



**HESSEKY MEADOW POND SUBDIVISION
WOODBURY, CONNECTICUT**

**KING'S MARK
RESOURCE CONSERVATION AND DEVELOPMENT AREA**

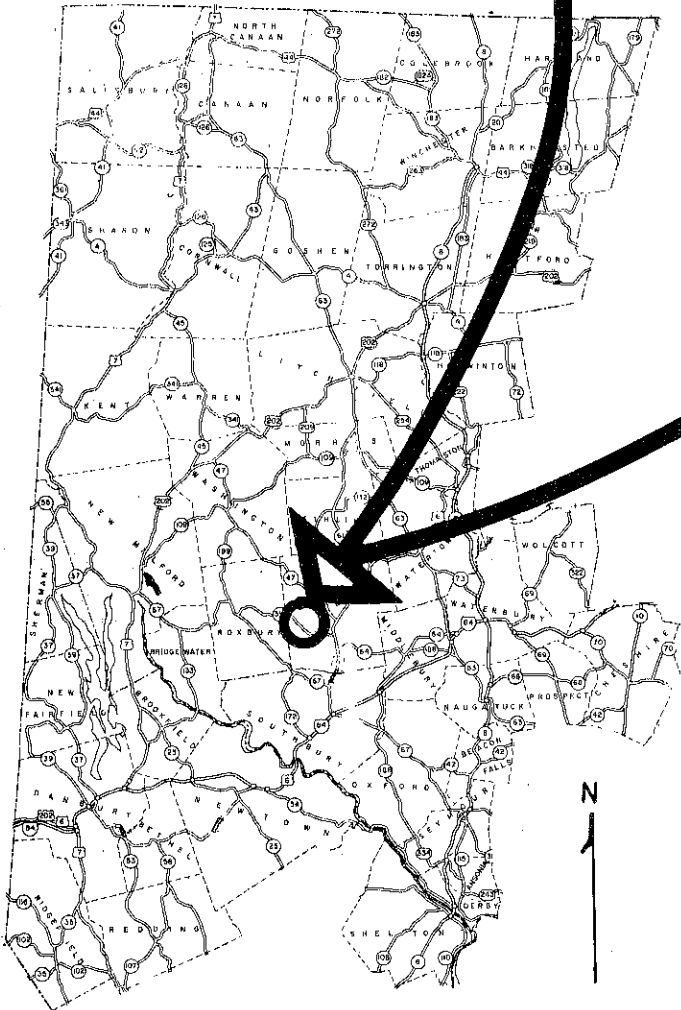
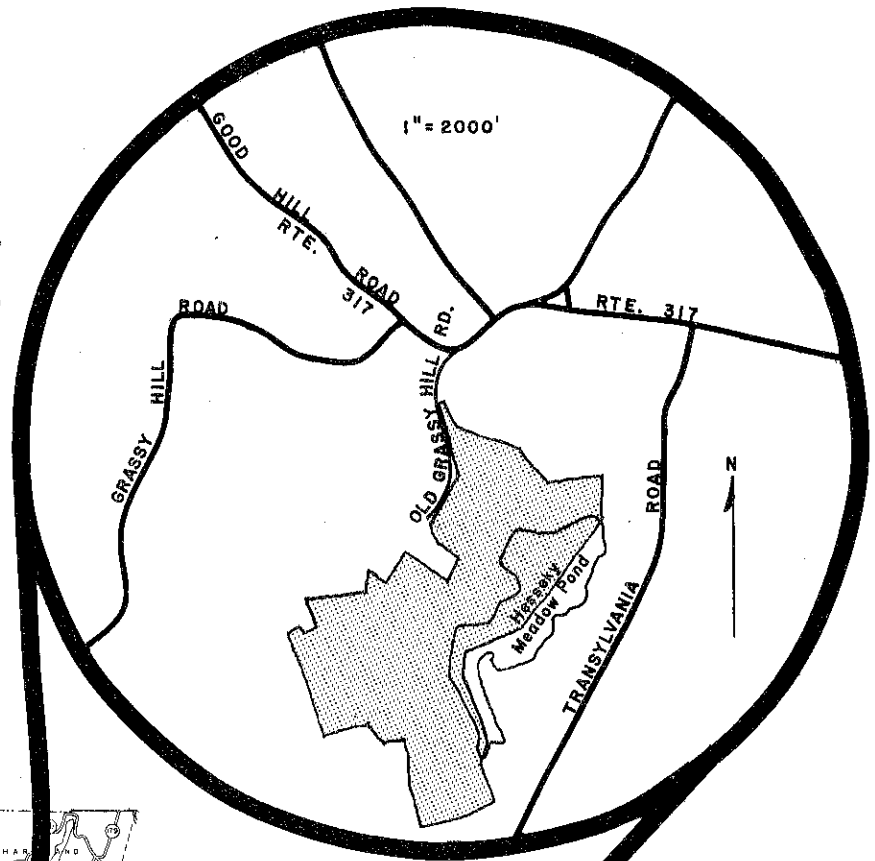
**KING'S MARK
ENVIRONMENTAL REVIEW TEAM REPORT
on the
HESSEKY MEADOW POND SUBDIVISION
WOODBURY, CONNECTICUT
SEPTEMBER 1976**

The preparation of this report was financially aided through a grant from the Department of Housing and Urban Development as authorized by Title I, Section 107(a)(4) of the Housing and Community Development Act of 1974, 24 CFR, Part 570, Section 570.406.

