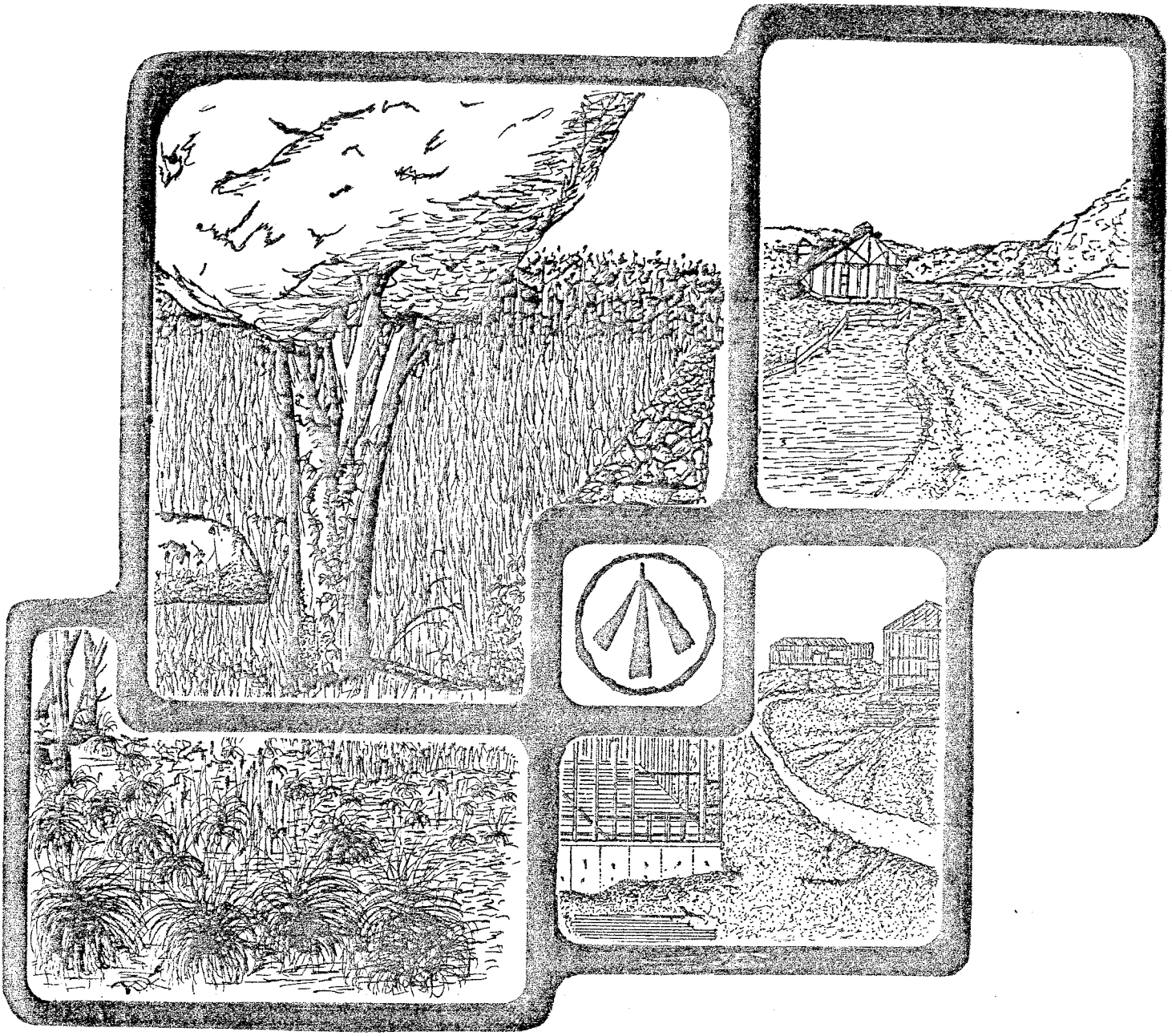
ENVIRONMENTAL REVIEW TEAM REPORT



HOLLISWOOD

EAST GRANBY, CONNECTICUT

KING'S MARK
RESOURCE CONSERVATION & DEVELOPMENT AREA

KING'S MARK
ENVIRONMENTAL REVIEW TEAM REPORT

HOLLISWOOD

EAST GRANBY, CONNECTICUT

JULY, 1983

King's Mark Resource Conservation and Development Area
Environmental Review Team
Sackett Hill Road
Warren, Connecticut 06754

ACKNOWLEDGMENTS

The King's Mark Environmental Review Team operates through the cooperative effort of a number of agencies and organizations including:

Federal Agencies
U.S.D.A. Soil Conservation Service

State Agencies
Department of Environmental Protection
Department of Health
University of Connecticut Cooperative Extension Service

Local Groups and Agencies
Litchfield County Soil and Water Conservation District
New Haven County Soil and Water Conservation District
Hartford County Soil and Water Conservation District
Fairfield County Soil and Water Conservation District
Northwestern Connecticut Regional Planning Agency
Valley Regional Planning Agency
Central Naugatuck Valley Regional Planning Agency
Housatonic Valley Council of Elected Officials
Southwestern Regional Planning Agency
Greater Bridgeport Regional Planning Agency
Regional Planning Agency of South Central Connecticut
Central Connecticut Regional Planning Agency
Capitol Regional Council of Governments
American Indian Archaeological Institute
Housatonic Valley Association

x x x x x

FUNDING PROVIDED BY
State of Connecticut

POLICY DETERMINED BY
King's Mark Resource Conservation and Development, Inc.
Executive Committee Members

Victor Allan, Chairman, Bethlehem
Harold Feldman, Treasurer, Orange
Stephen Driver, Secretary, Redding
Leonard Assard, Bethlehem
Sam M. Chambliss, Ridgefield
David Hannon, Goshen
Irving Hart, New Hartford
Frederick Leavenworth, Woodbury
Jean Murkland, Roxbury
John Rabbe, East Hartford
Mrs. Julia Wasserman, Newtown
John McCormick, Derby

STAFF ADMINISTRATION PROVIDED BY

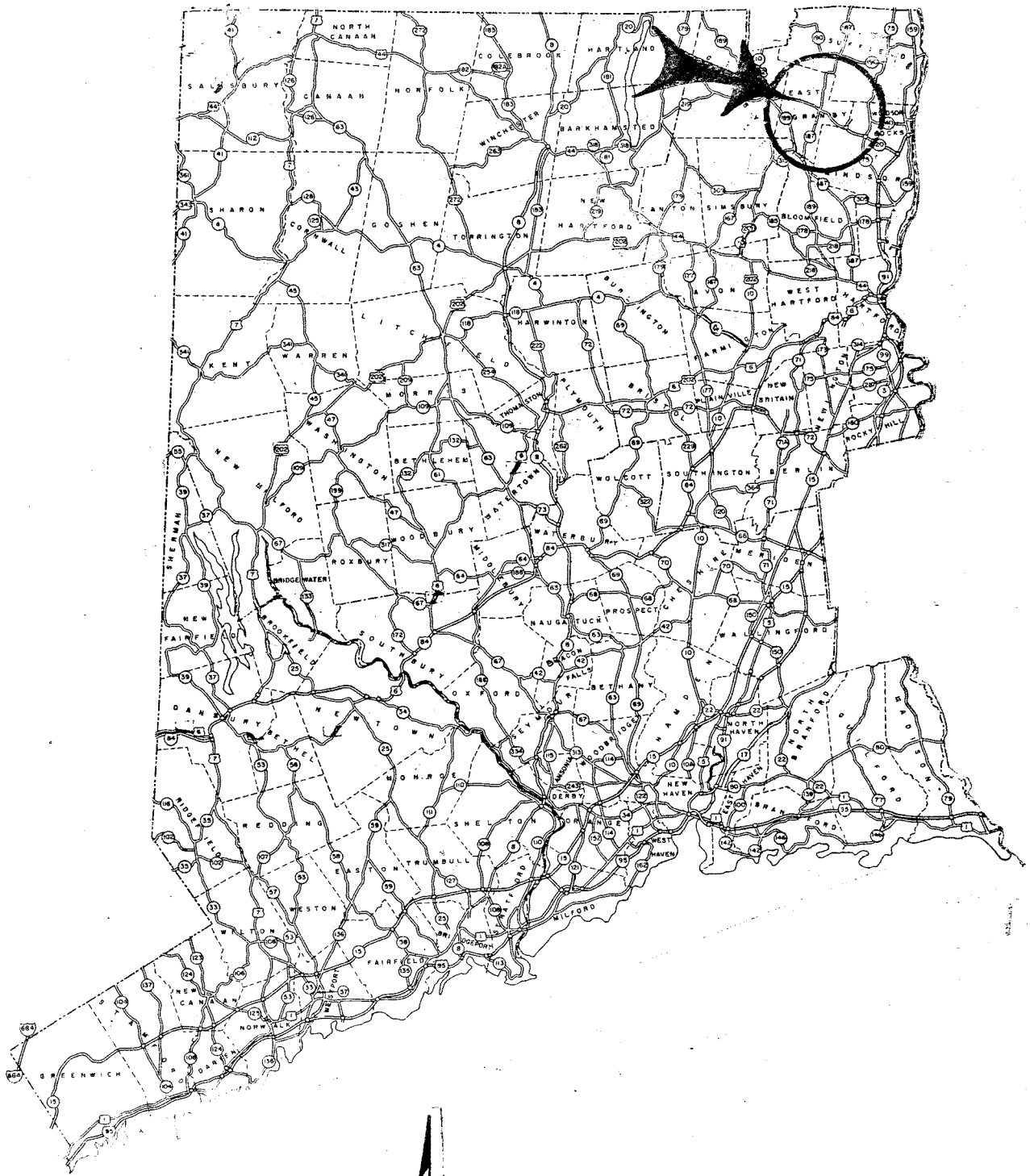
Northwestern Connecticut Regional Planning Agency

Lee Rand Burne, Chairman
Charles A. Boster, Director
Richard Lynn, ERT Coordinator
Sandra Bausch, ERT Cartographer
Irene Nadig, Secretary

TABLE OF CONTENTS

LIST OF FIGURES

LOCATION OF STUDY SITE



ENVIRONMENTAL REVIEW TEAM REPORT
ON
HOLLISWOOD
EAST GRANBY, CT

I. INTRODUCTION

The East Granby Conservation Commission is presently considering an application for residential subdivision of ± 65 acres of land.

