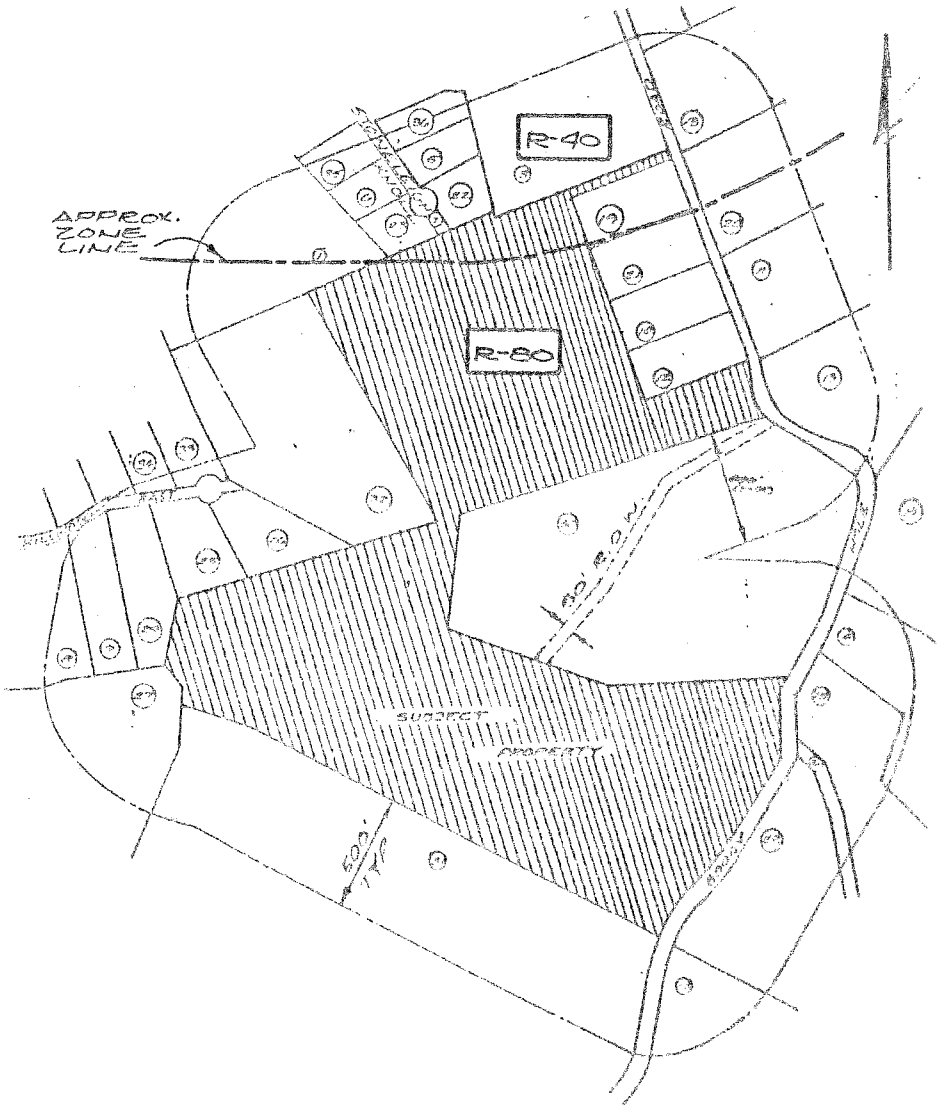
The Eastern Connecticut RC&D Executive Committee hopes you will find this report of value and assistance in making your decisions on this proposed cluster development.

If you require any additional information, please contact:

Elaine A. Sych
ERT Coordinator
Eastern Connecticut RC&D Area
P. O. Box 198
Brooklyn, CT 06234
(203) 774-1253