**King's Mark Resource Conservation
and Development Area (RC&D)
Environmental Review Team
P. O. Box 30
Warren, Connecticut 06754**

LOCATION OF STUDY SITE

HESSEKY MEADOW POND
SUBDIVISION



ENVIRONMENTAL REVIEW TEAM REPORT
ON THE
HESSEKY MEADOW POND SUBDIVISION
WOODBURY, CONNECTICUT

This report is an outgrowth of a request from the Planning Commission and Flanders Nature Center of Woodbury, with the subsequent permission of the landowners to the Litchfield County Soil and Water Conservation District (S&WCD). The S&WCD referred this request to the King's Mark Resource Conservation and Development (RC&D) Area Executive Committee for their consideration and approval as a project measure. This request was approved and the measured reviewed by the King's Mark Environmental Review Team (ERT).

The Environmental Review Team draws together a range of experts in the fields of natural resources, engineering and planning, who, based upon existing available data and field investigation, formulate an analysis of a proposed land use activity.

The soils of the site were mapped by a soil scientist of the United States Department of Agriculture (USDA) Soil Conservation Service (SCS). Reproductions of the soil survey, a table of soil limitations for certain land uses, and a topographic map showing property boundaries were forwarded to all Team members prior to their field review of the site.

The members of the Environmental Review Team consisted of the following: Arthur Cross, District Conservationist, SCS; Timothy Dodge, Biologist, SCS; Sid Quarrier, Geologist, Connecticut Department of Environmental Protection (DEP); Robert Orciari, Fishery Biologist, DEP; Edward Rizzotto, Recreation Resource Specialist, DEP; Virginia Mason, Regional Planner, Central Naugatuck Valley Regional Planning Agency; Carol Youell, Team Coordinator, King's Mark RC&D Area.

The Team met and field reviewed the site on Wednesday, July 14, 1976. Reports from each Team member were sent to the ERT Coordinator for review and summarization for this final report.

This report is not meant to compete with private consultants by supplying site designs or detailed solutions to development problems. This report identifies the existing resource base and evaluates its significance to the proposed development and also suggests considerations that should be of concern to the Town of Woodbury and the developer. The results of this Team action are oriented toward the development of a better environmental quality and the long-term economics of the land use.

The King's Mark RC&D Area Executive Committee hopes this report will be of value and assistance in making decisions on this particular site. If any additional information is required, please contact: Carol E. Youell, Environmental Review Team Coordinator, King's Mark Resource Conservation and Development Area, P. O. Box 30, Warren, Connecticut, 06754, 868-7342.

INTRODUCTION

The applicant, Mr. Arthur Randall, is proposing a 10-lot subdivision of a portion of a 120 acre parcel in Woodbury, located just east of Old Grassy Hill Road and west of Hesseky Meadow Pond. This first phase is scheduled for the northwestern portion of the parcel and the 10 lots as proposed in preliminary plan (June 30, 1976) total approximately 21 acres. The parcel includes ownership of one-half of Hesseky Meadow Pond. The applicant has offered part of the pond and an adjacent strip of land (just west of the pond) to Flanders Nature Center in compliance with the open space provision of the town's subdivision regulations.

The Woodbury Planning Commission in conjunction with Flanders Nature Center of Woodbury requested the King's Mark Environmental Review Team to evaluate the entire parcel and the pond area, not just that portion currently proposed for development. The specific request asked of the Team is the following:

1. An analysis of the impact that any development in the vicinity of the subdivision might have on the pond and meadow area.
2. A recommendation as to the most desirable open space areas on Mr. Randall's property that could be deeded to Flanders Nature Center for permanent preservation.
3. A recommendation concerning the use to which the pond and meadow can be put by Flanders and the adjacent property owners so that this unique resource may be preserved.

(A summary of responses to these concerns is presented at the end of the report.)

Present land use on the 120 acre site consists of approximately 20 acres of openland, 78 acres of woodland and 22 acres contained in Hesseky Meadow Pond. Openland is presently idle, characterized by annual and perennial weeds. Past use has included silage corn production. The woodland is primarily mixed deciduous hardwoods with conifers scattered throughout.