The subject site is located in the northwestern quarter of town off Copper Hill Road. The site is mostly open land and characterized by slight to moderate slopes (see Figure 1). A large wetland area, known as Great Marsh, abuts the western border of the property. As shown in Figure 2, much of the subject site consists of inland wetland soils.

The proposed project calls for 42 lots of ± 3/4 acre to ± 9 acres in size (see Figure 2). An interior road network of ± 4,500 feet would be constructed to service the project. The lots are proposed to be served by on-site septic systems and a community water supply.

The East Granby Conservation Commission requested this ERT study to become aware of the environmental impact of the proposed project. Specifically the ERT was asked to 1) provide a natural resource inventory of the site, 2) discuss the suitability of the site for the proposed project, 3) discuss the probable environmental impact of the project, and 4) identify techniques which could be implemented to mitigate any adverse environmental effects. Of major concern to the Conservation Commission is the impact of the development on inland wetlands.

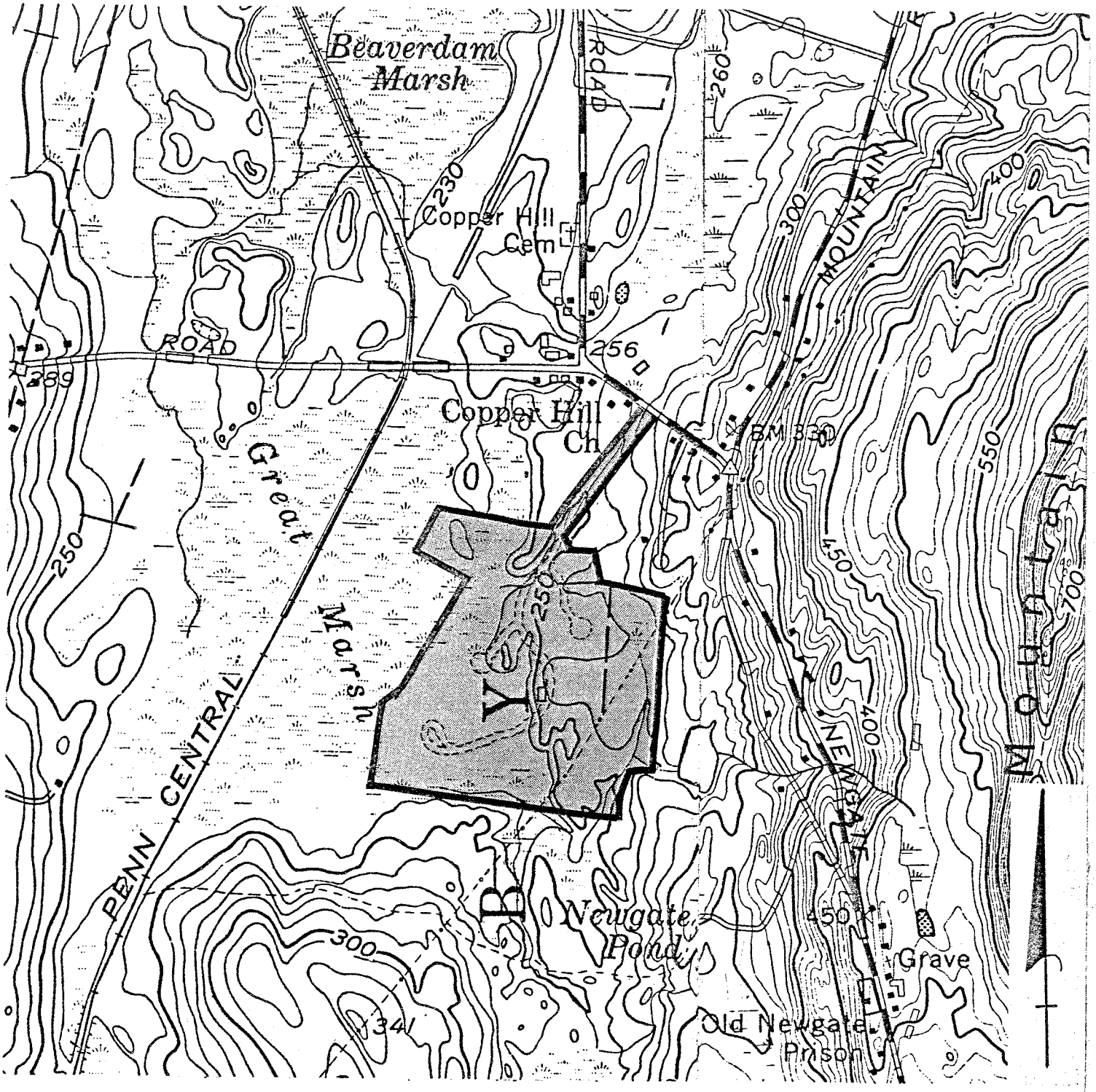
The King's Mark Executive Committee considered the town's request and approved the project for review by the Team.

The ERT met and field reviewed the site on April 27, 1983. Team members participating on this review included:

Vern Anderson	District Conservationist	USDA Soil Conservation Service
Brant Burz	Wildlife Biologist	CT Dept. of Environmental Protection
Larry Johnson	Planner	CT Office of Policy and Management
Steve Peterson	Sanitarian	Farmington Valley Health District
Ralph Scarpino	Forester	CT Dept. of Environmental Protection
Bill Warzecha	Geohydrologist	CT Dept. of Environmental Protection

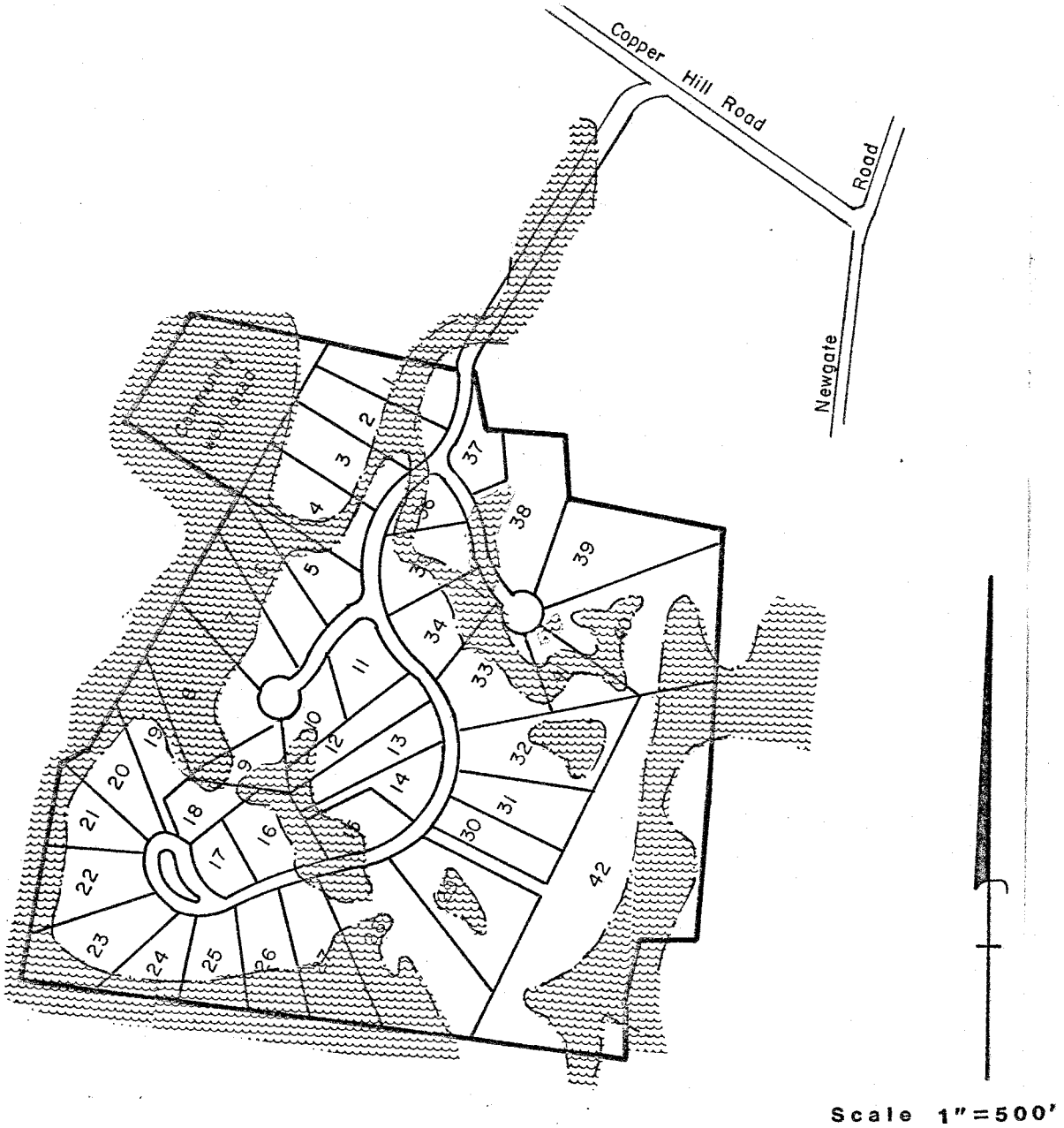
FIGURE 1

TOPOGRAPHIC MAP



Scale 1" = 1000'

FIGURE 2
SIMPLIFIED SITE PLAN



. Adapted from "Holliswood" site plan of 5/20/83

Wetlands as designated by field investigation

Prior to the review day, each team member was provided with a summary of the proposed project, a checklist of concerns to address, a detailed soil survey map, a soils limitation chart, a topographic map, and a site plan of the development proposal. Following the field review, individual reports were prepared by each team member and forwarded to the ERT Coordinator for compilation and editing into this final report.

This report presents the team's findings. It is important to understand that the ERT is not in competition with private consultants and hence does not perform design work or provide detailed solutions to development problems. Nor does the team recommend what ultimate action should be taken on a proposed project. The ERT concept provides for the presentation of natural resources information and preliminary development considerations--all conclusions and final decisions rest with the town and the landowner/developer. It is hoped the information contained in this report will assist the Town of East Granby and the landowner/developer in making environmentally sound decisions.

If any additional information is required, please contact Richard Lynn (868-7342), Environmental Review Team Coordinator, King's Mark RC&D Area, Sackett Hill Road, Warren, Connecticut 06754.