TABLE OF CONTENTS

TABLE OF MAPS



ABUTTING PROPERTY OWNERS
LOCATION MAP

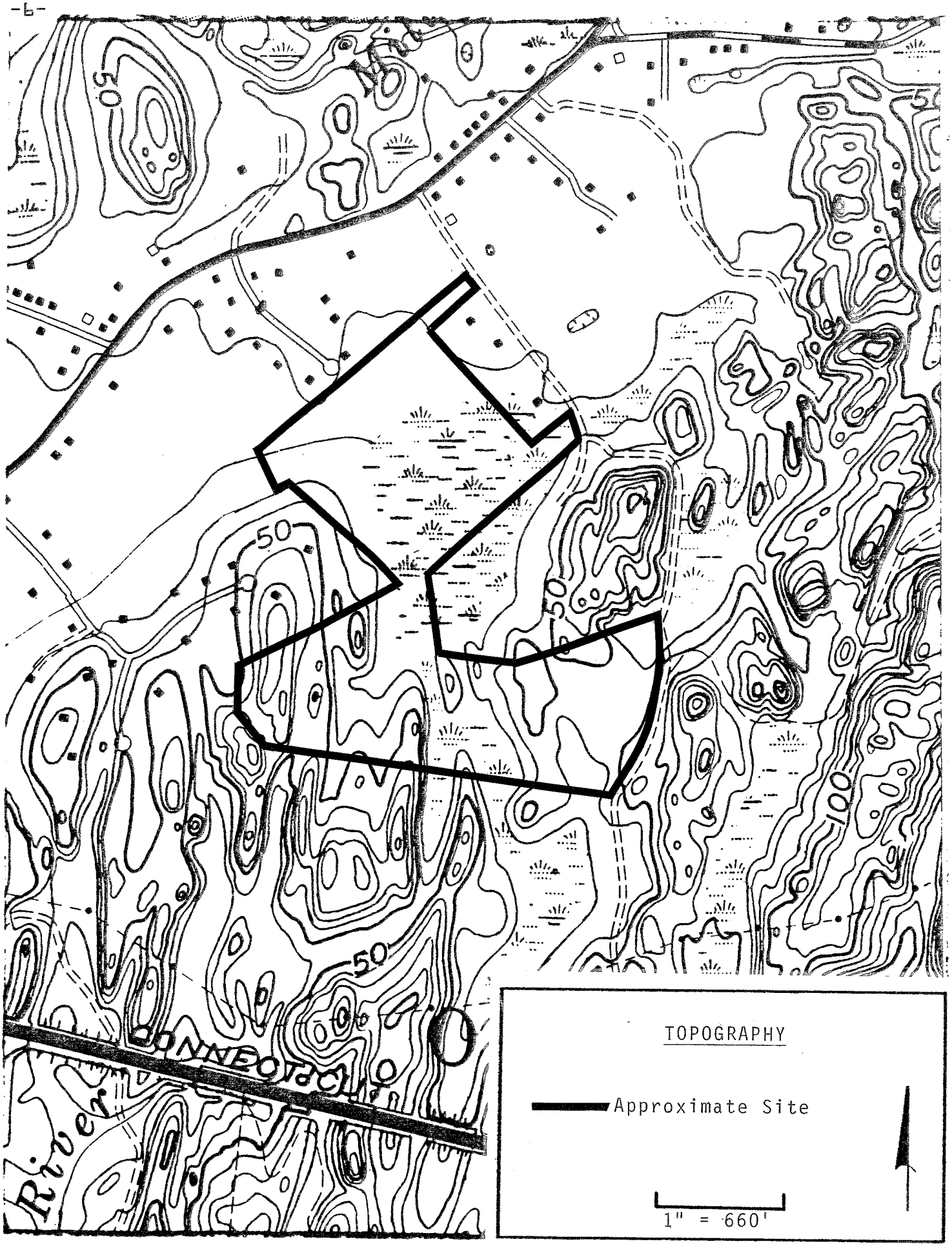
SEE APPLICATION FOR NUMBERED LISTING

1. INTRODUCTION

The Eastern Connecticut Environmental Review Team was asked to perform an environmental review and assessment of a proposed residential cluster devleopment in Old Lyme. The Conservation Commission specifically asked for information regarding water supply, storm water drainage and wetland road crossings.

The site, which comprises about 58 acres, is located on the west side of Boggy Hill Road which is an unimproved dirt roadway. The wooded property is characterized by having slight to moderately sloping terrain in the eastern part while the remaining, major portion tends to have considerably more slope with rock ridges and outcrops scattered about. The middle portion of the property also has an extensive area of wetlands which eventually flows to a stream that connects to the Lieutenant River.

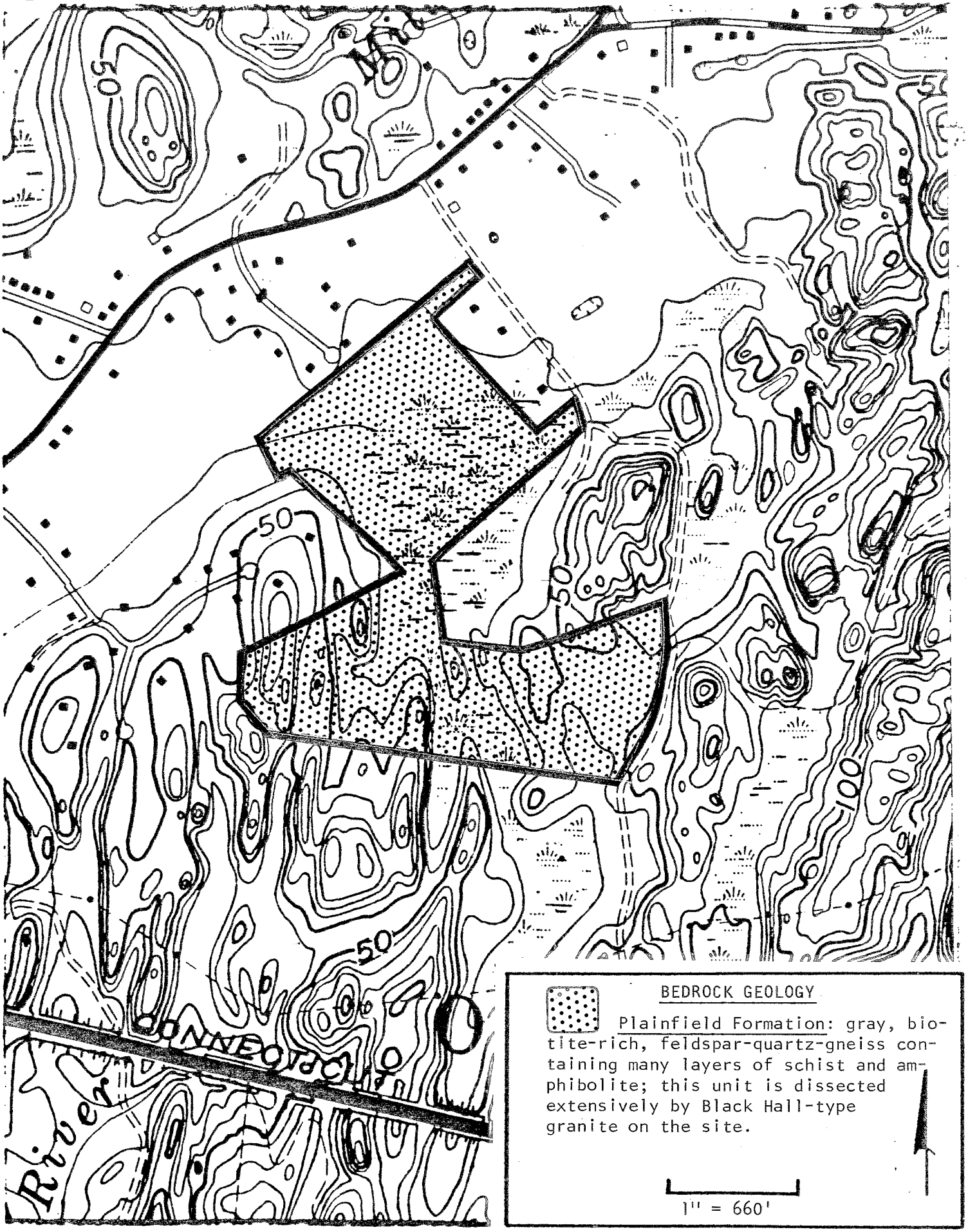
Angus McDonald/Gary Sharpe and Associates, consultants for the developer, have prepared a proposed cluster development of some 29 houses which would be constructed on separate lots. Four (4) of the units would be attached in pairs. Each house or unit would be served by its own well and subsurface sewage disposal system. The development would have a private road constructed through the parcel with a connection made about midway to an existing roadway (Scarborough Road) which terminates in Section I of Laurel Heights which has been developed. Most of the property in question apparently lies in a cluster zone requiring a minimum of 80,000 square feet of land area per unit.