Currently the site is undeveloped and unused. It is located in an area of single family homes and open spaces. Hesseky Meadow Pond on the site is classified by the U. S. Department of Housing and Urban Development as a "special flood hazard area", and extensive portions of the site, over 80 percent, are classed by the criteria of the Central Naugatuck Valley Regional Planning Agency's Regional Plan as unsuitable for development due to slope, soils, bedrock or flood potential. According to the Regional Plan, that portion of the site which is suitable or conditionally suitable for development is primarily on the border of Old Grassy Hill Road and is being proposed for development first. Preliminary subdivision plans for this portion of the parcel show 5 lots with 150+ feet frontage on Old Grassy Hill Road and 5 lots with 50 feet access for driveways. There is no direct access from the pond to Old Grassy Hill Road at this stage of the plans. This lack of access is a major problem with the proposal as it eliminates the utility of the gift from the Nature Center's viewpoint.

This report will describe the natural characteristics of the entire site including topographical features, geology, soils, wildlife, and vege-

tative cover; evaluate the different aspects of development as they relate to the natural resource base; and respond to the three major concerns posed by the town and Nature Center. Comments or recommendations made within the report are presented for consideration by the developer and town in the preparation and review of development plans and should not be construed as mandatory or regulatory in nature.

GENERAL DESCRIPTION

The 120 acre site includes three basic types of lands; pond and wetlands, rocky and steep forested hillsides, and rolling to moderately steep fields nearby woodlands. The eastern part of the site is occupied by Hesseky Meadow Pond and by locally extensive swamps and marshes that border the pond. The southwestern part of the site (approximately 60 percent of the land area) consists of a very steep and rugged hillside that has numerous outcrops of bedrock (ledge) and generally shallow to bedrock soil conditions. The northwestern section encompasses more rolling terrain with moderately steep slopes and open fields. (See Topographic Map.)

Hesseky Meadow Pond and its perimeter of wetlands are an integral part of the Hesseky Brook drainage system. Above the outlet of Hesseky Meadow Pond this system has a drainage area of approximately 5 square miles. (The pond outlet is located at the northern end of the pond, thus the wetland system drains in a northerly direction.) The headwaters of the system flow into Transylvania Pond, draining northward through Radey Pond, into Hesseky Meadow Pond, and finally into the Pomperaug River. About half of the 5 square mile drainage area drains directly into Hesseky Meadow Pond, the remaining half drains into the upstream ponds. A major stream flowing into Hesseky Meadow Pond is Good Hill Brook which drains an area of about 2 square miles. This brook drains an area of considerable topographic relief and has a steep gradient. Its channel and bank areas show evidences of extreme variations in flow. This brook also forms a portion of the site's northern boundary.

Most of the drainage area of the Hesseky Brook system is steep upland. Extremely rapid runoff with large peak flows can be expected in upland streams. Good Hill Brook is a good example of these streams. The ponds and surrounding wetlands (Transylvania Pond, Radey Pond, Hesseky Meadow Pond, and the wetlands around each of these ponds) in the system serve an extremely important function as peak flow and flood shock absorbers. The lowland areas provide a broad area for the rapid runoff of the upland streams to collect and spread out, significantly lessening the peak discharges into the Pomperaug River. The physical character of this drainage basin creates a high energy runoff system. Modification of any of the system's major components (stream channels, ponds and wetlands, runoff characteristics over large areas) could initiate significant changes in downstream areas of the same system.

