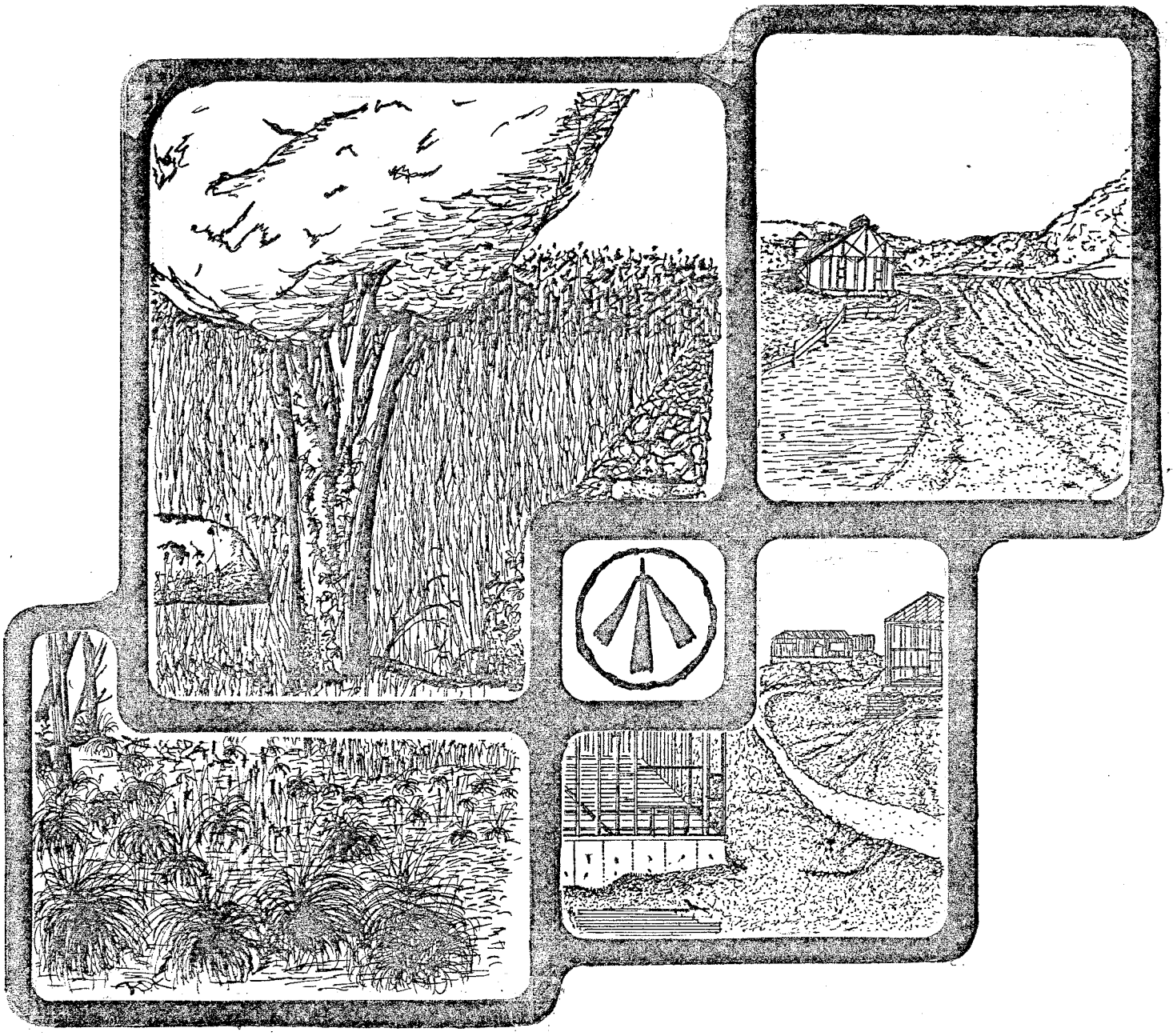
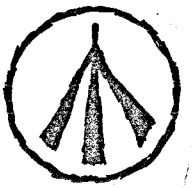
ENVIRONMENTAL REVIEW TEAM REPORT



HVASS PROPERTY
KENT, CONNECTICUT
KING'S MARK
RESOURCE CONSERVATION & DEVELOPMENT AREA

KING'S MARK
ENVIRONMENTAL REVIEW TEAM REPORT

HVASS PROPERTY
KENT, CONNECTICUT
MARCH 1984



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
Department of Transportation

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
American Indian Archaeological Institute
Housatonic Valley Association

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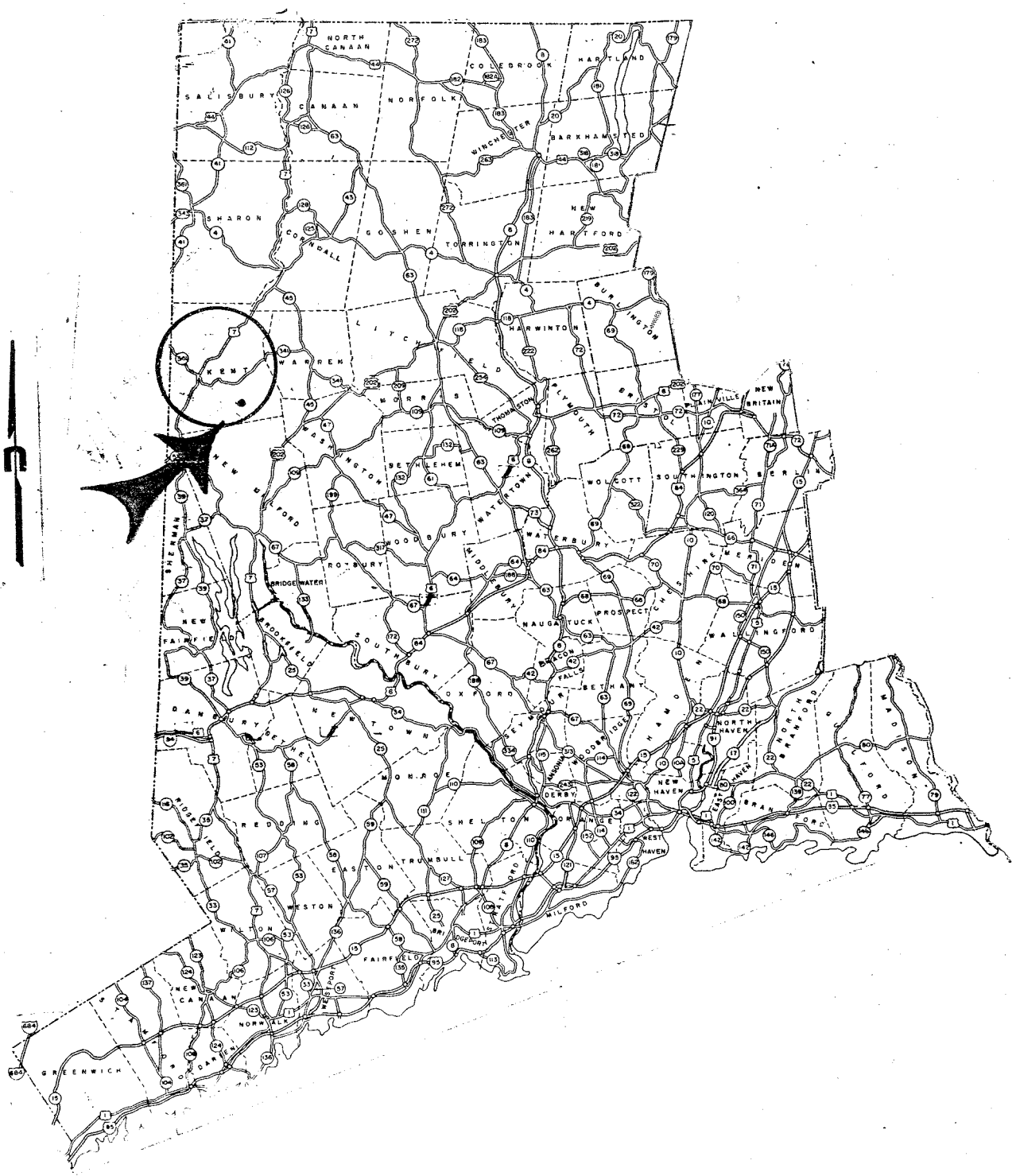
LOCATION OF STUDY SITE



Scale 1" = 10 miles

10 0 5 10 miles

ENVIRONMENTAL REVIEW TEAM REPORT
ON
THE HVASS PROPERTY
KENT, CT

I. INTRODUCTION

The Kent Planning and Zoning Commission is considering a proposed plan for residential subdivision of ± 185 acres of land.