50
50
50
50
100
River
TOPOGRAPHY
Approximate Site
1" = 660'

2. TOPOGRAPHY AND SETTING

The proposed Laurel Heights II cluster development consists of an irregularly shaped parcel of land about 58 acres in size. It is mostly wooded land located in the west central parts of Old Lyme. The land surface on the site is quite diverse. The northern half of the parcel, as well as the eastern parts, are characterized by slopes that range from flat to gentle. A major wetland area, which comprises the flattest land bisects the central parts of the site. The wetland is generally narrow in the southern parts but widens considerably in the northern parts. The remainder of the site (western part) is dominated by north-south trending, rock-cored ridges. Slopes range between moderate to steep in this area. The steepest slopes are associated with rock outcrop areas.

The major streamcourse on the site, which is unnamed, is the outlet stream for the wetland in the northern parts. It consists of a well-defined stream which originates just north of I-95, and is a tributary to Lieutenant River.



BEDROCK GEOLOGY

Plainfield Formation: gray, biotite-rich, feldspar-quartz-gneiss containing many layers of schist and amphibolite; this unit is dissected extensively by Black Hall-type granite on the site.

1" = 660'

3. GEOLOGY

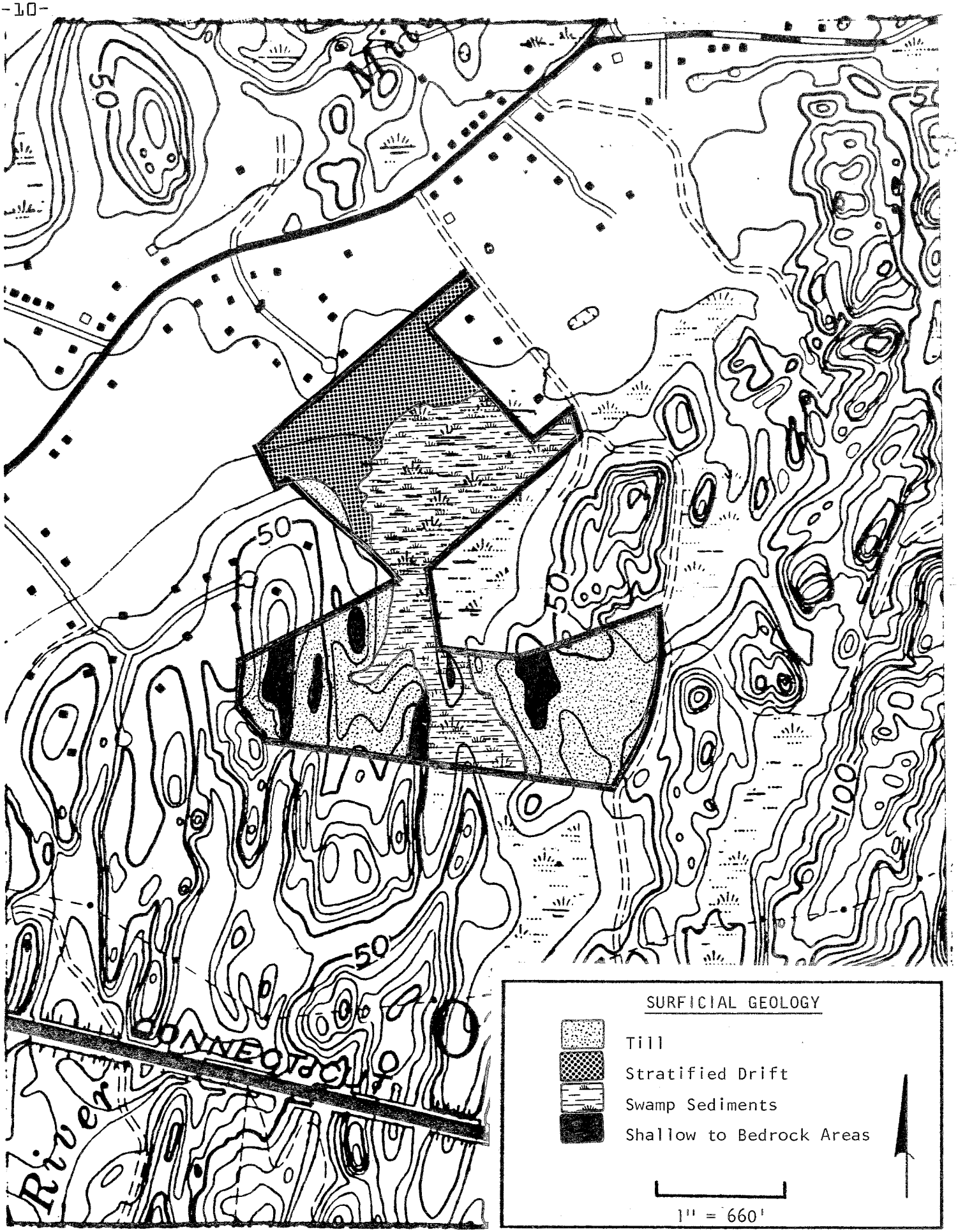
The bedrock geology of this parcel has been well described by Lawrence Lundgren, Jr., in Quadrangle Report #21 entitled Geology Map of the Old Lyme Quadrange, Connecticut. According to Map QR-21, the parcel is underlain entirely by a subunit of the Plainfield Formation. Lundgren describes the subunit as a gray colored metamorphic rock {rocks geologically altered by great heat and pressure} known as a gneiss. It is composed of the minerals biotite, quartz, and feldspar. This unit also includes layers of other types of metamorphic rocks such as schists and amphibolites, which differ mainly in minerology and texture. It should be pointed out that the rocks underlying the site were dissected extensively following their formation by a granitic rock, called Black-Hall granite, which contains large conspicuous biotite crystals. These rocks are much younger in age than the Plainfield Formation and contain crystals that are much larger than those composing the Plainfield Formation. Granitic rocks are rocks which formed from molten material {igneous rocks} and which differ significantly from the metamorphic rocks mentioned above. The granitic rocks are medium to coarse grained and contain a high percentage of the minerals pink feldspar and quartz. These granitic rocks form many visible outcrops throughout the site.