* * * * *

II. HIGHLIGHTS

1. *Because the proposed community well is located in a wetland area, there is legitimate concern for both 1) how wetland conditions will affect construction, operation, and maintenance of the well system and 2) how the well system will affect the wetland (e.g. fill requirements etc.). Consideration should be given by the town to requesting the applicant to provide details on well design and associated impacts prior to town action on the application. (p. 11)*

2. *Consideration should be given by the Town of East Granby to requesting the applicant to drill the well(s) and test for water quality and quantity prior to acting on the subdivision application. The Public Water Supply section of the State Health Department should also be contacted regarding projected needs of the subdivision in terms of water quantity, location of the community well or wells, access, storage facilities, test wells to determine potential yield of wells on the site, and water quality testing requirements. Consideration should also be given in advance to providing for proper maintenance of the community water supply system (e.g. establishment of a homeowner's association). (p. 11*

3. *Development of the site as planned can be expected to increase the amount of runoff from the site for a given rainfall amount and to thereby increase peak flows of streams into the wetland and the proposed detention ponds in the southern portion of the property. It is estimated that runoff depth for a 25-year storm event would increase from 1.32 inches to 2.16 inches; an increase of 63%. This increase is significant and underscores the importance of judicious stormwater management on the site. Prior to subdivision approval, it is recommended that the applicant be required to submit detailed hydrological information on pre- and post-development runoff volumes and peak flows from the property. Estimates should be provided for a 10, 25, 50 and 100 year design storm. Detailed design specifications for all stormwater control facilities (including ponds) should also be submitted. (p. 13)*

4. *The Great Marsh wetland serves many valuable hydrological functions. The wetland acts as a natural runoff retention basin, thereby reducing downstream flooding during storms, and also traps sediment from upstream areas. Great Marsh also serves as an effective natural buffer and can improve water quality through various biochemical processes. With proper design of on-site septic systems, subsurface sewage disposal on this site should not have an adverse impact on the Great Marsh wetland. Use of de-icing compounds (road salt) on the subdivision roads should be minimized, however, to reduce the potential for chemical deterioration of the wetland. The hydrologic functions of the Great Marsh wetland can be further protected by the conscientious implementation of a comprehensive erosion and sediment control plan. (p. 13)*

5. *All of the inland wetland soils on the site present severe limitations for residential development. Construction in and around these inland wetlands should be minimized to preserve their hydrologic and biologic functions. (p. 14)*

6. *Where deep test pits on this property have shown a seasonal high water table, provisions should be made for proper drainage in areas proposed for buildings, roads, driveways and septic systems. (p. 15)*

7. *A detailed design of the proposed ponds should be reviewed by the Soil Conservation Service prior to approval by the town for better assurance of properly designed ponds. The storage area of the ponds and outlet control structures should be based on a thorough hydrologic investigation of the drainage area above the ponds at full development and at various storm frequencies. Consideration should also be given to maintenance responsibilities and liability for the ponds in that they will encompass portions of several lots. (p. 15)*

8. *A comprehensive erosion and sediment control plan should be developed for this site. Consideration should be given to using a phase system of construction. (p. 15)*

9. *The project calls for four wetland road crossings of ± 150 feet, ± 200 feet, ± 250 feet, and ± 750 feet. Wetland road crossings are feasible, provided they are properly engineered. (p. 16)*

10. *Of major concern with regard to subsurface sewage disposal on this site is the presence of a seasonally high water table on major portions of the property. This condition will necessitate the use of curtain drains and/or fill systems to ensure that ground water does not interfere with the proper functioning of the septic systems. The type of ground water control method used must be determined by the soil conditions and topography of each individual lot. It appears that many of the proposed lots are capable of supporting on-site subsurface sewage disposal systems. In order to verify this however, additional soil testing and revised engineered plans will be required. Consideration should be given to not approving the subdivision plans until such time as each lot is shown to be capable of supporting a septic system in compliance with the Public Health Code, as determined by the Farmington Valley Health District.(p. 16*

11. *The property can be divided into five separate vegetation cover types. In the opinion of the Team's Forester, the vegetation in Type 5 should be removed, due to insect and disease problems. This area could be nicely landscaped with new varieties. (p. 17)*

12. *The species proposed for planting will be well suited to individual sites within the subdivision. (p. 19)*

13. *The "Holliswood" site may be divided into three major wildlife habitat types. A rich variety of wildlife presently exists at the site. If this area is developed as planned, there will be an immediate negative impact on wildlife throughout the property. A number of measures can be implemented to minimize the adverse impacts of the project on wildlife. (p. 20)*

14. *In general, the proposed project is compatible with surrounding land uses. (p. 21)*

15. *Many portions of the site are buildable, but a different approach should be considered in the opinion of the Team's planner. If the concept is to be single-family homes, a larger lot size should be considered in certain areas to reflect the nature of the site and the character of the surrounding area. In particular, lots 7, 8, 9, 12, 13, 14 and 27 should be considered for redesign. If clustering is done, a townhouse concept might be more appropriate. This could place all units on good soils and locations, and set aside both developable and wetland areas for common recreation space and natural area preservation. (p. 22)*

16. *The proposed single access will essentially create a long dead-end road which could prove problematic or dangerous in the event the roadway is ever blocked (e.g. fallen tree, traffic accident). While it would be desirable to create a second access to the site, this does not appear possible without acquiring additional land or an easement to additonal land. (p. 22)*

17. *It was not clear the day of the Team's field review precisely where the property fronted on Copper Hill Road. This access point should be clearly identified and sight lines checked to ensure safe vehicular access to and from the site prior to subdivision approval. (p. 23)*

III. GEOLOGY

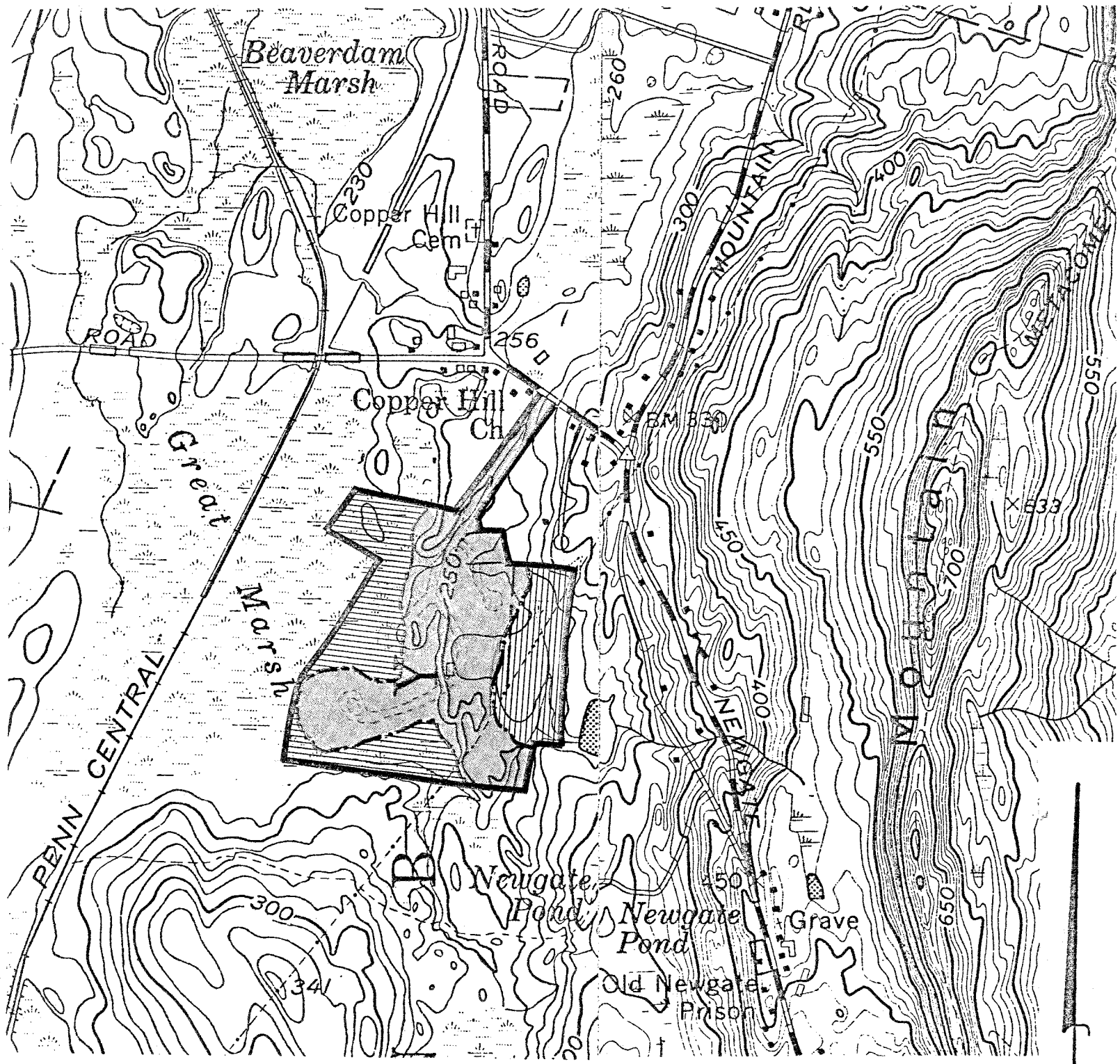
The proposed subdivision site is located in a section of East Granby that is included in the Tariffville topographic quadrangle. A bedrock geologic map of the quadrangle (Map GQ-370 by Robert W. Schnabel and John H. Eric, 1965) and a surficial geologic map of the quadrangle (Map GQ-798, by Allan D. Randall) have been published by the U.S. Geological Survey. These maps, available at the Natural Resources Center in Hartford, may be used to supplement the geologic information contained in this report.

During the ERT's field review, no bedrock outcrops were observed on the site. However, bedrock underlying the site, as mapped from nearby outcrops, has been identified as New Haven Arkose. New Haven Arkose, which is a sedimentary rock (rocks formed near the earth's surface in layers), consists of interbedded conglomeratic arkose (a sandstone with scattered pebbles and a high percent of the mineral feldspar) and arkosic (feldspar-rich) siltstone. This rock unit was formed by the cementation of sand, silt and pebbles that were deposited in streams and lakes approximately 200 million years ago. Depth to bedrock throughout most of the site is ± 10 feet, however becomes shallower (less than 10') towards the eastern section of the site. In terms of the subdivision, underlying bedrock should have little impact except in terms of the water quality and quantity for bedrock based wells drilled on the site. This will be discussed in more detail in the Water Supply Section of this report.