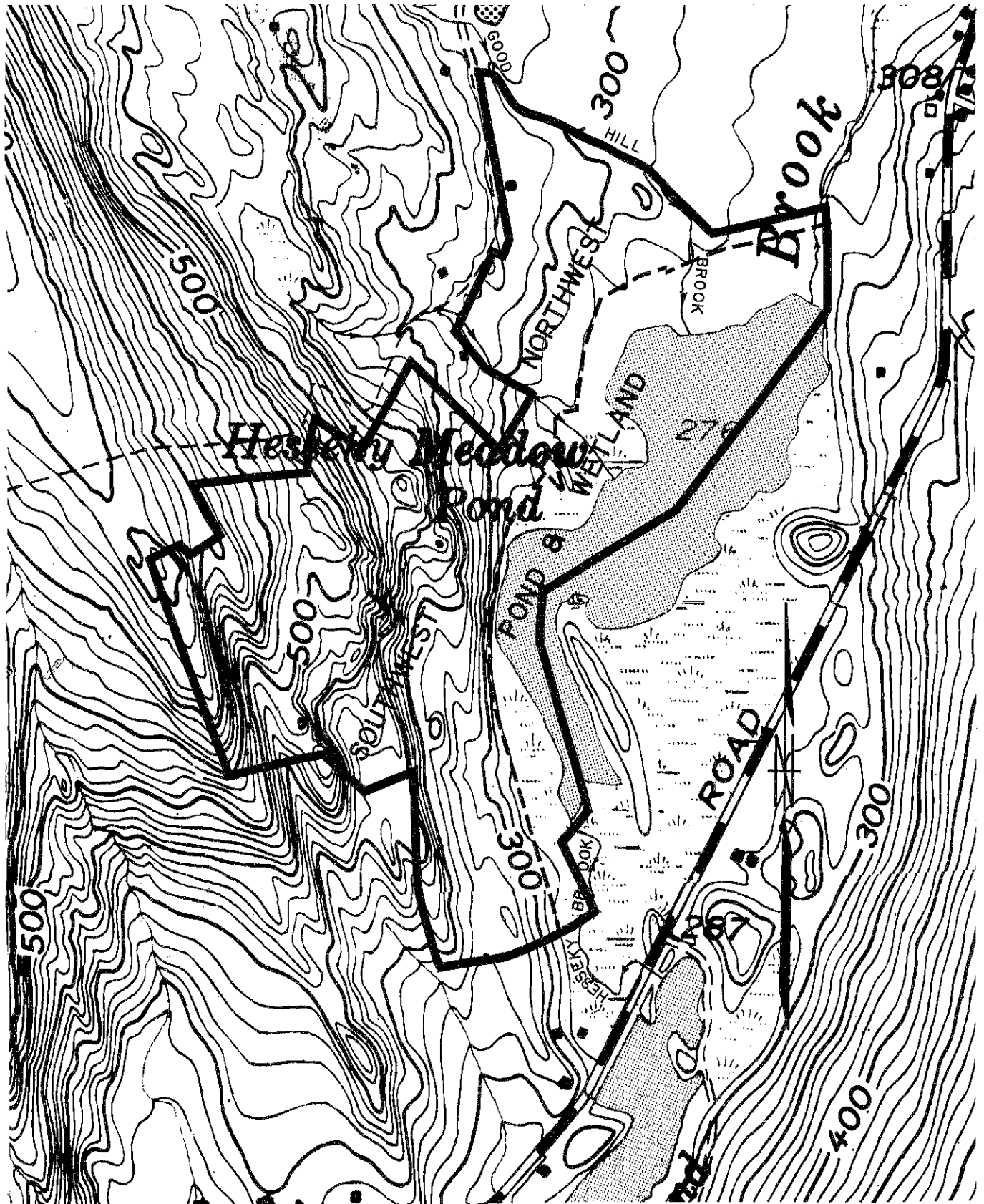
SURFICIAL GEOLOGY*

The surficial or unconsolidated materials were deposited by the most recent glacier and its melting approximately 12,000 years ago. These materials include the till or bouldery and rocky hardpan soils that exist in the upland areas, and glacial meltwater deposits (sand, gravels, etc.) that are common in the valley areas. The southwestern part of the site is underlain by the rocky till type of material; the northwestern part

* The surficial geologist is concerned with the primary overburden, unconsolidated deposits, lying on top of the solid bedrock that have been relatively unaltered by the weathering process. The bedrock geologist is interested in the solid bedrock, its structure and composition; while the soil scientist deals with the weathered zone of the surficial deposits, the upper 3 to 5 feet below the land surface.

TOPOGRAPHIC MAP

HESSEKY MEADOW POND SUBDIVISION



SCALE 1" = 660'



by coarse grained sand and gravel; and the pond and wetland areas by sand and gravel materials overlain by recent stream, lake and swamp deposits. The Hesseky Brook and Pomperaug River areas contain a number of interesting features, landforms, and deposits that relate to the melting phases of the last glaciation. The elongate hill in the middle of Hesseky Meadow Pond appears to be an ice channel filling or esker. More information about the glacial deposits and the recent geologic history of the area can be found in the surficial geology map of the area; "Surficial Geologic Map of the Woodbury Quadrangle", by Fred Pessl, Jr., U. S. Geological Survey Map GQ-896.

The coarse grained sand and gravel deposits in the northwestern part of the site are of particular importance because of the proposed development in this area. The coarse texture of these materials creates a high permeability, or fluid transmitting capacity. Fluid wastes tend to travel rapidly down to the ground water level and from there travel laterally with the ground water flow.

BEDROCK GEOLOGY

Bedrock is exposed in the steep slopes in the southwestern part of the site (see Soils Map). This rock is mostly gneiss and schist, similar to much of the rock that underlies western Connecticut. A change in rock type occurs to the east of the Hesseky Brook valley where the bedrock is red-brown sandstone and dark colored basalt (traprock), similar to the rocks of the Connecticut valley. The existence and general form of Hesseky Brook valley is partly due to this change in rock type or "geologic contact" that trends in a northeasterly direction. More information about the bedrock geology can be found in "The Bedrock Geology of the Woodbury Quadrangle", by Robert M. Gates, Connecticut Geological and Natural History Survey Quadrangle Report No. 3.