The bedrock structure has influenced the shape of the landforms and the drainage patterns on the parcel. The foliation or {the layering of flaky or platy minerals in the bedrock} is moderately inclined between 25° and 50° to the west. The differences in bedrock types should not have a major effect on the proposed development. However, the structure and mineralogic composition will have at least some affect on the quality and quantity of water withdrawn from bedrock wells which are proposed to serve the residences. {See Water Supply Section}.

Based on deep test hole information supplied by the applicant's engineer, visual observations, and Water Resource Bulletin #30, depth to the bedrock surface on the site ranges from zero in rock outcrop areas to possibly as much as 80 feet in the northern parts of the site.

A surficial geologic map {Map QR-31, by Richard Foster Flint}, for the Old Lyme quadrangle has been published by the Connecticut Geological and Natural History Survey.

The bedrock in the southern half of the site is overlain by a relatively thin blanket {i.e., generally less than 10 feet} of glacial sediment called till. Till is a poorly-sorted mixture of rock fragments and particles deposited directly by glacier ice. Rock fragments and particles found in the soil were derived from granitic, gneissic, amphibolitic and schistose rocks mentioned earlier. The till covering the site is relatively shallow, probably not exceeding much more than 10 feet. It appears that most of the till soils within the parcel are sandy and friable. At numerous points throughout the southern half of the parcel, bedrock is exposed or lies close to the ground surface.


50
50
50
100
River
SURFICIAL GEOLOGY
Till
Stratified Drift
Swamp Sediments
Shallow to Bedrock Areas
1" = 660'

Another major glacial deposit, found principally in the northern parts of the parcel is stratified drift. Stratified drift, whose major components consist of sand and gravel, was deposited by meltwater streams during periods of glacial ice retreat. Based on the soil survey for New London County and deep test pit information supplied by the project engineer, some sand and gravel soils cover the southeast corner of the parcel. The soils comprising this area are AfB or agawam fine sandy loam on 3-8 percent slopes (sheet 6, Site Utility plan for Laurel Heights Section II, Angus McDonald/ Gary Sharpe & Associates, Inc.).

Present plans indicate that one major, and at least three (3) minor wetland road crossings are proposed. Most of the inland-wetlands soils on the site overlie the sand and gravel deposits. Based on the soil survey for New London County, the inland-wetlands soils (delineated as Sf (Scarboro Series) on the soils map, may contain mucky material within the top five (5) inches of ground surface. (See Geologic Development Concerns).

4. GEOLOGIC DEVELOPMENT CONCERNS

In terms of the proposed subdivision, the major geologic limitations on the site that need to be addressed and/or surmounted include the following:

1) Areas where bedrock is at or near the surface of the ground, which is mainly in the southern parts west of Lots 1-17.

2) Areas of moderate to steep slopes, which predominate in the area mentioned in the preceding statement.

3) The presence of highly permeable sand and gravel soils in the area designated as AfB (Agawam) on the accompanying soils map.

4) The presence of regulated inland-wetland soils which predominate in the central parts of the site.