The subject site is located in the southcentral portion of town near Geer Mountain. The site consists of wooded land and open land and is characterized by moderate to steep relief (see Figure 1). Two perennial streams transverse the site. The southern portion of the site has a history of agricultural use. Access to the site is available from the north off Old Brown Road and from the east off an un-named accessway off Geer Mountain Road.

The proposed project known as the "Hvass Subdivision" is in preliminary form and calls for 16 lots of 5 to 32+ acres in size (see Figure 2). An interior road network off the eastern accessway would be constructed to service the interior lots. Each lot would be served by an on-site well and septic system.

The Kent Planning and Zoning Commission requested this environmental review to become aware of the possible environmental impacts of the proposed project and the development opportunities offered by the site. Specifically, the ERT was asked to 1) provide a natural resource inventory of the site, 2) discuss the opportunities and limitations of the site for proposed project, 3) discuss alternate design schemes and resource management opportunities if appropriate, and 4) identify techniques which could be implemented to mitigate any adverse environmental effects of the project.

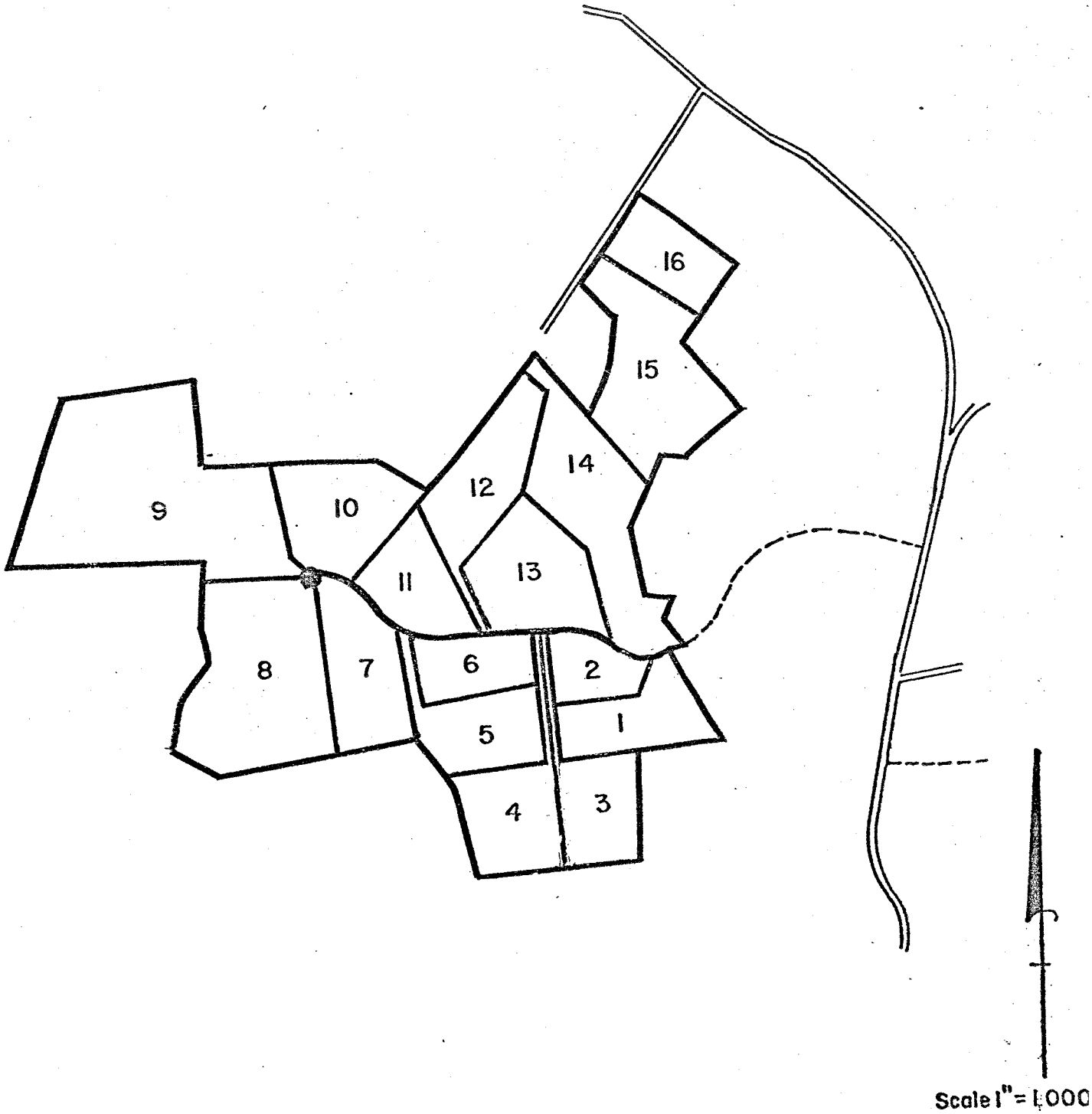
The King's Mark Executive Committee considered the Town of Kent's request for an ERT study, and approved the project for review by the Team.

The ERT met and field reviewed the site on January 4, 1984. Team members participating on this project included:

Randi Lemmon	Land Planner	Housatonic Valley Association
Edward Lukacovic	Soil Conservationist	U.S.D.A. Soil Conservation Service
Richard Lynn	ERT Coordinator	King's Mark RC&D Area
Paul Rothbart	Wildlife Biologist	CT Department of Environmental Protection
Ralph Scarpino	Forester	CT Department of Environmental Protection
Bill Warzecha	Geohydrologist	CT Department of Environmental Protection

Figure 1
TOPOGRAPHIC MAP

Figure 2
SITE PLAN



Prior to the review day, each team member was provided with a summary of the proposed project, a checklist of concerns to address, a topographic map, a soils map, and a soils limitation chart. During the ERT's field review, team members met with representatives form the Town of Kent and the landowner/developer and walked the property. 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. The report identifies the natural resource base of the Hvass Property and discusses opportunities and limitations for the proposed land use. It is hoped the information contained in this report will assist the Town of Kent 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. TOPOGRAPHY AND GEOLOGY

The Hvass property is characterized by a diverse terrain which varies from moderate to steep (see Figure 1). Steep slopes are found on lots 4, 7, 8, 9, 12, 15, and 16 of the proposed project. Bedrock is at or near the surface of the ground in most of these areas. Moderate slopes characterize the remaining portions of the property. Wetland areas on the site occur mainly along the streams in the eastern limits of the site and in the southern portion of Lots 7 and 8.

Maximum and minimum elevations on the property are ± 1120 and ± 900 feet above mean sea level, respectively.

Two unnamed perennial streams originate on the property, one in the western limits and the other in the eastern half of the site. These streams are evident in Figure 1.

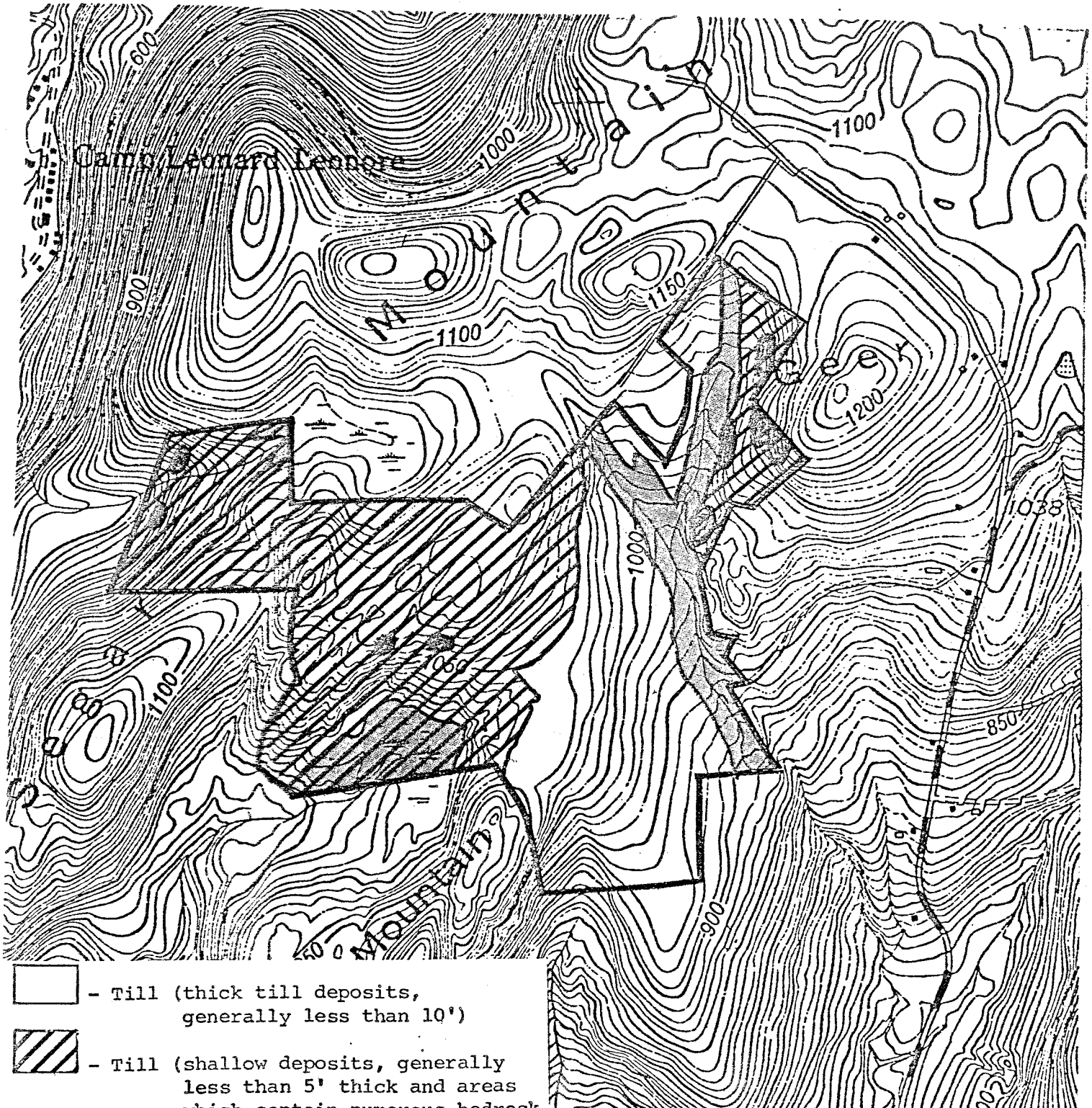
The property is located entirely within the Kent topographic quadrangle. There is presently no published bedrock or surficial geologic information with regard to the quadrangle. Preliminary data for the quadrangle is on file at the Department of Environmental Protection's Natural Resource Center in Hartford. In addition to this information, the Team geologist also referenced the "Preliminary Bedrock Geologic Map of Connecticut" by John Rodgers in preparing this section of the report.