Bedrock on this site is overlain primarily be stratified drift. However, swamp sediments are found in the western and southern portions of the site and till in the eastern portion (see Figure 3). "Stratified drift" is composed of rock materials that were deposited by meltwater streams from a mass of stagnant glacier ice. Because the materials were transported and deposited by water, they commonly are well sorted by grain size and are layered (i.e. stratified). The total thickness of the stratified drift deposits is probably ± 10 feet throughout most of the site. In terms of on-site sewage disposal systems, the texture of the stratified drift soils should be well suited for absorbing sewage effluent. However, because of the coarse nature of the soil, it would be expected to have rapid seepage. As a result, it would not afford ideal conditions for filtering and renovating the effluent to a stablized form. Therefore, it is recommended that sewage systems, in addition to meeting Public Health Code requirements, be located as far as possible away from watercourses and wells in the development.

Till, which is restricted to the eastern section of the site, is a glacial sediment that was deposited directly from the glacier. Because it was deposited directly it lacks the sorting and the layering that is characteristic of stratified drift. Till contains particles ranging in size from clay to boulders, and it varies considerably in its textural characteristics. In the upper few feet, till is generally sandy, stony and relatively loose, while below that it generally is somewhat siltier and compact. Groundwater flow tends to be very slow through the more compact till which can result in a seasonal or perched high ground water condition at or near the surface of the ground. This condition was observed throughout the eastern portion of the site. With respect to sewage disposal, the Public Health Code requires the bottom area of the leaching system to be at least 18 inches above maximum high ground water level. Where this compact till condition exists, engineered septic systems may be required. Measures used to control such a condition as it pertains to this section of the

FIGURE 3
SURFICIAL GEOLOGY MAP



LEGEND

Till

Stratified drift

Swamp deposits

Scale 1"=500

site may include: 1) the use of curtain drains, where possible, 2) proper surface grading and drainage and 3) the use of fill to elevate the septic system above the high ground water table. The thickness of till on the site is probably less than 10 feet.

Swamp deposits, which are found in the western and southern sections of the site, consist of decayed organic material (peat and muck) mixed with some silt, clay and sand. There is no information available to the Team on the thickness of these deposits, but it is likely that they are at least 10 feet thick. The swamp deposits are probably underlain by stratified drift deposits.

It should be noted that during the ERT's field review, two long low and narrow mounds of earth running diagonal to one another were observed in the area of Lots 1 and 2. These mounds may be an esker which is a glacial feature composed of moderately well stratified and well sorted sand and gravel. Eskers were formed when sand and gravel was deposited 1) by a subglacial (formed or accumulated in or by the bottom parts of a glacier) stream flowing between ice walls or 2) in an ice tunnel of the retreating glacier and was subsequently left behind when the ice melted. Eskers are comparatively rare in Connecticut and are of educational interest.

IV. WATER SUPPLY

It was indicated to the Team during the field review that there was no public water supply line available to serve the proposed subdivision. Accordingly, the developer intends to use a community well to serve the needs of the subdivision. The community well area is proposed in the northwest section of the site. There does not appear to be any thick, stratified sand and gravel deposits on the site that would be conducive to a high yielding water supply. Therefore, it seems likely that a well or series of wells would probably have to tap fractures in the underlying bedrock. Most bedrock wells are capable of yielding small amounts of water which are adequate for individual households. The sedimentary rock underlying the site has potential for low, moderate or possibly even high yields. The yield of a well tapping the bedrock fracture system depends in part upon the number and size of the water bearing fractures the well intersects. Because the fractures are unevenly spaced throughout the rock, there is no practical way, short of expensive geophysical testing, to assess the potential of any specific site for a satisfactory yield without actually drilling the well.

According to Water Resources Bulletin No. 28, which presents hydrogeologic data for the Farmington River Basin, three bedrock based wells tapping sedimenting rock in the vicinity of the study site (± 7 miles) yielded 9 gpm, 7 gpm and 20 gpm at depths of 55 feet, 125 feet and 186 feet, respectively.

If a design standard of 300 gallons per day per household is used, a total of 12,600 gallons of water would be required for 42 houses. This amount of water would require a well producing at 12 gallons per minute -- an amount well within the range of many sedimentary bedrock wells. It may be necessary or at least desirable to drill more than one well however to ensure adequate yields.

Provisions should also be made for storing at least one-third the peak daily demand (about 4,200 gallons) and preferably a full days water requirement in case there are problems with the projects pump system.

Consideration should be given by the Town of East Granby to requesting the applicant to drill the well(s) and test for water quality and quantity prior to acting on the subdivision application. The Public Water Supply section of the State Health Department should also be contacted regarding projected needs of the subdivision in terms of water quantity, location of the community well or wells, access, storage facilities, test wells to determine potential yield of wells on the site, and water quality testing requirements. Consideration should also be given in advance to providing for proper maintenance of the community water supply system (e.g. establishment of a homeowner's association).

Because the proposed community well is located in a wetland area, there is legitimate concern for both 1) how wetland conditions will affect construction, operation, and maintenance of the well system and 2) how the well system will affect the wetland (e.g. fill requirements etc.). Consideration should be given by the town to requesting the applicant to provide details on well design and associated impacts prior to town action on the application.

Should the community well system prove unfeasible for some reason, it should be noted that individual wells on each lot is an alternative. Due to the rapidly draining soils on this site, however, care would have to be taken in siting individual wells to avoid possible pollution from nearby septic systems.

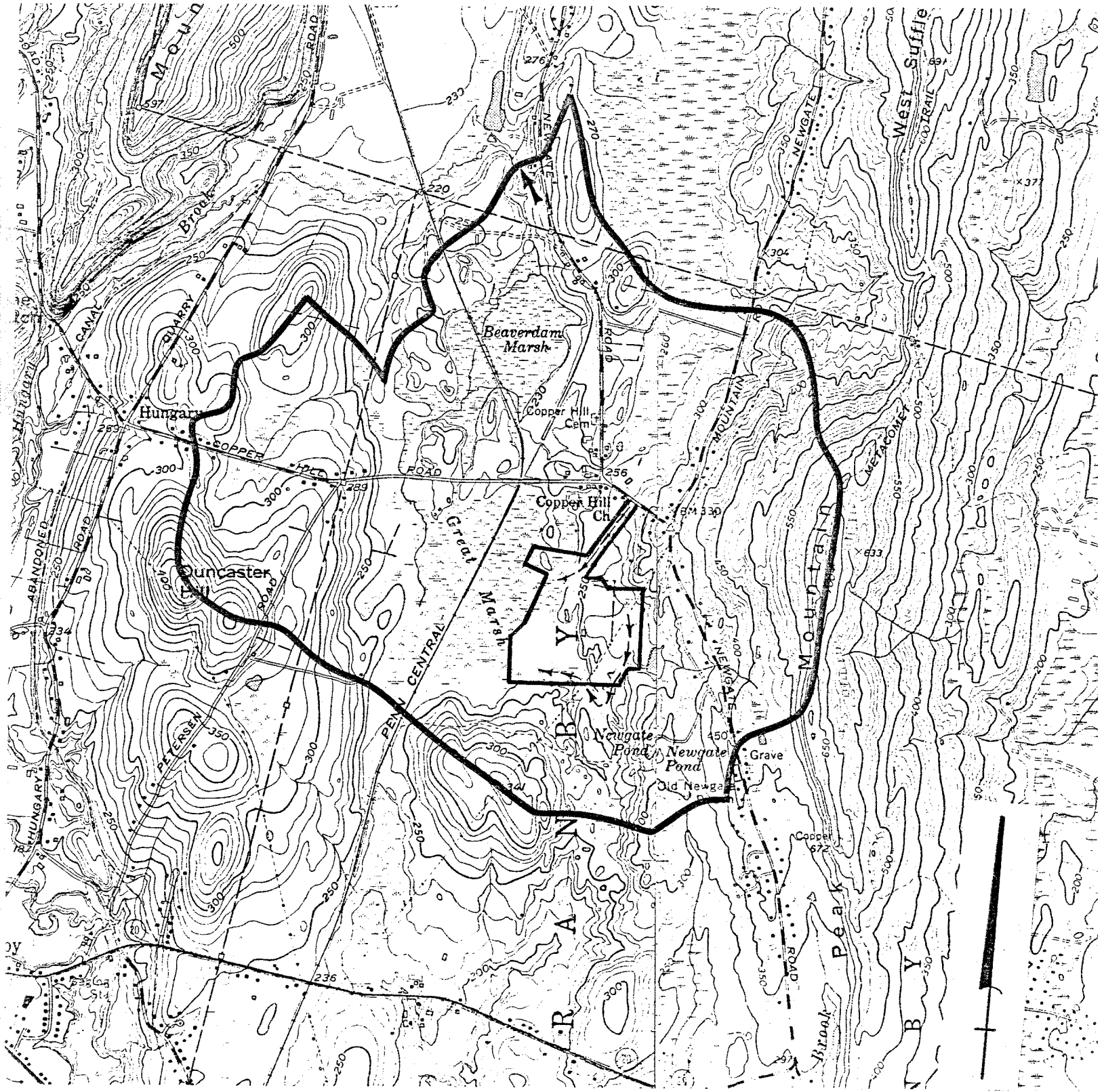
V. HYDROLOGY

The Holliswood site lies within the watershed of Beaverdam Marsh Creek, a tributary of Hungary Brook. The size of the watershed is relatively small, about 1,472 acres or $\pm$ 2.3 square miles (see Figure 4).

There were at least two, unnamed perennial streams observed on the property during the Team's field review. One of the streams, which originates in the northern section of the site flows southwest finally discharging into the wetland (Great Marsh) west of the site. The other stream originates in the eastern portion of the site. It flows south, then west and also discharges into the wetland. The location of these streams is shown in Figure 1. Apart from these relatively well defined brooks, most runoff appears to collect temporarily in shallow topographic depressions and in natural swales as intermittent streams throughout the site. Wetness in these areas can be attributed both to the nature of the surficial materials (i.e., compact till) and to the irregular topography. Although, it is likely that some of the wet areas observed represent only seasonal groundwater buildup, or perhaps even temporary surface-water storage, it is important to recognize that these areas do exist throughout the site. It is recommended that the location of these wet areas be identified in the final subdivision plan, particularly with respect to the layout of homes and sewage disposal systems.