Most of these geologic limitations will weigh heaviest in the ability to provide adequate subsurface sewage disposal systems serving homes constructed in the subdivision. In many cases, proper planning and engineering may overcome some of these limitations. However, it should be pointed out there may be situations where engineering design cannot surmount certain limitations. As a result, there may be a need to re-design the layout of lots or reduce the number of lots in a particular subdivision in order to properly address surface and subsurface conditions. It is suggested that sufficient test holes for sewage disposal system be excavated in the shallow to bedrock areas (west of the proposed "open space" area--Lots 19-29) to obtain an adequate profile of the bedrock surface. It is not unusual for the bedrock surface to undulate in this type of geologic setting.

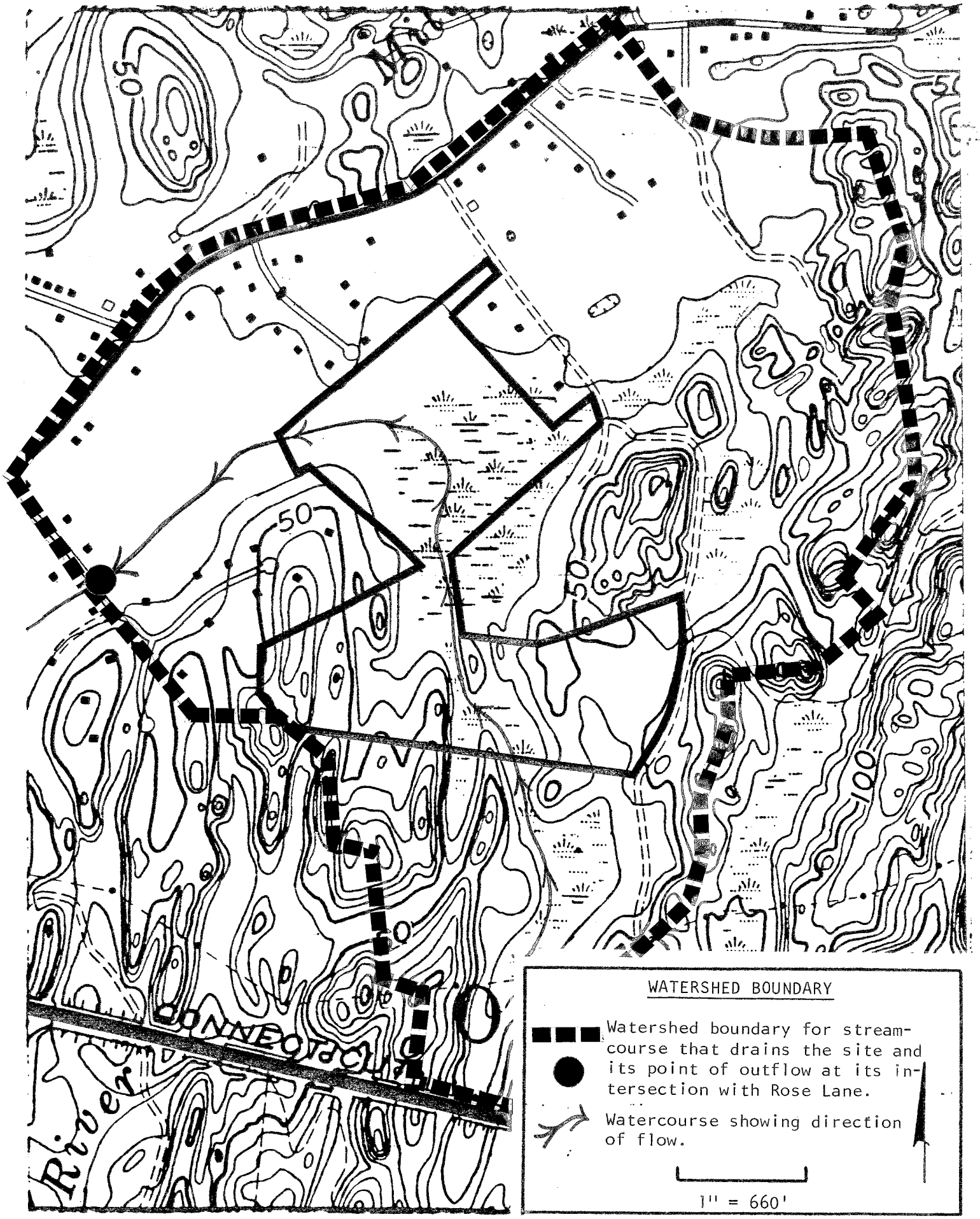
Based on present plans and visual observations made during the field review, there appears a chance that competent bedrock may be encountered during the construction of the proposed road and possibly house foundations. As a result, there may be a need to do some blasting. In view of the moderate to steep slopes found in the parcel and the chance of blasting, there is a potential for erosion and sedimentation. Even if blasting is not required, the presence of moderate to steep slopes throughout the western parts of the site to be developed warrants the need for a sound erosion and sediment control plan. If disturbed areas are kept to a minimal, the chance for erosion and sedimentation problems would be expected to be minor.

Based on the plans submitted to Team members on the review day, at least one major wetland crossing is proposed in the central portions of the site. It appears that the proposed road would be constructed over about 250 feet of a wetland/streamcourse system. Four (4) smaller wetland crossings (80 feet or less) are proposed along Tisbury Road. Based on visual observations nad review of present plans, it appears that a lesser wetland disturbance may be accomplished if the ± 80 foot wetland crossing was shifted to the north.