From a land use point of view, the most important aspect of the bedrock geology is the proximity of rock (ledge) to the surface in the southwestern part of the site. In this area the resistant rock ridges maintain the steep slopes. Grading, excavation, waste disposal, etc., will be expensive and difficult due to this factor. The depth to bedrock in the northwestern part of the site was not determined, but lack of outcrops and the general character of the land suggest that bedrock is more than 10 feet below the surface.

SOILS

The physical characteristics of the site together with the natural processes operating within an area, create situations which can be beneficial or problematic to the proposed development. In addition to the geologic data, soil classifications provide a good indicator of the suitability of an area for development.

A detailed Soils Map of the entire site is given in the Appendix to this report along with a Soils Limitations Chart. As the map is an enlargement from the original field mapping, 1320'/inch scale to 660'/inch, the soil boundary lines should not be viewed as precise boundaries but rather as guidelines to the distribution of soil types on the property.

The Soils Limitations Chart indicates the probable limitations for each of the soils for various community uses including: on-site sewage disposal, buildings with basements, landscaping, and streets and parking lots. An explanation of the numbered ratings for particular land uses is provided on the last page of the Appendix.

With the examination of the Soils Map and accompanying Chart, a correlation between the soils and surficial geology can be seen. Soils in Natural Soil Group A (see first and second column of Chart) are terrace soils underlain by water deposited beds of sand and gravel. In most places a few inches to 3 feet of loamy or fine sandy material cover the older, coarser water deposits. The terrace soils occur above flood plains in river and stream valleys. These soils are located primarily in the northwestern portion of the site.

Soils in Natural Soil Groups B, C, and D are all upland soils that were formed in areas of till. Group B soils are generally found in thicker deposits of till occurring on hillsides. Group C soils (in this case there is only one type, PbD), occur mostly on the tops and sloping sides of hills or drumlins and have a hardpan 16 to 36 inches below the soil surface. Groups B and C soils make up a very small percentage of the entire site. Group D soils are found mostly on steep side slopes and narrow ridge tops and are characterized by stoniness and shallow depths to bedrock. Group D soils comprise the majority of the southwestern portion of the site. These soils are underlain by hard bedrock and areas contain barren rock outcrops which, combined with the steep slopes, cause severe problems in developing this land for urban uses. In most places, hard rock is less than 20 inches below the soil surface; although, occasionally pockets of deeper soils may be found and utilized for individual homesites.

The remaining soil types on the site fall into the category of inland wetland soils as defined under Connecticut Public Act 155, the Inland Wetland and Water Courses Act. These soils are in Natural Soil Groups E, F, and G, and are located adjacent to Hesseky Meadow Pond and Good Hill Brook. Group E soils occur on nearly level flood plains in stream valleys, and are formed in loamy deposits overlying sand and gravel layers. These soils are subject to flooding, with the lower lying poorer drained soils being flooded most often. These soils are best suited for open space uses. Group F soils (there is only one type on the site, Pk) are deep peat and muck soils with a high water table during most of the year. Development of these areas is very costly and requires complete alteration. Group G soils are lake terrace soils over strata high in silt and clay. Soils of this group occur in areas where glacial lake sediments accumulated. The only Group G soil type found on the site, Bz, has severe limitations for most urban uses due to the high water table which is present during most of the year. For further explanation of the Natural Soil Groups, refer to Know Your Land, Natural Soil Groups for Connecticut, USDA Soil Conservation Service and Connecticut Cooperative Extension Service.

Unless adequate measures are taken, the eventual development of the entire area for homesites could have undesirable effects upon the pond and associated wetlands. According to the Soils Limitations Chart, approximately 82 acres of the 120 acre site have soils which exhibit severe and very severe limitations for the 4 land uses itemized in the chart (residential development). This mainly involves soils in Natural Soil Groups B, C, D, E, F, and G as shown in the Chart. (Note: the total 120 acres also includes part of

the pond, so that in effect the severely and very severely limited soils comprise a total of 81 percent of the land area of the site when the pond is excluded.) In general, limitations are imposed by such factors as shallow depths to bedrock, rock and ledge outcrops, steep slopes, high water table, and flood hazard. Roads, driveways, basements, and septic systems will be difficult to properly install on these soils.

According to the Chart, roughly 19 acres of the 120 acre site (or 19 percent of the land area excluding the pond) have soils which exhibit slight and moderate limitations for residential development (soils in Natural Soil Group A). These soils are mainly located in the northwestern portion of the site, adjacent to Old Grassy Hill Road, and comprise a portion of the area to be developed first. However, even in these less limited soils, some precautionary measures are necessary to accommodate successful residential development. For example, in the areas of soil types HmA, HkC, and HmC as little as possible underlying sand and gravel should be exposed as such areas will be difficult to stabilize without topsoiling. In the area of soil type TwB, subsurface drainage should be planned if a homesite is developed.