These wet areas include not only the inland wetland soils, as have been mapped by the applicant, but also topographic swales where the soils are not

FIGURE 4
WATERSHED MAP



LEGEND

Design point

Watercourses showing direction of flow

Drainage area of design point

wetlands but surface water nevertheless collects. The location of these topographic swales could probably most easily be shown through the preparation of a topographic map of the property at 2 foot contour intervals.

Development of the site as planned can be expected to increase the amount of runoff from the site for a given rainfall amount and to thereby increase peak flows of streams into the wetland and the proposed detention ponds in the southern portion of the property. These increases would be caused by removal of vegetation, compaction of soil during the construction phase, and creation of impervious surfaces such as roofs, driveways, and roads.

An estimate may be made of the runoff change likely to occur from the proposed land use modification. Technical Release No. 55 of the Soil Conservation Service provides a technique which may be used in formulating the estimate. This method involves the determination of runoff curve numbers, which relate the amount of precipitation to amounts of runoff. It is estimated that development would increase the curve number of the property by 11 (from 57 to 68). Under these conditions, runoff depth for a 25-year storm event would increase from 1.32 inches to 2.16 inches; an increase of 63%. This increase is significant and underscores the importance of judicious stormwater management on the site.

As depicted on the site plan (revised 2/3/82) stormwater drainage emanating from the northwest portions of the site will be discharged either into a stream, which ultimately discharges into the wetland or directly into the wetland. Stormwater drainage throughout the remaining portions of the subdivision will flow either directly to the wetlands or into two proposed detention ponds and then into the wetlands. The ponds will be installed in the southern portions of the site. These ponds may also serve a sediment retention function. If sediment does accumulate in the pond, the material should be removed periodically. Proper maintenance of the retention pond will assure that the runoff storage capacity of the pond is not diminished.

Prior to subdivision approval, it is recommended that the applicant be required to submit detailed hydrological information on pre- and post-development runoff volumes and peak flows from the property. Estimates should be provided for a 10, 25, 50 and 100 year design storm. Detailed design specifications for all stormwater control facilities (including ponds) should also be submitted. All storm drain outlets should include a designed energy dissipator to help protect areas below the outlet from gullying.

The Great Marsh wetland which abuts the western border of the property, is $\pm$ 140 acres in size and is a wetland that serves many valuable hydrological functions. The wetland acts as a natural runoff retention basin, thereby reducing downstream flooding during storms, and also traps sediment from upstream areas. Great Marsh also serves as an effective natural buffer and can improve water quality through various biochemical processes.

With proper design of on-site septic systems, subsurface sewage disposal on this site should not have an adverse impact on the Great Marsh wetland. Use of de-icing compounds (road salt) on the subdivision roads should be minimized, however, to reduce the potential for chemical deterioration of the wetland and proposed detention ponds. Contaminants such as salts, oils and automobile residue do represent a potential threat to the wetlands and can reduce its effectiveness as a natural buffer. The hydrologic functions of the Great Marsh wetland can be further protected by the conscientious implementation of a comprehensive erosion and sediment control plan.

VI. SOILS

A Soils Map of the subject site, prepared by the U.S.D.A. Soil Conservation Service, is presented in the Appendix of this report. The Appendix also contains a Soils Limitation Chart which provides limitation ratings for each of the soils for various land uses.

A detailed mapping of inland wetland soils by a soils scientist for the applicant showed the wetland boundaries within the site to vary substantially from those portrayed on the Town wetlands map and also the Soils Survey of Hartford County by the U.S.D.A. Soil Conservation Service. This more detailed mapping was reviewed in the field by a soil scientist for the Soil Conservation Service and was determined to be "an accurate representation of wetland boundaries". Thus, the wetland boundaries shown in Figure 2 are a more accurate representation of field conditions than the previous, more general mapping of the area.

Three inland wetland soil types have been identified on the property. These include:

1) Peats and Mucks (Pm). These soils have a 1.5 foot to more than 20 foot thickness of organic matter over a mineral soil. The water table is at or near the surface most of the year. This soil is prevalent at the western border of the site and extends into Great Swamp.

2) Scarboro loam (Se). This soil is a very poorly drained soil underlain by grayish loamy sand, coarse sand and loamy fine sand at one to five feet in depth. There is slow surface runoff and permeability is rapid or very rapid. The water table is at or near the surface for 6 to 12 months of the year. Many areas are ponded for short periods.

3) Walpole loam (Wc). This soil is a poorly drained soil with a stratified gravelly loamy sand with gray mottles at two to five feet in depth. The surface runoff and the internal drainage are slow.

All of these inland wetland soils present severe limitations for residential development. Construction in and around these inland wetlands should be minimized to preserve their hydrologic and biologic functions.

The non-wetland soils on the property have been mapped primarily as Enfield, Hinckley and Narragansett soils in the Hartford County Soil Survey. These soils are well drained to excessively well drained. The Enfield and Hinckley soils are underlain by stratified sand and gravel and are droughty. While these soils are easy to excavate and thus well-suited to constructing buildings , care must be taken in the installation of septic systems due to the rapid drainage of these soils. Without careful design, septic effluent might not be sufficiently renovated in the soil which can lead to the pollution of groundwater supplies. Except where steep slopes are a problem, the Narragansett soils are well suited to residential development.

Soils mapping by a soils scientist for the applicant indicates the non-wetland soils on this site are primarily Manchester gravelly loam (Mc) soils on the western half of the site and Sudbury fine sandy loam (Ss) soils on the eastern half. Manchester soils are excessively well drained gravelly soils underlain by

sand and gravel at depths ranging from 6 to 18 inches. These soils are well-suited to the construction of houses and local roads and driveways. Droughtiness and small stones present limitations in landscaping. Because these soils are a poor filter, care must be taken in the design of septic systems not to pollute groundwater supplies.

Sudbury soils are moderately well-drained sandy soils which have developed on deposits of sand and gravel. While these soils are rapidly permeable, a seasonal high water table interferes with internal drainage. Mottles at depths of 10 to 18 inches indicate that the lower subsoil is waterlogged in wet seasons. Due to wetness, and because these soils are a poor filter, these soils present severe limitations for septic systems. Wetness also presents severe limitations for the construction of houses and moderate limitations for roads and driveways. Where deep test pits on this property have shown a seasonal high water table, provisions should be made for proper drainage in areas proposed for buildings, roads, driveways and septic systems.

The soils mapping by the applicant was performed at a higher level of accuracy than the Hartford County Soil Survey. While there may be inclusions of the soils shown on the Soil Survey within the site, the ERT believes the soils mapping performed by the applicant is a more accurate representation of actual conditions than the soil survey map presented in the Appendix of this report.

PROPOSED PONDS

Two ponds of $\pm$ 1/4 acre and $\pm$ 3/4 acre in size are presently proposed to be located in a wetland area in the southern portion of the site. The ponds would encompass portions of lots #27, and 28 and lots #9, 12, 13, 14, 15 and 16. Great Marsh is at elevation 240. The water line of the two proposed ponds is at elevation 239. The water table of the marsh should help to maintain the water level of the ponds.

If the ponds are to be functional for multiple-uses, the water depth should be at least 7 feet over 30 percent of the surface water area. The storage holding area for peak storms can be planned for the area above the normal pond level. The pond sideslopes should be kept at 2:1 or flatter.

Consideration should be given to digging 2 or 3 test holes at 8 to 10 feet depth prior to digging the ponds. These test holes should be observed through the droughty period that is generally during July and August. If the water table fluctuates more than 2 feet from the wet season through the dry period, the ponds will likely prove to be problem ponds. A detailed design of the proposed ponds should be reviewed by the Soil Conservation Service prior to approval by the town for better assurance of properly designed ponds. The storage area of the ponds and outlet control structure should be based on a thorough hydrologic investigation of the drainage area above the ponds at full development and at various storm frequencies. Consideration should also be given to maintenance responsibilities and liability for the ponds in that they will encompass portions of several lots.

EROSION AND SEDIMENT CONTROL

A comprehensive erosion and sediment control plan should be developed for this site. The plan should include time and sequence of practice installation, and vegetative seeding and fertilizer rates.

Consideration should be given to using a phase system of construction. Under this system, one portion of the site is constructed and seeded before the next portion is disturbed. This practice, with appropriate erosion and sediment controls, should keep off-site sedimentation to a minimum. Erosion and sediment control is particularly important on this site so that the value of the Great Marsh wildlife area is not degraded.

Consideration should also be given to locating one or more sediment basins on-site prior to construction. These basins can be temporary or permanent.

The project calls for four wetland road crossings of ± 150 feet, ± 200 feet, ± 250 feet and ± 750 feet. Wetland road crossings are feasible, provided they are properly engineered. Provisions should be made for removing unstable material beneath the roadbed, backfilling with a permeable road base fill material, and installing culverts as necessary. When crossing any wetlands, the roads should be at least 1.5 feet and preferably 2 feet above the surface elevation of wetlands. This will allow for better drainage of the roads. It will also decrease the frost heaving potential of the road. Road construction through wetlands should preferably be done during the dry time of the year and should include provisions for effective erosion and sediment control.

VII. SEPTIC SYSTEMS

The Farmington Valley Health District has reviewed the proposed project for septic system suitability and reported their findings to the East Granby Planning and Zoning Commission in a letter dated March 29, 1983. A copy of that letter is included in the Appendix of this report.

The FVHD has concluded that certain areas of the subject site can support septic systems in accordance with the regulations of the Connecticut Public Health Code. Aside from the wetlands, the upper soil layers on most of the land is sandy with percolation rates in the 5-6 minutes/inch range. Of major concern with regard to subsurface sewage disposal on this site is the presence of a seasonally high water table on major portions of the property. This condition will necessitate the use of curtain drains and/or fill systems to ensure that ground water does not interfere with the proper functioning of the septic systems. The type of ground water control method used must be determined by the soil conditions and topography of each individual lot.

The FVHD has requested that more field work (i.e. additional soil tests) and revised engineered plans be completed by the applicant so that the FVHD can properly determine if each lot can support a subsurface sewage disposal system. The FVHD has also stated that two foot contour intervals must be shown on the plans for proper review and analysis by the District.

To conclude, it appears that many of the proposed lots are capable of supporting on-site subsurface sewage disposal systems. In order to verify this however, additional soil testing and revised engineered plans will be required. Consideration should be given to not approving the subdivision plans until such time as each lot is shown to be capable of supporting a septic system in compliance with the Public Health Code, as determined by the Farmington Valley Health District.