Wetland crossings are generally feasible, provided they are propoerly designed (e.g., culverts are properly sized and installed, permeable road base fill material is used). All unstable organic material should be removed before placing the permeable road base. As mentioned earlier, the Soil Survey for New London County indicates that the wetland soils Sf (Scarboro) on the site may contain up to 5 inches of mucky materials. As a result there may be a need to conduct borings in this area.

The roads should be constructed sufficiently above the surface elevation of the wetlands. This will allow for better drainage of the roads and decrease the frost heaving potential of the road. It is advised that any road construction through wetland areas be done during the dry time of the year with adequate provisions for effective erosion and sediment control. Detailed plans for any proposed road crossing through wetlands should first be submitted to the proper town authorities or commissions for their review, comment and final approval prior to any construction.

Because the texture of the soils (AfB-Agawam soils) in the southern parts would be expected to have rapid seepage, it would not afford ideal condiions for filtering and renovating septic effluent to a stabilized form. As a result, leaching systems in such soils may require special design considerations in order to ensure that they will not pollute nearby wells or ground and surface waters. The intent of this requirement is to discourage the use of individual wells and sewage disposal systems in areas of highly permeable soils particularly where shallow ledge rock may be encountered. If such areas are to be developed, a public water supply or community well should be considered. (See Water Supply Section). If the percolation rate is faster than one inch per minute, the Public Health Code requires a protective measure such as increasing the separating distance between wells and septic systems. However, percolation tests conducted on the site indicated rates that were slower than one minute per inch. Because homes would be clustered on sandy soils in the southern parts, it may increase the changes of contaminating on-site wells by septic systems if proper precautions are not taken. As a result, sewage systems should be located as far as possible from neighboring wells, especially on the several lots where percolation rates ranged between 1.4 minutes/inch and 4.0 minutes/inch (See Water Supply Section).


50
50
50
100
River
WATERSHED BOUNDARY
Watershed boundary for stream-course that drains the site and its point of outflow at its intersection with Rose Lane.
Watercourse showing direction of flow.
1" = 660'

5. HYDROLOGY

Surface runoff originating from the site flows downslope to the wetland bisecting the central parts. The unnamed outlet stream for the swamp, which is located in the northern parts of the parcel, is a tributary to Lieutenant River. At its intersection with Rose Lane, the outlet stream for the swamp drains an area of approximately 350 acres. Except for residential development along Route 1 and several cul-de-sacs off Route 1, the watershed as depicted is relatively undeveloped.

The subdivision of the property as planned, followed by the construction of new homes, driveways or paved roads would be expected to increase the amount of runoff from the site. According to present plans, increased in runoff that originates from the eastern half (about 18 houses) of the site will flow into the wetland south of the proposed Tisbury Road. This wetland will serve as a natural runoff control basin. In addition, the project engineer proposes to install the culvert passing under Tisbury Road at an elevation which would allow for detention of storm water arising from the development. Surface runoff originating from the remaining 11 homes, driveways and road system will be routed to the wetland north of proposed Tisbury Road. Given the size of the wetland and generally flat conditions, it seems likely that it would afford ideal conditions for natural detention of storm water. Also, the overall density (11 homes and road system) of the subdivision is quite low so that any peak flow increases would be negligible. As a result, on-site detention basins do not seem necessary. However, as a matter of policy the applicant's engineer should submit a storm water management plan for the project which includes detailed calculations. The storm water management plan should be reviewed by appropriate Town officials.

In order to avoid potential flooding problems, the project engineer should take a close look at downstream culverts, particularly the one passing under Rose Lane.

During the field review, it was mentioned to Team members that flooding problems exist at the end of Stoneleigh Knoll. As a result, affected residents have concern that contruction of the proposed development will further aggravate their flooding problem. The project engineer should address all the potential flooding problems that may arise due to the development. Given the broad, flat nature of the wetland throughout the northern parts of the parcel and mitigative measures proposed by the project engineer, it does not seem likely that the project will worsen the alleged flooding problems at the end of Stoneleigh Knoll. It should be pointed out that each future developer in this watershed should also do his part to control increased runoff from his prospective project site. A series of developments in the watershed with uncontrolled runoff could lead to flooding problems or further aggravate the alleged exisitng flooding problems.

Another concern related to increased runoff is the potential for erosion, especially in the shallow to bedrock areas, where slopes are moderate to steep.

For this reason, it is urged that a sound erosion/sediment control plan accompany the storm water management plan.

Once the control devices have been installed, town officials should inspect them for proper installation and effectiveness, particularly following rainstorms.

6. WATER SUPPLY

Community Water Supply

It is the intent of the engineering firm and developer to provide water for each house unit by means of individual on-site wells. There is no public water available in the area, although in some sections of town there are community type well water systems. It has generally been recognized that lot sizes should be a minimum of one (1) acre where both on-site water supplies and sewage disposal systems are to be developed. In additon to having sufficient acreage, the type of soil, topography and physical features along with the type and placement of wells, should be considered. In the first part (eastern side) of this section, many of the clustered houses would be located on about 1/2 acre sites. In addition, the soils in most of this area consists of well drained sandy loam, sand and course sandy gravel with the deeper layer of soil being the most permeable. It is noted that percolation tests results, while not being excessively rapid, all indicate fast rates. While this type of soil is good for drainage and sewage disposal, (leaching systems) it may not provide the best media for filtration and renovation of septic effluent. Contaminants from the sewage systems could possibly pollute underlying groundwater and thus affect the water quality of wells in the more immediate area. Also, a number of the proposed wells would be clustered in rather close proximity to one level (drawdown) of the aquifer. It is also noted that sewage leaching systems would consist of either shallow or deep leaching galleries. In general, a minimum separating distance of 75 feet is to be maintained between well sites and sewage disposal systems. However, in cases where well yields and pumpage rates are 10 gallons or more per minute (up to 50 g.p.m.) or if soils are found to have an excessively fast percolation rate, the minimum required separating distance than needs to be doubled to 150 feet.