According to Rodger's map, bedrock underlying or cropping out on the Hvass property consists largely of quartz-feldspar-mica gneisses. Essential minerals in the rock are quartz, oligoclase, microcline, biotite, and muscovite. Other minerals include sillimanite and garnet. These rocks also contain numerous layers of amphibolite. "Amphibolite" is a term which refers to a metamorphic (rocks altered by great heat or pressure) rocks that are composed of amphibole group minerals. Some amphibole minerals include hornblende, tremolite and actinolite. Plagioclase feldspars, micas and quartz may also be present in noticable quantities. "Gneisses" are also metamorphic rocks, in which thin bands of aligned flaky minerals (e.g., micas, hornblende) alternate with layers of more rounded mineral grains (e.g., quartz, feldspar).

Bedrock outcrops are exposed mainly along the northeast limits of the property on Lot 16 and portions of Lot 15. It also outcrops in scattered areas throughout the western half of the property on Lots 7, 8, and 9. Areas where bedrock is at the surface of the ground or where only a shallow depth of soil covers the bedrock, are delineated as the Hollis Series on the accompanying soil map (see Appendix). They are designated on the soils map by the symbols HoC, HxC, HxE, HrE and HrC.

Overlying the bedrock on the site is a generally thin cover of material composed on non-sorted, non-stratified rock particles and fragments. This material is referred to as till. "Till" is a glacial sediment which was deposited directly from glacier ice without subsequent re-working by meltwater streams. Rock particles and fragments composing the till range in size from clay to boulders. The upper few feet of till is commonly sandy, stony and friable; at depth it becomes siltier and more tightly compacted. Thicknesses of the till ranges from zero in rock outcrop areas to probably less than 10 feet throughout the remaining portions of the property (see Figure 3).

Figure 3
SURFICIAL GEOLOGIC MAP



- Till (thick till deposits, generally less than 10')
- Till (shallow deposits, generally less than 5' thick and areas which contain numerous bedrock outcrops)
- Swamp sediments
- Rock outcrop areas observed (Approximate locations)

Scale 1" = 1000'

In some areas on the site, till and/or bedrock is overlain by swamp sediment. Swamp sediments consist of peat and muck interbedded with sand, silt and clay. Wetland areas on the site are designated by the symbols Le, Lc, Lg and Pm on the accompanying soils map (see Appendix).

Geological Development Concerns

Some geological limitations that may pose constraints with regard to the proposed subdivision include: (1) areas where bedrock is at or near the surface of the ground, (2) areas where slopes are moderate and steep, and (3) the presence of some till based soils on the site which have a tendency to be stony, seasonally wet and/or have slow percolation rates. These limitations will weigh heaviest on the installation of subsurface sewage disposal systems, foundation placement, and road/driveway construction. With good engineering and planning many of these limitations can be surmounted. Also, because lot sizes are large (ranging between 5 and 32 acres) this will give the developer greater flexibility when searching for favorable leaching field areas. The project engineer should address any of the above mentioned constraints if encountered and provide additional information so that an accurate assessment of the suitability of the proposed lots can be made. Development in areas designated as wetland soils on the accompanying soils map should be avoided.

III. HYDROLOGY

As shown in Figure 4, surface runoff from the eastern half of the site flows into Bull Mountain Brook via small intermittent streams and by sheet flow. Bull Mountain Brook traverses the eastern half of the site in a southeasterly direction enroute to Mud Pond. Drainage in the western half of the property is divided nearly in half. The northern portion of this area which include primarily lots 9 and 10, is drained by the only other perennial stream on the site. The stream flows generally in a westward direction from the site and ultimately discharges into Leonard Pond. The southern half of this area is drained by an unnamed stream whose headwaters originates in the low-lying swampy area on lots 7 and 8. This stream flows in a southwesterly course for about 2,500 feet then southerly for about 4,000 feet until it finally discharges into Hatch Pond. It should be pointed out that a small southwest portion of lot 4 is drained by an unnamed stream which ultimately empties into Mud Pond south of the property.

Development as proposed will generate an increase in runoff from the site for a given rainfall amount, and thereby increase the peak flows to nearby streams. Some major factors which will affect the amounts of increase include: 1) the modification in land use which includes the removal of vegetation and the construction of impermeable surfaces such as roof tops, paved driveways, access roads, etc.; 2) the design of storm sewering in the subdivision; and 3) the timing of development on each lot.

The site plan distributed to Team members the day of the field review was not, by itself, sufficient to allow the determination of the effects from storm sewering. Nevertheless, an estimate may be made of the runoff change and the peak flow discharge to nearby streams likely to occur as a result of the land use modification. Technical Release No. 55 of the Soil Conservation Service provides a technique which may be used in formulating runoff estimates. This method involves the determination of runoff curve numbers, which relate