WATER SUPPLY

Woodbury Water Company lines are not accessible to the site, according to the Town Planner; therefore, on-site wells will be required.

The water resources inventory for the area ("Water Resources Inventory of Connecticut Part 5, Lower Housatonic River Basin", Connecticut Water Resources Bulletin No. 19) indicates some potential for ground water development in the saturated sand and gravel material underlying the northwestern part of the site. The town and regional significance of this potential should be evaluated from water resource plans for the area (if they exist). The Pomperaug River area as a whole has considerable potential for ground water resource development and the potential on this site is just a small part of this whole. The specific potential of the site is not known, as no detailed survey or test hole information is available.

The general geologic information indicates the potential for developing on-site water supplies for residential development from the saturated sand and gravel deposits underlying portions of the site. However, if the ground materials are as coarse grained as they appear to be, on-site sewage waste disposal and surficial ground water supply are not recommended for numerous house lots. On-site ground water for residential use could be developed from deep wells drilled into the bedrock, and if suitably cased, should not be affected by on-site waste disposal.

WASTE DISPOSAL

The Town of Woodbury does not have public sewerage facilities. Individual on-site septic systems will be required.

Suitable sites for on-site waste disposal are probably extremely limited in number and area in the steep and rocky terrain in the southwestern part of the site. Septic systems in shallow to bedrock soils could be a problem unless extensive investigation is undertaken to locate large enough areas above bedrock.

In the northwestern portion of the site where coarse sand and gravel materials exist, on-site waste disposal is feasible if the limitations of rapid percolation are taken into consideration both in the provision of water supply and in the design of the leaching fields. There is a general tendency in coarse grained materials to under design the leaching fields because of rapid percolation rates. Proper design should be aimed at insuring large area dosing for all volumes of discharges in the leaching fields. Because of the coarse grained character of the ground materials; setbacks from wells, breaks in slope, and distances above ground water should be considerably greater than the required minimum.

FOUNDATION DEVELOPMENT AND GRADED CONDITIONS

(These comments refer primarily to the northwestern part of the site.)

From an excavation and grading point of view the coarse grained character of the ground materials should present no major problems. The area does have moderate and even locally steep slopes and considerable erosion could occur during the construction phase. Because of this potential and its possible effects on the wetlands and on Hesseky Meadow Pond, it is recommended that requirements for effective reduction of erosion be major determining factors in lot and site design, length and time of construction period, and the requirements for seeding, etc.

Surface drainage from the development site will flow down hill into the wetlands surrounding Hesseky Meadow Pond. Particular care should be taken in the area near the course of Good Hill Brook. As was stated above, this brook is subject to exceedingly high variations in flow and nearly flash flood conditions could exist at certain times. Stream bank overflow of water in this brook during peak flow provides an important function of excess energy dissipation. Modifications of the channel system or constriction of overflow could initiate a series of unexpected and significant side effects.

The southwestern portion of the site may be subject to development at a later date. Extensive investigation will be needed to locate adequate pockets of deeper soils which can be utilized for individual homesites in this steep and shallow to bedrock area. Roads and driveways on excessive grades, and with cuts, could cause runoff, erosion and sedimentation problems. Cuts and fills on slopes should be held to a minimum. Runoff will be increased into streams and other watercourses unless permanent control measures are designed and installed (basins, diversions, etc.). Homesites might best be sited first (in areas with less slope and adequate depth to bedrock, +7 feet) and then lot boundaries, sizes, and road locations determined.

AESTHETICS AND PRESERVATION

Fisheries and Hesseky Meadow Pond

Hesseky Meadow Pond is a shallow +30 acre pond probably averaging about 3 feet in depth. It is dominated by emergent vegetation, grading from a deep fresh marsh, through wooded wetland to upland woods. Much of the pond's surface (on the day of the review) was covered with white water lilies.

Pickereelweed was also abundant and some spatterdock was scattered among the white water lilies. It appeared that sedges and rushes bordered much of the pond. Because the pond is so shallow and filled with emergent vegetation, only a few numbers of game fish, such as Largemouth bass and Chain pickerel, could exist in the pond. The "filling-in" (eutrophication) of the pond can be expected to continue. Since few game fish would normally be present and because fishing would be extremely difficult, Hesseky Meadow Pond is not considered to be a valuable sport fisheries resource. However, as a natural area, it is valuable for wildlife and educational purposes.

The pond's emergent vegetation has aesthetic value and no attempts to remove these plants, either by herbicides or by mechanical means should be made. Hesseky Meadow Pond should be left in its natural condition for wildlife and educational purposes, even though the abundant plant growth is detrimental to its potential fisheries.