VIII. VEGETATION

The "Holliswood" property can be divided into five separate vegetation cover types. These types are described below under the heading "Vegetative Type Descriptions". In general terms, about one-half the parcel is wooded while the remainder is either old pasture land of hay field. Species range from pioneer species in the pasture to red maple in the wet areas to Christmas tree species planted many years ago.

In a commercial sense, the value of the wood found on this parcel is not extremely high. The more valuable saw timber type products were removed several years ago. Such a varied landscape does,however, play an important role in the aesthetics of a community and provides a varied wildlife habitat. The wetlands are part of a much larger water retention area, Great Marsh. These areas collect, store and release water slowly helping to provide a continuous supply as well as helping to protect downstream properties from excessive flooding.

A. Vegetative Type Descriptions (refer to Figure 5)

TYPE 1, Hay Field - This area is presently being utilized by a local farmer for hay production.

TYPE 2, Old Pasture - This area appears to have been pastured in the not too distant past. Vegetation is mixed from grasses to hedgerows. Pioneer species are making their presence known and include red cedar, juniper, multiflora rose, red maple, sumac, blueberry and grape vine.

TYPE 3, Mixed Hardwood - This vegetation type is underlain primarily by gravel deposits on ridgelines, and is surrounded by wet areas. As most of the larger trees have been removed, the residual stand is primarily between 8 and 10 inches in diameter. Tree species include red maple, red oak, black cherry, white oak, aspen, hickory and scattered sycamore and hemlock. The understory consists of similar tree species seedlings as well as princess pine and wild strawberry.

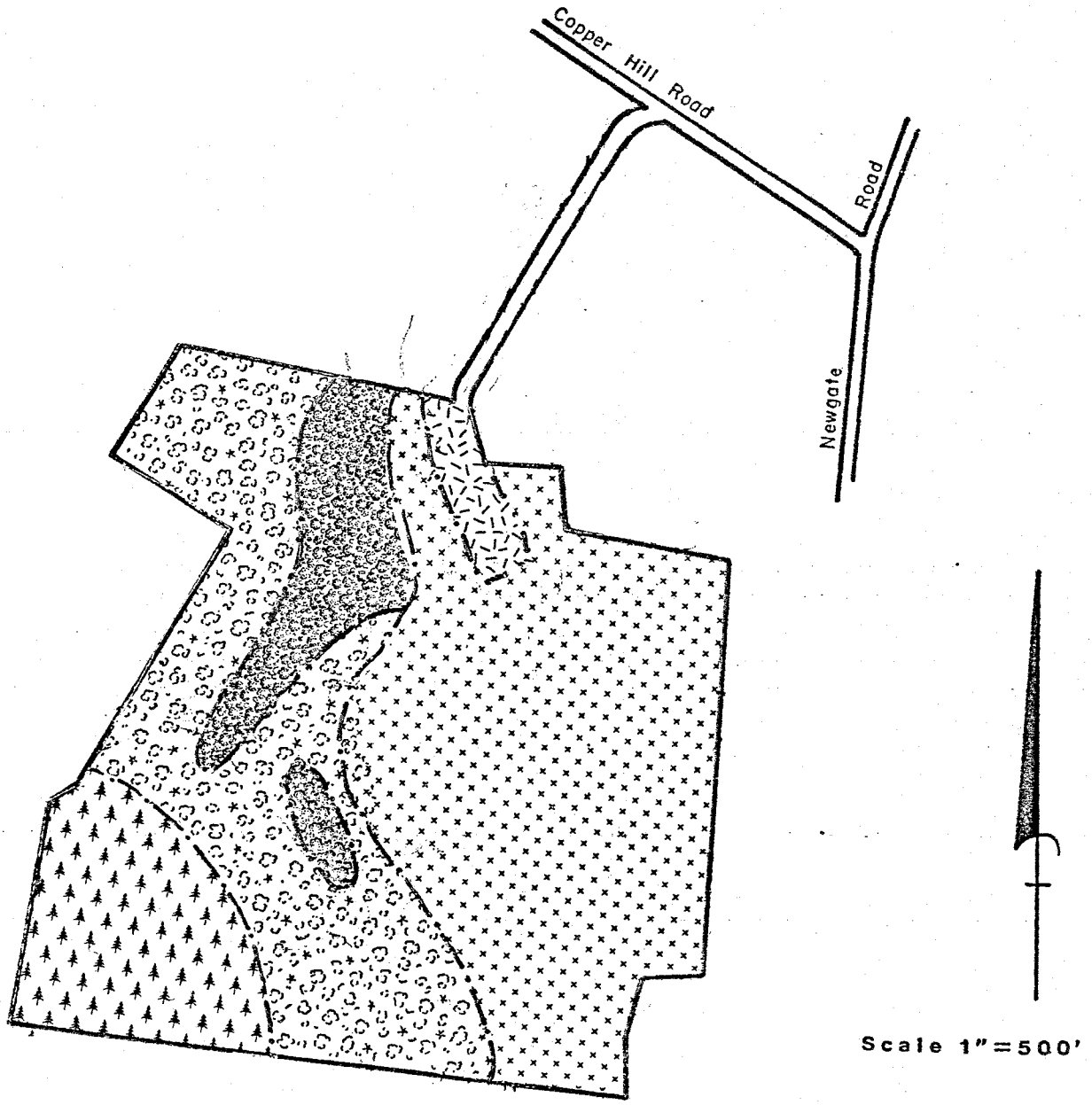
TYPE 4, Red Maple Swamp - The primary species in this stand is red maple. There is an occassional swamp white oak. Previous cutting removed most of the other species that were present including white pine, hemlock, and oak. The understory has a variety of ferns as well as skunk cabbage.

TYPE 5, Old Christmas Tree Plantation - This is an area that was once planted to several varieties of Christmas trees. Diameters range from 2 to 6 inches. Some hardwoods have invaded where there was enough light. Christmas tree species present include scotch pine, Douglas fir and blue, white and Norway spruce. Invading hardwoods are primarily red maple and aspen.

B. Limiting Conditions and Potential Hazards

Several factors should be considered in the maintenance of the present vegetation. Wetland soils (primarily cover Type 4) have a water table close to the surface of the ground. This allows for shallow root penetration of the trees. The

FIGURE 5
VEGETATION TYPE MAP



LEGEND

Type 1. Hay Field

Type 2. Old Pasture

Type 3. Mixed Hardwood

Type 4. Red Maple Swamp

Type 5. Old Christmas Tree Plantation

trees are thus susceptible to windthrow. Additional openings and clearings in and along side wet areas should be avoided if possible. This will serve to minimize the potential for wind throw of the trees.

Alterations in the wetlands which permanently raise or lower the water table may have a negative impact on the vegetation in the immediate area. Raising the water table may drown root systems causing widespread mortality in the plant community. Lowering the water table can result in conditions too droughty for the present plant community and thus also effect changes.

Vegetation Type 5 could be a problem to prospective home buyers. At present most of the coniferous trees are heavily infected with a variety of insect and disease related problems. Some of these problems may remain just aesthetic in nature but mortality is a possibility in heavily infected stands. Most of the Douglas fir has a problem with needle cast (Rhabdocline) and is serving as the alternate host for Cooley spruce gall aphid. The blue spruce (the other alternate) is laden with galls. Some of the Norway spruce and most of the white spruce is also covered with galls from the eastern spruce gall aphid.

C. Management Considerations

With the number of lots planned, this project will have a significant impact on the present vegetation. With implementation of the project, overall concern should be directed towards maintaining and enhancing the vegetation which can be left. It would be desirable to identify those individual trees and shrubs which should be saved and also to physically mark them on the ground to insure their retention. If possible, clumps of vegetation should be left. This allows for less potential damage to any one individual stem.

The species proposed for planting (red and sugar maple, red cedar, jack and Austrian pine and golden weeping willow) will be well suited to individual sites within the subdivision. Additional species could be added to this list which are also well adapted to this climate (e.g. native white pine and hemlock).

In the opinion of the Team's Forester, the vegetation in Type 5 should be removed, due to the above described insect and disease problems. This area could be nicely landscaped with new varieties.

Any cutting whether it is done for roadways or building sites should be done to take advantage of the demand for most wood products. Firewood will be the main product and is highly sought after. The proper marketing of this product should be considered.

A public service forester (available at 379-0071) or a private forester may be of assistance in either on the ground planning or the marketing of the wood products.

IX. WILDLIFE

Presently, the "Holliswood" site may be divided into three major wildlife habitat types. The site consists predominantly of openland wildlife habitat, with forested habitat and wetland habitat located at the 'edges' of the old field. For a description of the vegetation present and location of these habitat types, please see the vegetation type descriptions and vegetation type map presented in the previous section of this report.

A rich variety of wildlife presently exists at the "Holliswood" site. During the ERT field review the following observations were made: numerous squirrel nests, two of the taller deciduous trees had an unidentified hawk or owl nest, two ruffed grouse and numerous non-game species such as song birds, small rodents, reptiles and amphibians. The intermittent stream and marsh corridors support the greatest wildlife utilization on this property.

If this area is developed as planned, there will be an immediate negative impact on wildlife throughout the property. The primary impact would be a direct loss of habitat due to roads, buildings and driveways. Another impact would be a change in habitat where hardwood forest is cleared for lawns. A third impact will be the increased human presence, vehicular traffic, and number of roaming cats and dogs. This will drive the less tolerant (shy) wildlife species from the site, even in areas where it has not been physically changed. However, this parcel is in close proximity to the East Granby Land Trust property, along with the newly acquired "Newgate Wildlife Management Area". These areas are favorable for wildlife utilization and should keep much of the affected wildlife nearby.

A number of measures can be implemented to minimize the adverse impacts of the project on wildlife. When developing the proposed road network along with the proposed ponds, every effort should be taken to keep sediment out of the existing Great Marsh. Culverts, along with the pond control structures, should have devices built to discourage beaver from creating dams.

To actively encourage wildlife at the "Holliswood" Subdivision, one could:

a) Plant perennial vegetation beneficial to wildlife for food and cover.

b) Leave buffer strips of natural vegetation around wetland areas (Great Marsh, ponds, intermittent streams) to help protect and maintain water quality. These buffer strips should be 50 to 100 feet wide. The natural vegetation will help to filter and trap silt and sediments which might otherwise reach the wetland areas.

c) Erect and maintain two woodduck boxes at each proposed pond.

d) Erect and maintain bluebird boxes along the "edges" of unaffected field openings, near the existing power line, etc.

e) Leave exceptionally tall, mature oak trees wherever possible.

f) Preserve den and roosting trees wherever possible.

g) Leave a percentage of the ± 15 year old evergreen (Douglas fir) stand for valuable cover.

h) Leave trees with vines wherever possible as a food supply for wildlife.