Figure 4
WATERSHED MAP

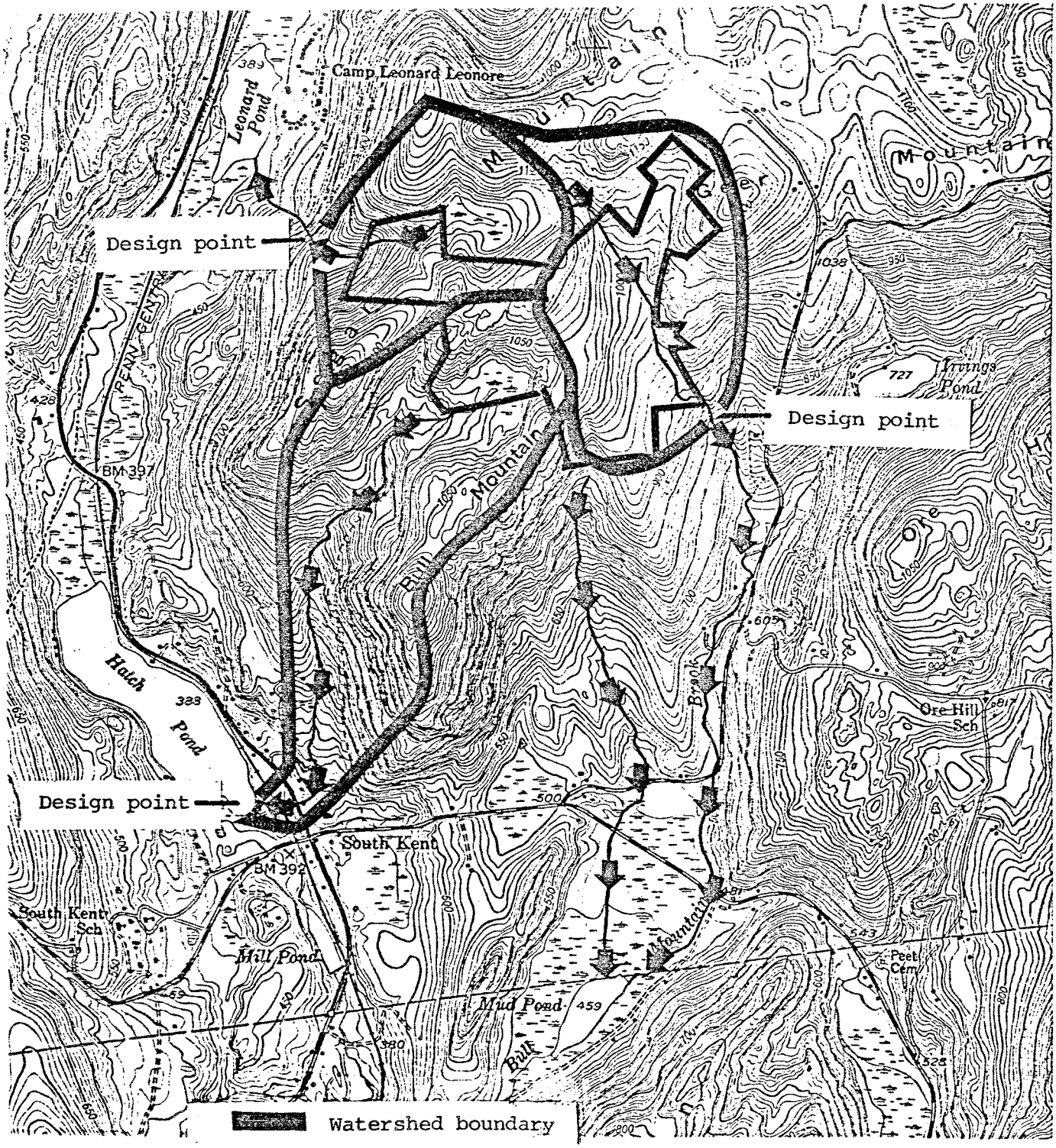


TABLE 1

Estimate pre- and post peak flows in Bull Mountain Brook at the point shown in the watershed boundary map. These estimates are only for development in the eastern half of the site, which includes Lots 1-6 and 11-16. All peak flows given in units of cubic feet per second.

	10-year 24 hr. storm	25-year 24 hr. storm	50-year 24 hr. storm	100-year 24 hr. storm
Present (pre-development) curve number (67)	103	148	194	258
Future (post development) curve number (68)	115	165	215	286
Percent Increase	12%	11.5%	11%	11%

NOTE: The flow rates listed above are only estimates based on broad assumptions; they should not be used as exact data for any engineering design purposes.

the amount of precipitation to amounts of runoff. Because 75 percent of the proposed homes to be constructed lie within the watershed which drains the eastern half of the property, the following runoff estimates and peak flows shown in Table I refer only to this portion of the site. The construction of residential homes on lots 7, 8, 9, and 10 should have little or no affect on increasing the peak flows of the streams which drain their respective watersheds. Future development in other portions of the watershed could, however, affect the peak flows of these streams. It should be noted, however, that the moderate to steep slopes and shallow to bedrock conditions which characterize the remaining portions of these watersheds would probably only support very limited, low density development.

It is estimated that development in the eastern half of the site would increase the curve number under T. R. #55 by only 1 (67 to 68). Table 1 shows the estimated pre- and post peak flows for a point on Bull Mountain Brook for the 10-year, 25-year, 50-year and 100-year storm frequencies. These storms have a 10, 4, 2 and 1 percent chance, respectively, of occuring during any given year and each would have a duration of 24 hours.

As shown by the accompanying table, peak flow increases at the design point on Bull Mountain Brook would increase about 12 percent for the smaller storms and 11 percent for the larger storms. Although these increases are not that high, the increases may cause some additional stream bank erosion. It is not expected, however, that the increases would create flooding problems downstream. Consideration should nevertheless be given to controlling the peak flow increases from the site since possible future developments within the drainage area for the brook could ultimately produce additional flooding. This runoff control could be accomplished by constructing a runoff detention basin on the site which could regulate flows to the brook.

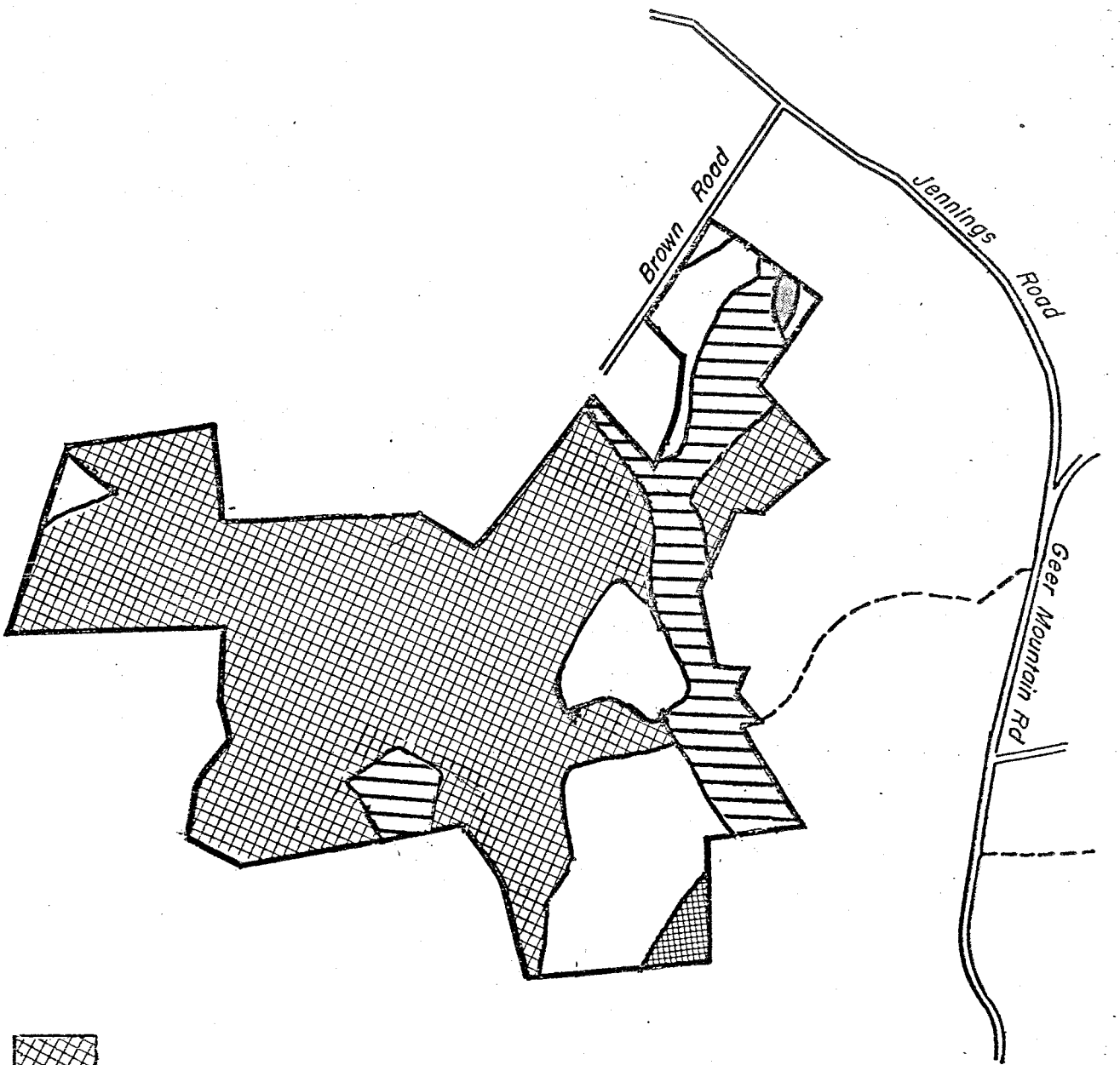
Where slopes are steep, the potential for erosion problems exist, unless adequate precautions are taken. For this reason, it is recommended a comprehensive erosion and sediment control plan be formulated for the project.

IV. SOILS

A Soils Map of the subject site is presented in the Appendix of this report. The Appendix also contains a Soils Limitation Chart which discusses the suitability of the various soils for alternate land uses. As can be noted from the Soil Limitation Chart and Figure 5, over 75% of the Hvass property has severe limitations for residential development. Limiting factors include: steep slopes, shallow to bedrock conditions, wetness, and hardpan soils (see Figure 5). A thorough discussion of each of the soils on the site is available in the "Soil Survey of Litchfield County", available from the Litchfield County Conservation District at 567-8288.