Wildlife and Vegetative Cover

Collectively the 120 acre area provides high quality habitat to a wide variety of game and non-game species of wildlife. Wildlife utilizing the variety of habitat types (woodland, wetland, open field) found on the site include but are not limited to waterfowl such as teal, wood duck, black duck, mallard duck; fur bearers such as muskrat; and upland wildlife including white-tailed deer, racoon, gray squirrel, cottontail rabbit, fox, songbirds, ruffed grouse, woodcock, and birds of prey.

The upland woods contain red maple, white ash, black cherry, sugar maple, tulip poplar, red oak, birches, mountain laurel, wild azelia, blueberry and other shrubby growth. The understory is moderately dense containing shrubs and young hardwoods. This area provides habitat for woodland wildlife.

It should be noted that the woodlands of the Hollis soil areas (soil types HoC, HrE, HxC, HxE) are of high quality with fine stands of red oak and tulip poplar, some near harvest stage (12-16 inches in diameter at breast height). Consideration should be given to management and preservation of the desirable tree stands.

The area adjacent to the west and northwestern edges of the pond proposed for deeding to Flanders Nature Center is some of the best and most critical wildlife habitat on the site. Protection of this area should be a priority. The land area contains a high diversity of plants including trees, shrubs, vines, wild grasses, and wetland plants. These provide excellent cover and food to wildlife, act as a buffer between the area proposed for development and the pond, and serve as a filter strip reducing the amount of sediment reaching the pond. It is a transition area in that both upland and wetland wildlife will use it in varying degrees depending on the species and season of the year. The entire pond-meadow area is important in that it is quite large (+30 acres), undeveloped, and has an interspersed pattern of open water and vegetated areas. Wetlands have their greatest value to wildlife when they are one-half acre or greater in size.

Effects of Development on Wildlife Habitat

Development of the 10 lots as proposed (June 30, 1976) will increase the disturbance factors to wildlife. Free roaming cats and dogs will probably increase. This may become significant to waterfowl using Hesseky Meadow Pond and surrounding areas during the spring courtship, nesting and brood rearing period.

As with most development, the amount and quality of habitat available to wildlife is reduced somewhat proportionately to development. If the proposed open space area along the western edge of the pond is preserved, mobility of wildlife should not be affected. In this case, the openland provides "edge" along the woodland border, while the wild herbaceous or weedy growth provides elements of food and limited cover, primarily to smaller animals.

Increasing development in the watershed could pose a threat to the pond's water quality, the aesthetic values of the pond, as well as lower its value for fish and wildlife. An acceleration of the "filling-in" process of the pond may occur if development is not undertaken properly.

Management Recommendations

Development, if approved, should maintain as much native vegetation as possible. Landscaping should maximize the "edge" values between the openland and woodland. Planting of fruiting shrubs with values to wildlife should be considered.

If the second phase of the development is implemented, the remaining land bordering the west and southwestern shore of the pond should be acquired for open space to maintain a natural corridor along the west shore of the pond and maintain wildlife habitat.

COMPATIBILITY OF SURROUNDING LAND USES

The proposed residential development is compatible with surrounding residential and undeveloped land uses. The Central Naugatuck Valley Regional Planning Agency's Regional Plan of Development shows the site in open space uses (flood-prone areas), clustered residential uses (one dwelling unit per 2 acres, net with residential lots of 1 acre and 1 acre open space), and natural areas (1 dwelling unit per 16 acres gross). A natural area is so classified because of steep slopes, bedrock, and poor soils. The current 10 lots proposed are in general conformity with the Regional Plan. The remaining land is shown as natural areas.

ALTERNATIVE LAND USES

The two obvious alternatives are: development of the present site under zoning requirements, or continuation of the present use (vacant). The Regional Plan recommends development for the first 10 lot phase, but recommends very low density development for the bulk of the site. The use of this bulk of the site at a density of 1 dwelling unit per 16 acres would require careful site planning. Open space uses such as hiking trails or bridle paths could be incorporated in the design. No urban uses are recommended for this area.

The critical aspect of the site is the density of development considered feasible. The Central Naugatuck Valley Regional Planning Agency's Land Use Plan considers much of the site as unsuitable for development and, with the absence of public utilities, very limited residential development is the only alternative feasible - especially in the portion not currently proposed for subdivision.

SUMMARY RESPONSES TO THE SPECIFIC REQUESTS OF THE REVIEW

1. An analysis of the impact that any development in the vicinity of the subdivision (including this particular proposal) might have on the pond and meadow area.