To conclude, the proposed project will negatively impact existing wildife population. However, the project can be expected to attract more "urban" adapted wildlife forms to the property (i.e. songbirds via bird feeders, raccoons, skunks, opposums, squirrels).

If any additional wildlife related questions arise the town or applicant is encouraged to contact the Western District Wildlife Biologist at 485-0226.

X. PLANNING CONSIDERATIONS

A. Surrounding Land Use

The 65 acre Holliswood property is bordered on the south by a 425 acre State-owned parcel, upon which hunting will be allowed. To the west is an extensive wetland area known as Great Marsh which is owned by the East Granby Land Trust and may also be used for hunting in the future. East of the site, land use is predominantly large lot residential while north of the site is the Copper Gate Country Club and several residential structures. In general, the proposed project is compatible with surrounding land uses. The East Granby Planning and Zoning Commission has already granted the site a Planned Residential Development (PRD) zone change, and is now in the process of reviewing the site development plan.

B. Consistency of Project With Existing Plans

The 1979 revision of the Connecticut Plan of Conservation and Development indicates the site as being partially in the Preservation/Conservation category and partially in the Rural category. The 1976 Plan of Development for the Town of East Granby shows the western portion of the site as part of Great Swamp, and the eastern portion as active agricultural land.

The Town Plan also identifies extensive inland wetlands on the site and areas with a seasonally high ground water level. Both the State and the town plans, therefore, indicate that this is an environmentally sensitive area which requires careful site planning to avoid the degradation of existing natural resources.

C. Proposed Site Plan

East Granby's Planned Residential Development (PRD) regulation is intended to provide "variety and flexibility in residential land development", "conservation of open spaces and scenic and natural resources","imaginative site planning", and "curtailment of urban sprawl". In the opinion of the Team's planner,

none of these characteristics are evident in the proposed development plan for this site. Rather, the project appears to be an attempt to place a maximum number of lots on a sensitive site. Portions of many of the lots are wetland or under proposed ponds. Houses are crowded together in many areas on small and awkwardly shaped lots with no compensating common open space. Some lots on the eastern edge are under an existing high tension line with homes shown just at the minimum distance from the line.

Many portions of the site are buildable, but a different approach should be considered. If the concept is to be single-family homes, a larger lot size should be considered in certain areas to reflect the nature of the site and the character of the surrounding area. In particular, lots 7, 8, 9, 12, 13, 14, and 27 should be considered for re-design. If clustering is done, a townhouse concept might be more appropriate. This could place all units on good soils and locations, and set aside both developable and wetland areas for common recreation space and natural area preservation.

D. Solar Considerations

Section 8-25(b) of the Connecticut General Statutes (PA 81-344) requires that passive solar heating be considered in reviewing a subdivision. This includes house orientation, street and lot layout, natural and man made topography and protection of solar access (i.e., prevention of shading solar collector areas). These requirements are covered in detail in: Passive Solar Design: A Planner's Guidebook, published by the Energy Division of the Connecticut Office of Policy and Management and the Central Naugatuck Valley Regional Planning Agency.

As presently laid out, lots in the eastern and central portions are open and accessible, and lots on the western edge are shaded. The narrow lots and lot orientation in many areas will make house placement to utilize passive solar heating awkward and inconvenient. For maximum solar benefit, buildings should be oriented to provide a southern exposure on one side. Approximately one-third of the presently proposed units offer a southern exposure.

E. Traffic and Access

As shown in Figure 2, access to the project would be provided by an interior road network of ± 4,500 feet. The proposed single access will essentially create a long dead-end road which could prove problematic or dangerous in the event the roadway is ever blocked (e.g. fallen tree, traffic accident). While it would be desirable to create a second access to the site, this does not appear possible without acquiring additional land or an easement to additional land.

Based upon Connecticut Department of Transportation standards, the proposed project can be expected to generate 10 trips/day/unit or 420 additional one-way trips per day. During peak periods, 30-60 vehicle trips per hour can be expected. Most of this traffic can be expected to travel easterly on Copper Hill Road for ± 750 feet to Newgate Road and then southerly to Route 20. The

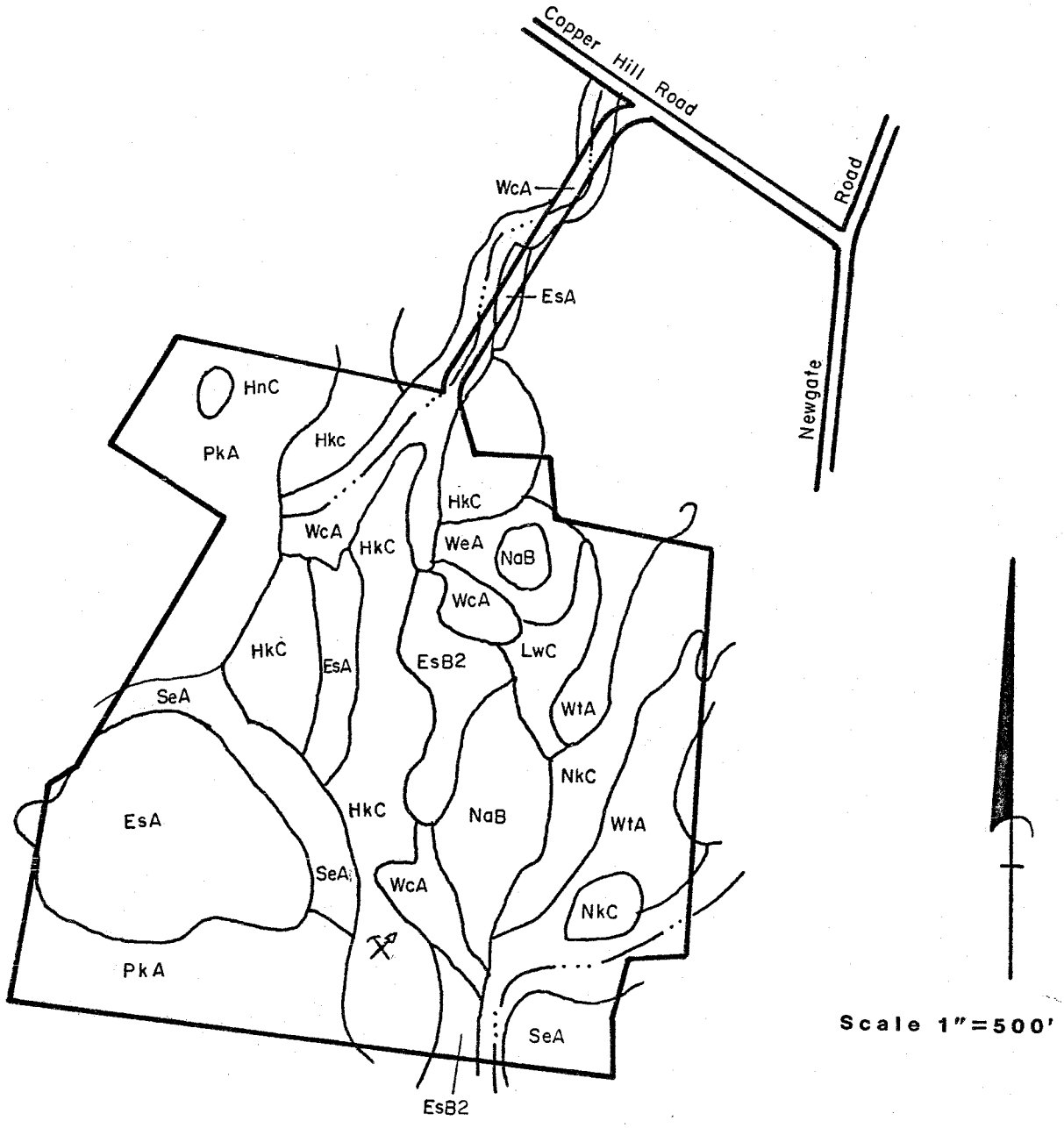
current condition and vehicle to capacity ratios for these roads is not known. The impact of this additional traffic could therefore not be assessed by the ERT.

It was not clear the day of the Team's field review precisely where the property fronted on Copper Hill Road. This access point should be clearly identified and sight lines checked to ensure safe vehicular access to and from the site prior to subdivision approval.

* * * * *

XI. APPENDIX

SOILS MAP



NOTE: A more detailed soils mapping of the property has been performed by the applicant (see text).

Adapted from Hartford County Soil Survey, U.S.D.A.-S.C.S.

SOILS LIMITATION CHART - HOLLISWOOD, EAST GRANBY, CT

MAP SYMBOL	SOIL NAME	Limitation/Ratings for: SEPTIC SYSTEMS	BLDGS. W/ BASEMENTS	ROADS & DRIVEWAYS	LAWNS & LANDSCAPING
EsA	Enfield silt loam, 0-3% slopes	Severe; Poor filter, Smears	Slight --	Moderate; Frost action	Slight --
EsB2	Enfield silt loam, 3-8% slopes, eroded	Severe; Poor filter	Slight --	Moderate; Frost action	Slight --
HkC	Hinckley gravelly sandy loam, 3-15% slopes	Severe; Poor filter Slope	Slight - Moderate; Slope	Slight - Moderate; Slope	Moderate too sandy Small stones
LwC	Ludlow and Watchaug very stony soils, 3-15% slopes	Severe; Wetness Percs slowly	Severe; Wetness	Severe; Frost action	Slight - Moderate; Slope
MpA*	Menlo stony silt loam, 0-3% slopes	Severe; Wetness Percs slowly	Severe; Wetness	Severe; Wetness	Severe; Wetness
NaB	Narragansett silt loam, 3-8% slopes	Moderate; Smears	Slight --	Moderate; Frost action	Slight --
NaC	Narragansett silt loam, 8-15% slopes	Moderate; Smears, Slope	Moderate; Slope,	Moderate; Slope, Frost action	Moderate; Slope,
NkC	Narragansett and Broad-brook very stony silt loam, 3-15% slopes	Moderate - Severe; Smears Percs slowly	Slight - Moderate; Slope	Moderate; Slope Frost action	Slight - Moderate; Slope
PkA*	Peats and Mucks	Severe; Wetness	Severe; Wetness	Severe; Wetness	Severe; Wetness

SOILS LIMITATION CHART CONT'D.