As shown in Figure 5, the western half of the site is dominated by a shallow to bedrock Hollis soil. While this soil type presents severe limitations for residential development, it should be noted that inclusions of deeper, well drained Charlton soils are often interspersed among these Hollis soil areas. These inclusions of Charlton soils, if large enough, are quite suitable for individual homes and septic systems. The location of these inclusions (if they in fact exist) can only be determined by detailed on-site soil testing (i.e., deep test pits).

Figure 5
SOIL FEATURES



= Shallow to bedrock soils on moderate to steep slopes

= Inland wetland soils

= Soils with seasonally high water table

= Hardpan soils

= Deep, well drained soils on moderate to steep slopes

Scale 1" = 1 000'

Approximately 50% of the eastern half of the site consists of deep, well drained Charlton soils according to the Litchfield County Soil Survey. These are the most suitable soils for residential development on the property. The remaining soils in the eastern half of the site consist of a mixture of hardpan soils, seasonally wet soils, wetland soils and shallow to bedrock soils (see Figure 5).

Due to the large lot sizes, the proposed project should not result in significant soil loss or sedimentation. Nevertheless, an erosion and sediment control plan for the project should be prepared by the applicant and implemented during construction.

A substantial portion of lots 1, 2, 7, 14, and 15 consist of inland wetland soils. To ensure that impact to these wetlands is minimized, it would be desirable for the applicant to have the wetlands flagged in the field, by a qualified soil scientist, and then to transfer this information to the subdivision plan. This wetland mapping will be more precise than that presented in the Litchfield County Soil Survey, and will thus allow more careful site planning to minimize inland wetland impact.

A buffer area of at least 50 feet is desirable from the wetland edges to any area of residential construction.

The proposed plan calls for a wetland crossing of ± 500 feet on the eastern border of the property, as the soils are currently mapped. Additional crossing of wetland soils by driveways may also be requested, depending on project designs. Although undesirable, 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. It is particularly important that culverts be properly sized and located so as not to alter the water levels in the wetland.

There is little opportunity for agricultural land preservation with the proposed subdivision as currently designed. Fewer lots on the agricultural land would allow keeping some hayland in production. As the proposal now stands, however, manageable agricultural land would most likely be permanently lost.

V. SEWAGE DISPOSAL AND WATER SUPPLY

A. Sewage Disposal

As shown in Figure 5, the most limiting factors in terms of septic system installation include: shallow to bedrock soils, wet soils, hardpan soils, and moderate to steep slopes. Soil testing, which includes a minimum of two deep test pits (7-10 feet deep) and a percolation test, should be required on each lot. This testing should be conducted by, or in the presence of, the Town

Sanitarian. The soil testing will allow an accurate determination of: the seasonal high water level, depth to bedrock, and the percolation rate of the soil on each lot. It will also determine if adequate primary and reserve leaching areas are available on each lot. The testing should be conducted during the "wettest" time of year, which is construed to be the springtime (i.e., March or April).

In areas where shallow to bedrock conditions exist, consideration should be given to digging several deep test pits in the primary leaching area to ensure that proper separating distances between bedrock and the bottom of the leaching field are complied with. For example, one might dig a test pit in every corner of the proposed leaching field and, perhaps, one in the middle.

A potential problem associated with a seasonally high ground water table is having the leaching fields flooded, resulting in backups and the plugging of the tile lines with sediment. In some cases, certain drains may be effective in lowering the general groundwater level, but only under the proper conditions and in accordance with the Public Health code.

Where high ground water tables are indicated, soils are compact, or shallow to bedrock conditions exist, septic systems should be engineered to prevent potential problems.

B. Water Supply

At the present time, there is no public water supply line available to the property. Therefore, water supplies to homes in the proposed subdivision would likely be serviced by individual on-site wells. Since no extensive sand and gravel deposits appear to exist within the site, underlying bedrock would be the most likely aquifer to be tapped. If sand and gravel deposits are saturated, these formations can generally yield water at a high producing rate compared to wells tapping the crystalline bedrock. Nevertheless, 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. Without expensive geophysical equipment, it is extremely difficult to predict such yields.

An assessment of presently installed bedrock based wells has been conducted for the upper Housatonic River basin which includes the subject site (Source: Connecticut Resources Bulletin No. 21, Upper Housatonic River Basin). This assessment allows one to predict the chances for any new well to achieve certain minimum yields. According to Connecticut Water Resources Bulletin No. 21, 734 bedrock-based wells were analyzed in the basin area. Based on this study, results indicate that 80 percent of the wells tapping the gneiss rock underlying the site yield 3 gallons per minute or more; 50 percent yielded 7 gallons per minute or more and only 10 percent yielded 28 gallons per minute. A well yielding 3 gpm should adequately meet the needs of most domestic households. According to a property owner whose lot is located between lots 14 and 16 on Brown Road, a recently drilled well on that site yielded 15 gallons per minute.

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. Ele-

vated 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 manganese levels are objectionable for the same reasons as iron. The recommended limit for iron in water is 0.3 milligrams per liter or parts per million and .05 mg/l(ppm) for manganese. (Source: U.S. Environmental Protection Agency, Office of Drinking Water, "National Interim Primary Drinking Water Regulations".) Some methods or treatments used to eliminate or remove elevated iron and manganese levels include: 1) a combination of automatic chlorination and fine filtration, 2) aeration followed by filtration, 3) ion exchange with green sand and, 4) treatment with potassium permanganate followed by filtration.

VI. VEGETATION

The vegetation for this area can be divided into 4 broad cover types. These include mixed hardwood, hardwood/hemlock, open field and old field. These types are described in detail below. In general terms, most of the property is wooded with common tree species. The dominance of one species is primarily dictated by the depth of the soil to the underlying ledge or water table.

In a commercial sense, the value of the wood on this parcel is not high since most of the property recently had its valuable sawtimber removed. The forest as a whole does, however, play a role in the aesthetics of a community, the water holding capacity of the landscape, and also provides a diversified wildlife habitat. These amenities can be enhanced whether the land stays as is or is developed as planned.

A. Vegetative Type Descriptions (refer to Figure 6)

Area #1, Old field. This is a small area of old agricultural field. It appears as though this lot has been mowed to keep it from being completely overgrown. Species present include grasses and sedges, sensitive fern, miscellaneous brambles and briars, and scattered dogwood.

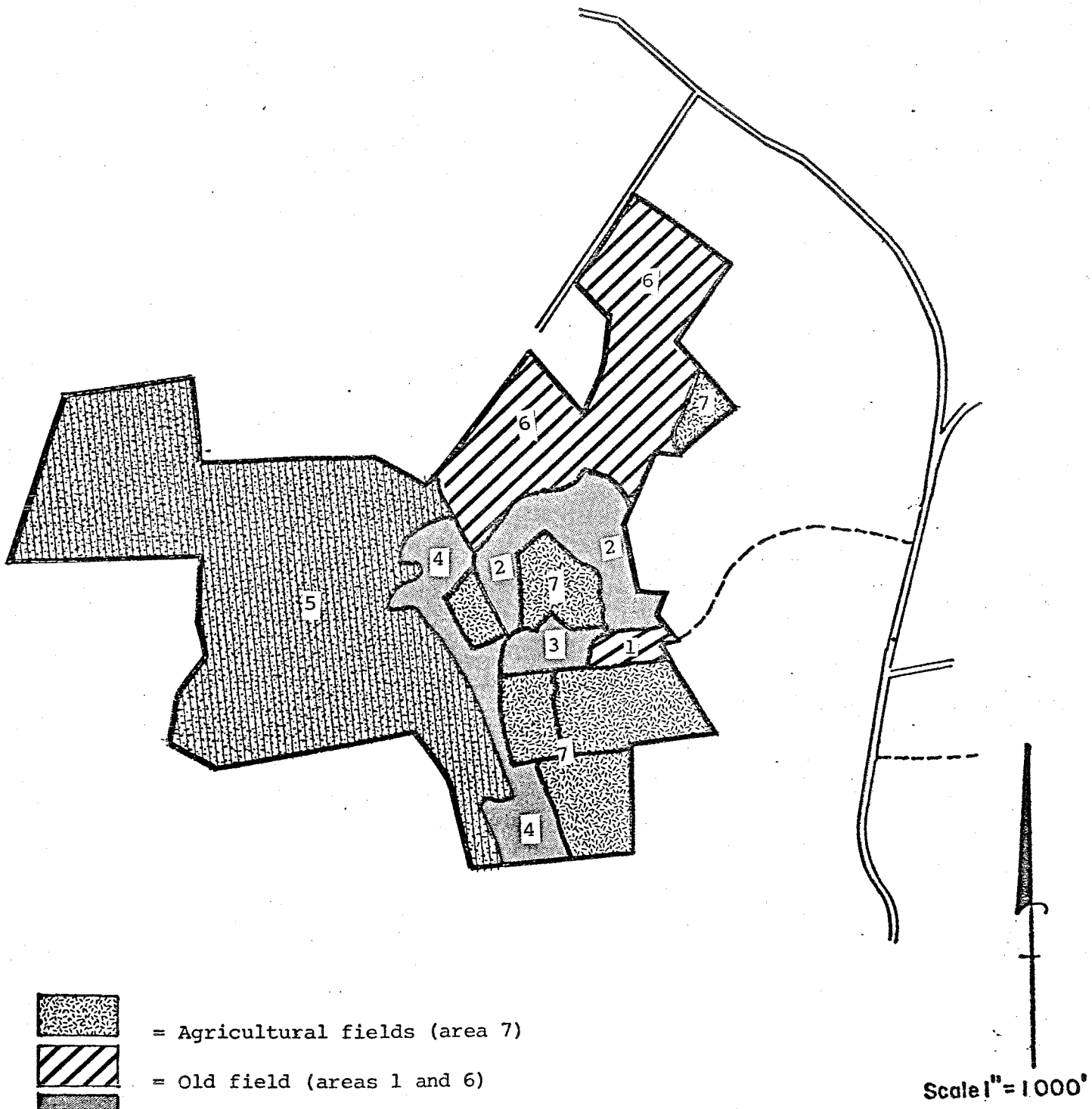
Area #2, Mixed Hardwood. This area is comprised primarily of red maple pole sized timber. Additional tree species include ash, elm, and suppressed red cedar. Other species found are barberry, alder, honeysuckle, and spice bush. This area was probably abandoned from agricultural use at the same time areas #3 and #4 were, but species development was different due to much wetter ground conditions.