The western side of the parcel has steeper slopes, bedrock outcrops and areas where soil depth over ledge rock is shallow. Again in the case of both wells and sewage disposal systems, it is necessary to have at least four (4) feet of soil separation between the bottom areas of leach systems and ledge rock. This is necessary so the rock will not interfere with the operation of the sewage system and provide an opportunity to renovate the quality of sewage effluent by the soil prior to it potentially entering any bedrodk seams or fractures. Once in the rock it may travel rapidly and for considerable distances, receiving little or no additional treatment before mixing in the groundwater or surface water.

Therefore, due to these various factors, it would not appear that the parcel, in general, is particularly suitable for the development of a considerable number of individual well water supplies. The area and the clustering concept would seem to warrant the development of a community water supply having several "remote" wells on the property. Wells so located would, in turn, be afforded greater protection from potential sources of pollution, particularly the on-site sewage systems. Likewise, it would allow more space and flexibility as to the possible placement of sewage systems on individual lots.

It is understood the consulting firm for the project has pursued the feasibility of a possible community water supply with both the Department of Public Utility Control and the public water supplies section of the Department of Health Services. There is concern by the developer's consultants that the review process, particularly with the DPUC, would involve an excessive period of time. However, if it is a matter of public health concern and providing the best means for long-term water supply for the development, than time alone should probably not be the most critical factor.

Lots should undergo detailed testing and analysis. Pollutant renovation and potential bacterial contamination problems for individual well sites, particularly in the eastern portion of the property, should be included for possible approval, modification or rejection of the proposal. Detailed soil testing, particularly pit observations in the western part of the property, in order to obtain a good profile of bedrock which may limit or prove unsuitable in the areas indicated for primary and reserve sewage leaching systems should be included. The eastern side would seem to have a need for testing or monitoring for maximum high groundwater conditions. It is noted that much previous testing was conducted during the dry, summer period of the year. No doubt, most of all of the lots should have detailed engineered sewage systems.

Individual On-Site Wells

It appears that the underlying bedrock will be the most likely aquifer to be tapped for individual on-site wells. It should be noted that the sand and gravel deposits in the northern parts may also have some water supply potential, especially if a community well was developed. Test wells would need to be drilled in the stratified drift in order to determine the actual potential of the deposits as a water supply source. Sand and gravel deposits under favorable hydrogeologic settings can generally yield water at a high rate compared to wells tapping crystalline metamorphic bedrock. According to Groundwater Availability in Connecticut map (Meade, 1978)

The type of sand and gravel deposits covering the northern parts of the site are known to be capable of yielding moderate to large amounts of water (50-500 gallons per minute) to individual wells.

Bedrock wells can generally yield quantities of water adequate for most domestic uses. The exact yield of a bedrock-based well is a function of many hydrogeologic factors including the number and size of fractures present in the bedrock. Because the fractures are unevenly spaced throughout the rock, there is no practical way, short of expensive geophysical tests, to assess the potential of any particular site for a satisfactory well.

An assessment of presently installed bedrock based wells has been conducted for the Lower Connecticut River basin which includes the subject site (Source: Connecticut Resources Bulletin Number 31, Lower Connecticut River Basin). This assessment allows one to predict the chances for any new well to achieve certain minimum yields.

According to this report, 80 percent of the bedrock-based wells analyzed in the basin area which tapped the type of rock underlying the parcel yielded about three (3) gallons per minute (gpm) or more; 50 percent yielded about seven (7) gpm or more; and only 10 percent yielded about 19 gpm or more. A well yielding three (3) gpm should adequately meet the needs of most domestic households.

A survey of well completion reports for drilled wells serving homes along Boggy Hole Road indicates varying yeilds; (1) 2.5 gpm at a depth of 310 feet; and (2) 10 gpm at 115 feet and 125 feet. Based on these well completion reports, it appears that higher yielding wells were encountered at shallower depth (115 and 125 feet below ground surface).

The water quality of the groundwater may be expected to be good. However, there is a chance that water produced from wells tapping the underlying bedrock may be mineralized with elevated levels of iron and manganese. Elevated levels of iron in water is objectionable because it imparts a brownish color to laundered goods and may affect the taste of the water or beverages such as tea and coffee made with the water. For the most part, elevated managanese levels are objectionable for the same reasons as iron. The recommended limit for iron in water is 0.3 milligrams per liter (mg/l) and parts per million (ppm) and .05 mg/l and ppm for manganese (Source: National Interim Primary Drinking Water Regulations, U. S. Environmental Protection Agency, Office of Drinking Water). There are several methods or treatments available to eliminate or remove elevated iron and manganese levels in water supplies.

Sufficient areas will be required on each of the proposed lots in order to properly locate wells from on-site septic systems and other potential sources of contamination. Of particular concern will be the western parts where a number or residences are proposed and where shallow depths to bedrock conditions exist.

In order to prevent possible contamination in this area, as well as the remaining developed area, it is suggested that wells be located on a relatively high portion of each lot in a direction opposite the expected direction of groundwater movements. Also, they should not be located in areas subject to flooding by road drainage. Road drainage laden with road salt may contaminate wells with elevated sodium levels. All bedrock wells will need to be cased and sealed where overlying soils is less than 20 feet deep, and in accordance with local regulations, the State Public Health Code and the Connecticut Well Drilling Board.