MAP SYMBOL	SOIL NAME	SEPTIC SYSTEMS	BLDGS. W/ BASEMENTS	ROADS & DRIVEWAYS	LAWNS & LANDSCAPING
SeA*	Scarboro loam, 0-3% slopes	Severe; Wetness	Severe; Wetness	Severe; Wetness	Severe; Wetness
WcA*	Walpole loam, 0-3% slopes	Severe; Wetness	Severe; Wetness	Severe; Wetness	Severe; Wetness
WeA	Wapping silt loam, 0-3% slopes	Severe; Wetness Smears	Severe; Wetness	Severe; Frost action	Slight —
WtA*	Wilbraham and Menlo very stony silt loams, 0-3% slopes	Severe; Wetness	Severe; Wetness	Severe; Wetness	Severe; Wetness

NOTES:

1) * = Inland Wetland Soil

2) Limitation ratings from USDA Soil Conservation Service criteria and Hill, David "Soil Interpretations for Waste Disposal", CT Ag. Experiment Station, 1979.

EXPLANATION OF RATING SYSTEM:

SLIGHT LIMITATION: indicates that any property of the soil affecting use of the soil is relatively unimportant and can be overcome at little expense.

MODERATE LIMITATION: indicates that any property of the soil affecting use can be overcome at a somewhat higher expense.

SEVERE LIMITATION: indicates that the use of the soil is seriously limited by hazards or restrictions that require extensive and costly measures to overcome.

FVHD FARMINGTON VALLEY HEALTH DISTRICT

P.O. BOX 365, ROOM 202, CANTON TOWN HALL, COLLINSVILLE, CONNECTICUT 06022 Telephone (203) 693-0714

March 29, 1983

Planning and Zoning Commission
East Granby Town Hall
East Granby, Connecticut 06026

Re: Holliswoods Subdivision, Copperhill Road, East Granby, Connecticut

Dear Commissioners:

I have reviewed the plan dated February 4, 1983 for the above referenced property and I conducted a site investigation on March 14, 1983. After reading Charlie Francis' report, I understand that with a PRD such as this, the configuration of each lot, i.e. the location of the house, driveway, utilities, grading , etc. will be the final and only plan of development that can be used for each lot. This requirement means any plan of development that you approve will also be the plan upon which the Farmington Valley Health District should issue a Permit to Construct a Subsurface Sewage Disposal System. Therefore I disagree with Mr. Francis' comment that details concerning existing grade, finished grade, system depth, water level, additional soil testing, etc. could be addressed at the construction stage. It is imparative that any problems with the above details be resolved before subdivision approval to assure that each lot can support a septic system in compliance with the Public Health Code. To stress this point, let me simply state that based on this current plan, the Farmington Valley Health District would issue a permit to construct a septic system on only 2 of the 42 lots (lots 10 and 37); 4 lots (lots 15, 27, 29 and 40) would be denied because of seperation distances alone; and the remaining 36 lots will need additional soil testing, major engineering revisions or both before it can be determined if these lots can support septic systems. My comments below address the major concerns of the Farmington Valley Health District at this time.

1) The five foot contours on the plan are too large of an interval to adequately show field conditions that may adversely affect the proper functioning of septic systems. Therefore, two foot contours must be used.

2) Fields observations made on March 14, 1983 indicate that some of the test pit locations are inaccurately plotted on the plan. I understand that test pit locations are only approximate; however, some of the locations on the plan are substantially different that the actual locations in the field. As an example, test pit #28A on lot 36 is actually 80 feet south of the location shown on the plan. Since test pit observations are used to determine the suitability of the soil to support septic system, all test pit locations should be accurately plotted on the plan or else erroneous conclusions can be made. Also, thetest pit locations should be plotted on the same site plan (scale 1"=40') showing the proposed septic system locations.

3) Once the test pit locations have been accurately plotted on the plan with the proposed septic systems, each lot can be reviewed. Those lots which do not have test pits or percolation tests in the areas of the proposed septic systems will have to be retested. Also additional soil testing may be required on some of the lots with wetlands.

4) Provisions must be made to eliminate ground water interference with septic systems on all lots with a high ground water table. Although curtain drains are proposed on several lots, I question the effectiveness of these drains. Generally speaking, there is a high ground water table on lots 16-27. These lots are on a level plateau of sand surrounded by wetlands. I do not think curtain drains would be feasible on these lots for several reasons. First, since the lots are level, the curtain drains can only be 3-4 feet deep in order to discharge to grade. Second, a curtain drain is constructed of sand so that it is more permeable than the existing soil. In this case, sand for the curtain drain would be placed in the existing soil which is sand. To place sand in sand as a method of controlling ground water does not seem too feasible. Third, and most important is the question of where the water is coming from. Based on the topography and the observations from the test pits I would say that the water in this area is coming <u>from</u> not going to the wetlands. The sand plateau surrounded by the wetlands is having the same effect as placing a sponge in a pan of water. Extensive soil testing would have to be performed to verify this theory. A simplier solution would be to require fill systems on these lots.

Other lots in the subdivision will also need sometype of ground water control. A note about the curtain drain on lot 37 states "Typical underdrain installation where field conditions dictate or as directed by the engineer." The curtain drain on this lot has sufficient depth (8feet deep), meets the requirements for minimum separating distances, and has a proper discharge, (to catch basin). However since a curtain drain "fits" on this lot, a general note stating that this will be done with other lots is not an acceptable way of demonstrating the feasibility of curtain drains on other lots. It must be shown on all lots where curtain drains are necessary and feasible, that the minimum seperating distances and depths can be maintained. Also provisions must be made for the proper discharge of the curtain drains. This may be difficult on some lots becase the septic systems are "shoehorned" into the only available area on the lot. Discharges from footing drains should also be shown.

If fill systems are to be used, then the proposed final grade should conform with the requirements of the Public Health Code. Specifically, the fill should extend 15 feet beyond the edge of the septic system and be brought down to original grade with 1/2 slope. As mentioned before, 2 foot contours should be used.

5) Although the septic system layouts on the plan appears sound from landscaping point of view, they are impractable from an engineering and construction perspective. Topography and observations from the soil tests should be the primary sources of information used in designing septic systems that will meet the Public Health Code regulations and be practical to install and maintain. I feel that a landscaping perspective took priority over basic engineering design in the layout of the septic systems on this subdivision. Below are some examples of impractial design of the septic systems. - The curtain drain layout for lot 37 meets all the requirements of the Public Health Code (See comment 4). However, observations from test pit 29B indicate that the soil on this lot is sand and there is no evidence of ground water so the curtain drain is not needed. The 3-4 feet of fill proposed on this lot is also not necessary. A standard serial distribution system in original ground would satisfy all requirements necessary for this lot. I really do not understand why this system was so

over-designed unless the soil test results were not used in designing the system.

- Besides the problems with the effectiveness of certain curtain drains (see comment 4), the layout of several curtain drains is of poor engineering design and very impractical. The curtain drain on lot 22 runs between the primary and reserve area of the septic system and the curtain drains on lots 21 and 25 bisect the reserve areas. How effective can a reserve area be if there is a curtain drain going through the middle of it?
- The primary area for the septic system for lot 30 is on the west side of the house. The reserve area is on the east side of the house and is 5 feet higher in elevation. What happens when the reserve area has to be used? Will the effluent be pumped around to the back yard? Will a new system be installed?

There are design problems with other lots, ie. trenches not parallel with the ground contours, trenches installed 6-7 feet in the ground, mulching over each system etc., but instead of getting in to detail about each lot at this time, I would rather have the plan revised with careful consideration given to the soil conditions and topography when designing the septic system.

6) As mentioned above, 4 lots would be denied permit approval based on the current plan. The proposed septic system locations for lots 15 and 27 are within the 50 foot minimum separating distance of the proposed ponds. The maximum ground water table on lots 29 and 40 is within 18 inches of the surface of the ground. Therefore, unless more soil testing is performed and the plans are revised, these lots will never receive permit approval from the Farmington Valley Health District.

7) While observing the soil in test 19A on lot 29 I noticed a clay tile about 2 feet deep in the ground. This tile was probably installed many years ago as part of a drainage system for the field which I would assume discharges to the wetlands. My concern is the consequence of installing a septic system next to any existing clay tiles. I would not want this drainage system serving as a direct pipeline from the septic system to the wetlands. If a septic system is to be installed in this area, the Farmington Valley Health District will require further investigation of this suspected drainage system.

8) A detailed plan of the proposed water supply system must be submitted to the State Department of Health Services for their review before a well drilling permit is issued by the Farmington Valley Health District.

9) Most lots in this subdivision will require detailed engineered plans. The additional soil testing will determine which lots have areas of special concern and thus will require engineered plans.

To summerize, considerably more work has to be performed in both field data collection and engineering design before it can be illustrated that each lot can support a septic system in compliance with the Public Health Code. Standard details, ie. fill material specifications, leaching trench and curtain drain schematics etc. are not required at this time and can be submitted with each individual plot plan at the time of development. My comments above and any other conditions that would require specific engineering design for any individual lot should be addressed before subdivision approval to avoid

unnecessary complications that could arise in the future.

If you have any questions call me.

Sincerely yours,

Steven W. Peterson, M.S., R.S.
Sanitarian

c.c. James Luzzi
Conservation Commission
Charles Francis

SWP/rk

ABOUT THE TEAM

The King's Mark Environmental Review Team (ERT) is a group of environmental professionals drawn together from a variety of federal, state, and regional agencies. Specialists on the team include geologists, biologists, foresters, climatologists, soil scientists, landscape architects, recreation specialists, engineers, and planners. The ERT operates with state funding under the aegis of the King's Mark Resource Conservation and Development (RC&D) Area - a 47 town area in western Connecticut.

As a public service activity, the team is available to serve towns and developers within the King's Mark Area --- free of charge.

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 the review of a wide range of significant activities including subdivisions, sanitary landfills, commercial and industrical developments, and recreation/open space projects.

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 official of a municipality or the chairman of an administration agency such as planning and zoning, conservation, or inland wetlands. Requests for reviews should be directed to the Chairman of your local Soil and Water Conservation District. This request letter must include a summary of the proposed project, a location map of the project site, written permission from the landowner/developer 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 King's Mark RC&D Executive Committee, the team will undertake the review. At present, the ERT can undertake two reviews per month.

For additional information regarding the Environmental Review Team, please contact your local Soil Conservation District Office or Richard Lynn (868-7342), Environmental Review Team Coordinator, King's Mark RC&D Area, P.O. Box 30, Warren, Connecticut 06754.