Area #3, Mixed Hardwood. This is an old field/pasture area that has developed into a young hardwood pole timber stand. Species present include white birch, aspen, cherry and ash. Other species include old apple trees, mountain laurel, shadbush, and high bush blueberry.

Area #4, Mixed Hardwood. This area is primarily a mixed hardwood pole timber stand. Some of the larger sized trees were removed during a recent logging operation. The quality of the residual trees is good. Species include ash, white and black birch, cherry, red oak, red maple and scattered hickory and chestnut oak. There exist patches of hemlock in the understory.

Area #5, Mixed Hardwood/Hemlock. This parcel may be classified as a small sawtimber/pole sized stand. Primary species include hemlock, red oak,

Figure 6
VEGETATION TYPE MAP



chestnut oak, and red maple. Other species present include hickory, ash, black birch and cherry. This area was commercially logged recently and most of the larger sawtimber was removed. The residual stand varies substantially. On the better sites, good quality stems remain and will probably form a nice stand of sawtimber. The poorer sites have ledge outcrops and shallow soils and are made up of primarily poorly formed and defective trees.

Area #6, Old Pasture. This area is reverting to forest from a pasture situation. Much of the area tends to be wet. Species present include red maple, black birch, scattered red cedar and hemlock. Also, elm, barberry, honeysuckle and spice bush can be found. The trees are generally 4-6 inches in diameter and are scattered enough that stocking levels would be considered very low.

Area #7, Agricultural Fields. These fields are presently being actively farmed. Hedgerows between the fields consist of red maple, red oak, hickory, cherry, black birch, and shad bush.

B. Limiting Conditions for Forest Management

Several factors should be considered in the maintenance of a natural forest stand. Wetland types of soils will have a water table close to the surface of the ground. This allows for shallow root penetration of the trees. Windthrow is a potential hazard in these areas. Light thinnings in these areas may help to improve the tree stability, however, openings and clearings in and along side wetland areas should be avoided if possible. Trees growing in these soils as a whole are more sensitive to disturbance than trees growing in other areas.

Trees which are growing on ridge tops may also be subject to wind damage. These stems quite often grow in very thin soil (perhaps only a few inches thick) and may quite easily be toppled if exposed to heavy winds. As in wetland areas, trees in these areas rely on each other for stability and heavy cutting may lead to wind related problems.

Alterations in the wetlands which permanently raise the water table and/or restrict natural drainage may have a negative impact on vegetation in the immediate area. Raising the water table may drown root systems causing widespread mortality in the plant community.

C. Management Considerations

The forest resource at the Hvass property could be improved by the removal of cull trees in all of the wooded sections. Stand #5 was logged recently and many trees of little or no value remain. These cull trees take up valuable growing space and are in competition with the better growing stock. If a cull harvest is initiated, some of the cull trees should be retained in each area as valuable wildlife trees.

Any cutting which takes place in the development of this parcel should be done to take advantage of the high demand for all wood products. Firewood wouldprobably be the largest by-product of any construction and is highly sought after. The marketing of this product should be a concern and should be planned for.

A public service forester or private forester may be of assistance in either on-the-ground planning or the marketing of the wood products.

Subdivision of the property as planned will clearly complicate the comprehensive forest management potential of the site. With a subdivision of ownership comes various opinions as to the importance of forest management. Also, as smaller parcels of land are created from larger blocks, the opportunities for forest management will diminish: larger blocks of land simply offer more alternatives for economical management of timber resources than smaller blocks.

The present forest land on the Hvass property occupies over 75% of the site and encompasses at least a portion of each lot except lots 1, 3, and 13. While there will be some firewood available for homeowner use on each of these wooded lots, management potential on much of this land is limited due to the poor growing conditions (wetlands, steep slopes, shallow to bedrock conditions). It may, nonetheless, be possible for homeowners to acquire at least a portion of their annual firewood needs from the proposed lots. Here again, a public service forester or private forester may be of assistance in developing a management plan for the individual lots.

D. Rare and Endangered Species

The DEP's Natural Diversity Data Base does not have any records of rare, endangered or threatened species on the subject site.

VII. WILDLIFE

The Hvass Subdivision site may be divided into three major wildlife habitat types. These are openland, forestland, and wetland types. Two perennial streams associated with the wetlands are present on the site.

Openland

This habitat type consists of numerous agricultural hay fields and naturally reverting fields comprised of barberry, maple, dogwood, cedar and herbaceous species.

Wildlife typically utilizing such habitat include deer, turkey, pheasant, ruffed grouse, cottontails, raptors, various small rodents, and numerous songbirds.

Forestland

The forested areas are comprised of hemlock, hemlock-mixed hardwood, and mixed hardwood components. The mixed hardwoods consisted of red oak, white oak, yellow birch, black birch, hickory and maple. The understory included mountain laurel, barberry, and various herbaceous species. Several old apple trees were scattered throughout the mixed hardwood component.

Wildlife sign observed during the field review included deer, turkey, mink, cottontails, fox, chickadees and a cardinal.

Wetland

The wetland sites are a mixed hardwood/shrub type dominated by red maple and barberry. There are two small perennial streams associated with the wetland areas.

Wildlife typically utilizing such sites include deer, cottontails, mink, woodcock, raccoon, skunk, songbirds, and numerous amphibians and reptiles.

Discussion

If the site is developed as planned there will be an immediate negative impact on wildlife. The primary impact will be a direct loss of habitat due to roads, buildings, driveways, and walkways. Another impact would be a change in habitat where forest and fields are cleared for lawns. A third impact would be the increased human presence, vehicular traffic, and number of roaming cats and dogs. This will drive the less tolerant wildlife from the site, even where it has not been physically changed.

A number of measures can be implemented to minimize the adverse impacts of the project on wildlife. When developing the road network, every effort should be taken to minimize erosion. If roads traverse wetlands and culverts are needed, they should be built with devices to discourage beavers. The present agricultural use of the fields is extremely important for wildlife and also to all the people of Connecticut because of the alarming rate at which such lands are being removed from production. It would be very beneficial from a wildlife standpoint to curtail or entirely eliminate development in the fields. This need not necessarily pose an economic hardship for the developer if increased utilization is made of the forested areas.

To actively encourage wildlife at the site, consideration should be given to the following:

1. Leave snag/den trees throughout the forested areas (5-7/acre) for cavity nesting wildife.

2. Exceptionally tall trees are utilized by nesting raptors and should be encouraged.

3. Mast trees (oak, hickory, beech) are food sources for a large variety of wildlife and should be encouraged.

4. Trees with vines (produce berries) should be encouraged.

5. Maintain the softwood component, which is valuable winter cover.

6. Leave buffer strips (50 to 100feet) of natural vegetation along wetlands to help filter and trap silt and sediments which might otherwise reach the wetland.

7. Placement of bluebird boxes along edges of open fields.

8. Where apple trees exist, clearing of competitive vegetation should be conducted to release these high value species. They should also be pruned and fertilized.

9. If native fields are developed, the stone walls and forest borders which divide individual fields should be maintained. Also, the scattered dogwood, cedar, and maples should be left.