According to the site plan distributed to Team members, there are several lots, especially in the eastern half where individual wells will be spaced very close together. In some cases, they are 10 to 20 feet apart. Because of this close spacing, the Team Geologist feels that there may be a chance of mutual interferences between the wells during pumping periods. It is suggested that they be spaced farther apart. This would undoubtedly require rearranging of lot lines and septic systems under present plans.

United States Department of Agriculture

Soil Conservation Service

New London County USDA-SCS
562 New London Turnpike
Norwich, CT 06360
887-4163

New London County Soil Survey Sheets #77 & 85

Scale 1" = 1320'

7. SOILS

1. The plan states that approximately 39% of the project area is located in Inland Wetland areas.

   It is recommended that a Soil Scientist delineate these areas in the field and that Inland Wetlands be located by a survey onto the site plan. This information would accurately depict the extent the disturbance of wetland soils caused by the proposed development.

2. The plan proposes the use of hay bales as sediment control barriers. It is recommended that silt fence be used in place of hay bales in areas where wetland soils will be disturbed.

3. There are several proposed crossings of Inland Wetland areas with roads. It is recommended that the roads be redesigned to provide a minimum impact to the Inland Wetlands.

8. ENGINEERING CONCERNS

South Area Drainage Area 134.6 Ac.

The calculations show the 30" circular orifice elevation to be 28.5 yet the invert on the plan show 29.6. The low point in the profile of the road is elevation 28.5 at the centerline and 29.0 upstream and downstream--this means that there will be slight ponding on the south side of Tisbury Road, if the invert on the plan is not changed to what the calculations show.

The plan view sheet 5 of 7 does not show the 30" RCP at station 11 + 80, however, the 30" Accmp is shown at approximately station 13 + 90.

The peak discharges and routing are accetable in producing zero increase in peak discharge. There is a possibility of storing more water in the south swamp and possibly reducing the flooding of homes along the northwest side of the property which is a concern of the town. To be sure how much effect this would have, someone would have to stream route the storms through this section of the swamp.

There are a couple discrepancies in the calculations that are not significant for this site, but could be for other sites. They are discussed below.

The calculation of the average watershed slope uses the factor of 1.4 which should be 1.57. Also the calculation of the runoff curve number is a little on the low side because of using RCN 95 for impervious instead of 98. There also seems to be not enough weight put on the hydrologic soil group D for the wetland soils.

There is no mention of the culverts under Boggy Hole Road so it is assumed that there is no problem existing with this culvert. {See Hydrology Section}.

9. SUMMARY

NOTE: This is a brief summary of the major points, concerns and recommendations of the Team. You are strongly urged to read the entire report and to refer back to specific sections in order to obtain all the information about a certain topic.

--The major geologic limitations on the site which need to be addressed are: 1) areas where bedrock is at or near the surface of the ground (lots 19-29), 2) areas of moderate to steep slopes, 3) the presence of highly permeable sand and gravel soils and 4) the presence of regulated inland wetland soils.

--It is suggested that sufficient test holes for sewage disposal systems be excavated in the shallow to bedrock areas to obtain an adequate profile of the bedrock surface. It may be necessary to re-design the lot layout or reduce the number of lots to properly address surface and subsurface conditions.

--It is recommended that the roads be re-designed to provide a minimum impact to the wetlands.

--There may be a need to conduct borings in the areas of the Scarboro soils to find out how much unstable organic material is there before roads are constructed.

--The Agawam soils in the southern parts of the site would not afford ideal conditions for filtering and renovating septic effluent, as a result leaching systems may require special design considerations in order to insure that they do not pollute nearby wells or surface and groundwaters.

--As a matter of policy, the project engineer should submit a storm water management plan which includes detailed calculations, this should be reviewed by the appropriate town officials.

--All downstream culverts should be examined to avoid flooding problems.

--It does not seem likely that this proposed development will worsen the alleged flooding problems at the end of Stoneleigh Knoll.

--It should be noted that each future developer in this watershed should also do his/her part to control increased runoff.

--It does not appear that the site is particularly suitable for a development with a considerable number of individual well water supplies. The area and the clustering concept seem to warrant the development of a community water supply.

--Lots should undergo detailed testing and analysis. Pollutant renovation and potential bacterial contamination problems for individual wells should be included for possible approval, modification or rejection of this proposal.

--The eastern portion of the site seems to have a need for testing or monitoring for maximum high groundwater conditions.

--There is much concern if the site is developed with individual water wells. See Individual On-Site Wells section of this report for particulars.

--It is recommended that the Soil Scientist delineate the inland wetland areas in the field and then be surveyed and located on the site plans.

--It is recommended that silt fence be used in place of hay bales in areas where inland wetland soils will be disturbed.

--There are a couple of discrepancies in the calculations that are not significant but could be for other sites so they are mentioned in the Engineering Concerns section.

--There are two problems with what is shown on the plans and what is shown in the calculations see Engineering Concerns for specifics.

--The peak discharge and routing are acceptible in producing zero increase in peak discharge. There is a possibility of storing more water in the south swamp, this could reduce flooding of homes along the northwest side of the property.

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--an 86 town 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, a statement identifying the specific areas of concern the Team should address, and the time available for completion of the ERT study. 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 Elaine A. Sych (774-1253), Environmental Review Team Coordinator, Eastern Connecticut RC&D Area, P.O. Box 198, Brooklyn, Connecticut 06234.