10. If hay fields remain, no cutting should be allowed prior to August 1. This will avoid damage to possible bird nests. Also, a fifteen foot uncut border should be left around the fields. This border should be mowed every three to five years after August 1. These uncut strips are valuable to many wildlife species.

If any further wildlife related assistance is required, the landowner or town should feel free to contact the Wildlife Biologist at the Western District DEP Office (485-0226).

VIII. ACCESS AND DESIGN CONSIDERATIONS

A. Access

Access to lots 15 and 16 of the proposed project are proposed directly off Brown Road. Adequate frontage and sight line distances exist for both of these proposed lots and should pose no problem in creating driveways off Brown Road. It should be recognized, however, that an exceptionally long driveway, (± ¼ mile) crossing both wetland and steep, rocky soils, would be required to reach the buildable area on lot #15. Serious consideration should be given by the applicant to providing an alternate accessway to this lot from the south or east. If this is not possible, the town of Kent should consider requesting additional documentation to show that access to the buildable area of this lot (soil area HoC on Soils Map) is indeed feasible.

Access to the remaining lots of the proposed project would be provided by the construction of a ± 4500 linear foot private road off Geer Mountain Road. Sight lines entering and exiting from the proposed intersection are adequate. It appears, however, that a considerable amount of wetland soils would be crossed in the construction of this private road. The wetlands along this proposed road corridor should be identified in the field by a qualified soil scientist and this information transferred to the subdivision plan. This will facilitate the proper design of the roadway to minimize wetland impact and also the impact of the wetland soils on the road (e.g., frost heaving, road washout, etc.).

As discussed in the Soils portion of the report, the wetland soils within the project site should also be flagged in the field to facilitate proper road design and construction.

With the exception of these wetland soil areas, the remaining soils within the site offer good potential for roadway construction. Care should nevertheless be taken to implement a comprehensive erosion and sediment control plan with project construction.

According to Connecticut Department of Transportation standards, single family homes can be expected to generate up to 10 vehicular trips per day. The proposed project can therefore be expected to increase daily traffic in the area by up to 160 cars.

B. Design Considerations

As shown in Figure 7, the soils on this site can be divided into three basic categories: 1) areas with severe development constraints, 2) areas with moderate to severe development constraints, and 3) areas with slight to moderate development constraints.

Through considering other factors such as access, area significance and visual character, the property can further be divided into: 1) lands best suited for development, and 2) lands best protected or preserved.

In the opinion of the Team's land planner, development of land such as this can most reasonably take place in one of two ways:

1) in the form of housing clusters where units are constructed in several suitable locations throughout the site and remaining lands are placed under permanent open space restrictions, or

2) by creating large lots (5+ acres in size) wherehouse sites are located on lands suitable for development while the remaining area of each lot is restricted from future development by deed restrictions or conservation easements.

The applicant's proposal most closely resembles this second alternative. As the applicant has already proceeded well down the road toward final subdivision design, comments and suggestions made in this section of the report will focus on this alternative and the submitted subdivision plan dated February 1984.

Design Concerns

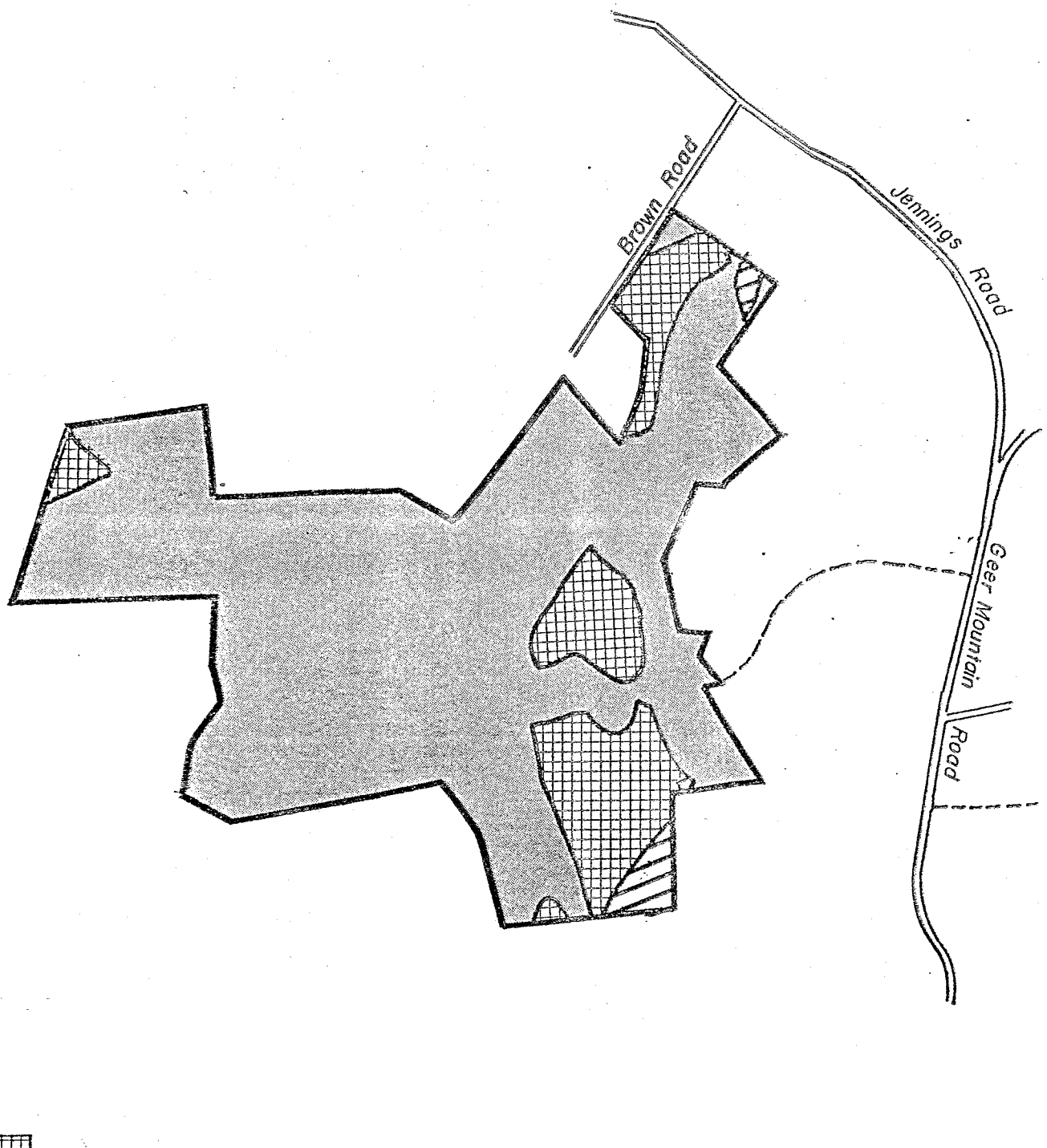
- The proposed large lot subdivision as currently designed does not provide for any public open space areas.
- The lots consume the entire property and render any future viable agricultural use of the site unlikely if not impossible.
- Several lots, specifically lots 7, 14 and 15, appear to be questionable in terms of suitability for driveway construction and/or septic disposal systems.
- The development, as currently proposed, will be visually intrusive from scenic Geer Mountain Road.
- The proposed development does not call for any fire ponds, which are desirable if not necessary for fire safety.
- The lots encompassing the farm fields are too large to easily mow, yet too small to feasibly plow or be agriculturally viable.

Design Suggestions

The following suggestions are offered for consideration in an attempt to improve upon the submitted subdivision plan of February 1984:

1. The Town of Kent Subdivision regulations allow the Planning and Zoning

Figure 7
DEVELOPMENT LIMITATION MAP



= Slight to moderate development constraints

= Moderate to severe development constraints

= Severe development constraints

• limitation ratings based on USDA Soil Conservation Service criteria

Commission to require up to 15 percent of the gross area of a subdivision for open space purposes. The Commission should consider taking advantage of this provision by negotiating for lots 1 and 13 to be set aside for public open space. These agricultural fields could be donated to a non-profit conservation organization for management. Alternatively, lots 1 and 13 could be added to one of the abutting lots with the requirement that they be permanently restricted to agriculture or open space use. An alternative to the setting aside of lots 1 and 13 is the provision of open space land adjacent to Emery Park in the northwestern portion of the site.

2. Consideration should be given to placing an agricultural easement on the majority of Lot 3 for additional open space and agricultural protection. This would bring to 12% the amount of open space set aside if lots 1 and 13 were also protected.

3. Consideration should be given to redrawing the property line between lots 3 and 4 to allow for protection of the agricultural field on lot 3 (see Figure 8).

4. The driveway access to lot 4 should be changed as shown in Figure 8 (i f f e a s i b l e) to reduce impact on the agricultural fields of lots 5 and 6.

5. Consideration should be given to constructing fire ponds on lots 7 and 14 in appropriate locations as shown on Figure 8 for fire safety.

6. Deed restrictions should be placed on all remaining lots to state "No further subdivision".

7. A 10' pedestrian right-of-way should be granted to the Town of Kent (as shown on Figure 8) allowing public access into the rear of Emery Park.

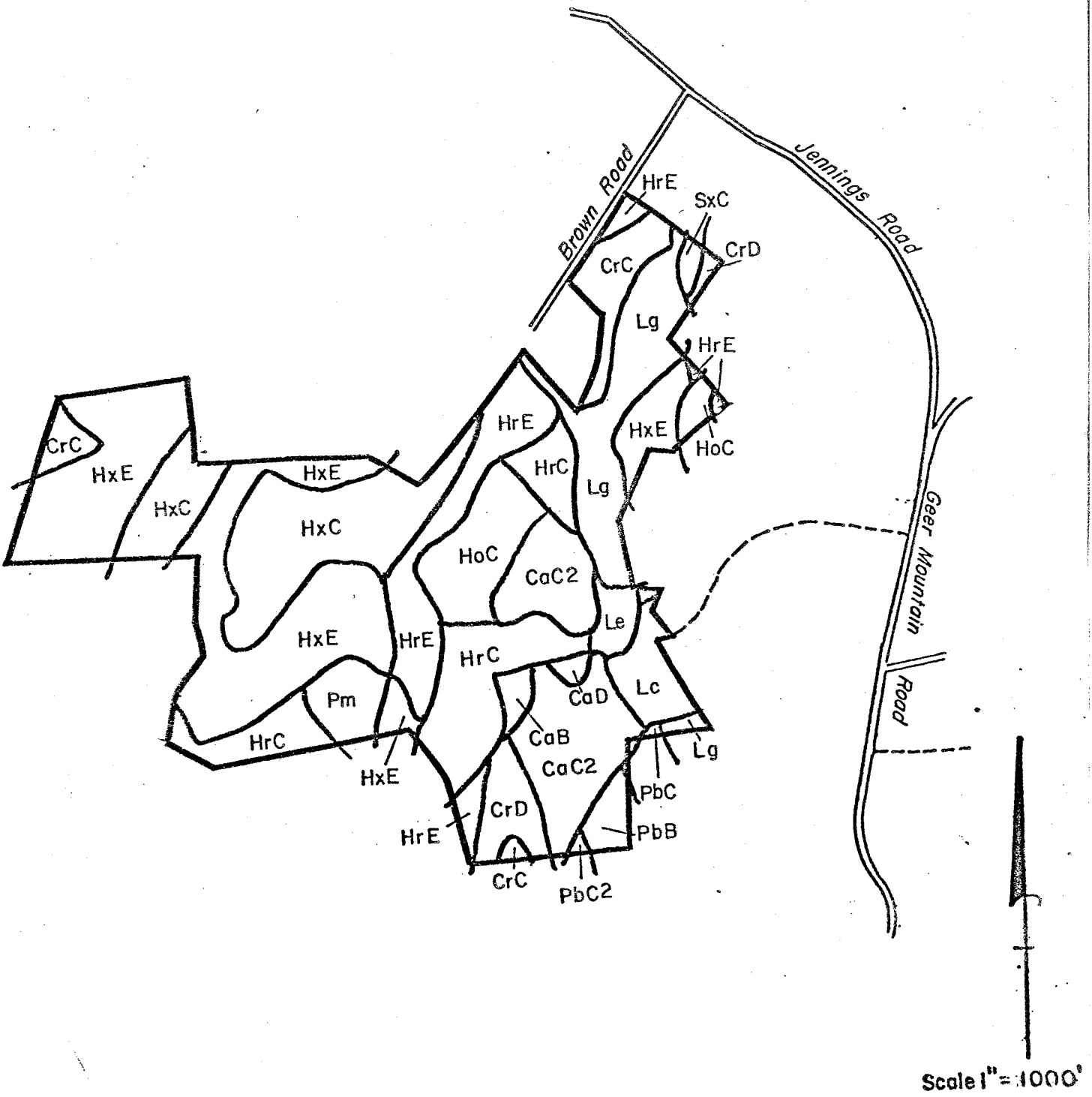
The above alterations for the proposed Hvass subdivision would greatly enhance the open space and agricultural protection of this development, would substantially reduce the negative visual impact this proposed development would have from scenic Geer Mountain Road, would increase public safety in terms of fire protection by adding fire ponds, and further public enjoyment (welfare) by providing pedestrian access into Emery Park.

Similarly, these proposed alterations would provide financial benefit to the developer in terms of tax deductions (if voluntarily agreed upon and given by the developer), and would probably increase the marketability, if not value, of the remaining lots.

* * * * * *

IX. APPENDIX

SOIL MAP


Brown Road
Jennings Road
Geer Mountain Road
HrE
SxC
CrD
CrC
Lg
HrE
HxE
HoC
HrE
HrC
Lg
CrC
HxE
HxC
HxE
HxC
HoC
CaC2
Le
HxE
HrE
HrC
Pm
CaD
Lc
HrC
CaB
Lg
HxE
CaC2
PbC
CrD
HrE
PbB
CrC
PbC2
Scale 1" = 1000'

SOILS LIMITATION CHART - HVASS PROPERTY - KENT, CT

Limitation/Ratings for:

MAP SYMBOL	SOIL NAME	SEPTIC SYSTEMS	DWELLINGS W/ BASEMENTS	LOCAL ROADS & STREETS	LAWNS AND LANDSCAPING
CaB	Charlton fine sandy loam, 3-8% slopes	Slight	Slight	Slight	Slight
CaC2	Charlton fine sandy loam, 8-15% slopes, eroded	Moderate slope	Moderate slope	Moderate slope	Moderate slope
CaD	Charlton fine sandy loam, 15-25% slopes	Severe slope	Severe slope	Severe slope	Severe slope
CrC	Charlton very stony fine sandy loam, 3-15% slopes	Moderate slope	Moderate slope	Moderate slope	Moderate slope, large stones
CrD	Charlton very stony fine sandy loam 15-35% slopes	Severe slope	Severe slope	Severe slope	Severe slope
HoC	Hollis rocky fine sandy loam, 3-15% slopes	Severe depth to bedrock	Severe depth to bedrock	Severe depth to bedrock	Severe thin layer
HrC	Hollis very rocky fine sandy loam, 3-15% slopes	Severe depth to bedrock	Severe depth to bedrock	Severe depth to bedrock	Severe thin layer
HrE	Hollis very rocky fine sandy loam 15-35% slopes	Severe depth to bedrock slope	Severe depth to bedrock slope	Severe depth to bedrock slope	Severe thin layer slope

SOILS LIMITATION CHART - CONT'D

MAP SYMBOL	SOIL NAME	SEPTIC SYSTEMS	DWELLINGS W/BASEMENTS	LOCAL ROADS & STREETS	LAWNS AND LANDSCAPING
HxC	Hollis extremely rocky fine sandy loam, 3-15% slopes	Severe depth to bedrock	Severe depth to bedrock	Severe depth to bedrock	Severe thin layer
HxE	Hollis extremely rocky fine sandy loam, 15-35% slopes	Severe depthl to bedrock slope	Severe depth to bedrock slope	Severe depth to bedrock slope	Severe thin layer slope
Lc	Leicester fine sandy loam	Severe wetness	Severe wetness	Severe wetness Frost action	Severe wetness
Le	Leicester stony fine sandy loam	Severe wetness	Severe wetness	Severe wetness Frost action	Severe wetness
Lg	Leicester, Ridgebury and Whitman very stony fine sandy loams	Severe wetness	Severe wetness	Severe wetness Frost action	Severe wetness
PbB	Paxton fine sandy loam, 3-8% slopes	Severe percs slowly	Moderate wetness	Moderate wetness Frost action	Slight
PbC	Paxton fine sandy loam, 8-15% slopes	Severe percs slowly	Moderate wetness slope	Moderate wetness slope, Frost action	Moderate slope
Pm	Muck, shallow	Severe ponding subsides	Severe ponding Low strength	Severe ponding Frost action	Severe ponding Excess humus

SOILS LIMITATION CHART - CONT'D

MAP SYMBOL	SOIL NAME	SEPTIC SYSTEMS	DWELLINGS W/BASEMENTS	LOCAL ROADS & STREETS	LAWNS AND LANDSCAPING
SxC	Sutton very stony fine sandy loam, 3-15% slopes	Severe wetness	Severe wetness	Moderate wetness, Slopes, lg. stones	Moderate wetness, Slopes, lg. stones

NOTES:

1) Limitation ratings from USDA Soil Conservation Service criteria.

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.

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.