As in any watershed, the ponds, lakes, streams, and wetlands can be adversely affected by subdivision development if proper methods are not planned and implemented. These methods include, but are not limited to:

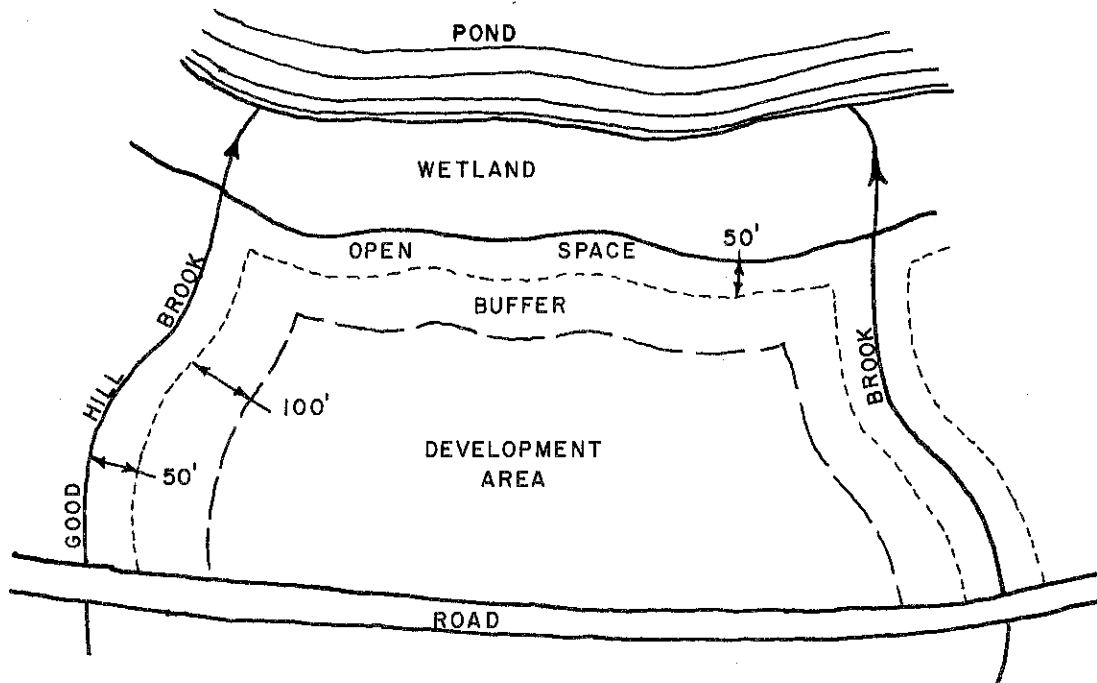
- Overall consideration of lot layout, lot sizes, roads, and driveways verses soils and slopes
- Timely erosion and sedimentation controls, during and after construction
- Storm water management
- Setbacks from streams, wetlands, and bodies of water
- Preservation of as much vegetative cover as possible
- The least disruption of natural contours
- Proper siting, installation and operation of on-site sewage disposal systems
- Keeping nutrient levels entering streams and water bodies to a minimum

Hesseky Pond Watershed - Most of the watershed has severe and very severe limitations for housing development because of steep slopes. This is compounded on the west side of the watershed by shallow to bedrock soils and numerous inlet streams. Any development within the watershed should be limited and confined only to those soil and slope areas with slight to moderate limitations. Previously mentioned methods should be planned and implemented.

This particular proposal of (June 30, 1976) preliminary plan - Lots No. 1, 2, 4, 5, 6, 8, 9, 10 border or bisect perennial streams; or partly or considerably contain very poorly drained soils regulated under Connecticut Public Act 155. The development of these lots for homes can have an impact on the pond and meadow area.

2. A recommendation as to the most desirable open space areas on the applicant's property that could be deeded to the Nature Center for permanent preservation.

The most desirable open space areas on the site from the Nature Center's viewpoint would be that which is proposed to be deeded - part of the pond (19 acres) and an adjacent strip of land to its west. The major concern regarding the portions proposed to be deeded is the lack of internal access to these areas. Access at present is difficult with the existing lot layout. In view of this the following is proposed: It is recommended that a minimum of a 50 foot wide strip along the two major streams entering the site and also along edges of wetlands be designated as open space for the Nature Center's use. Access would thus be provided (see sketch below). (It is also recommended that no buildings or septic systems be within 150 feet of wetlands and streams.) These natural buffer strips along wetlands and streams will help to reduce potential detrimental effects from development.



3. Uses to which the pond and "meadow" (marsh) can be put by Flanders and the adjacent property owners so that this unique resource may be preserved.

Educational - nature study, wetland workshop, wildlife management

Scenic - nature study, photography, art work

Recreational - use should be limited to passive recreation items such as trails, observation and photography blinds, and plant identification markers. A boardwalk may also be needed.

Preservation (most important "use") - Ensure preservation so that the desirable functions of the wetland system will continue (i. e., ground water recharge, maintenance of base flow of streams, flood control, filtration and dilution of pollutants, acting as a sediment trap, wildlife habitat).

GENERAL COMMENTS

The water courses, ponds and wetlands along Hesseky Brook serve in a number of ways as a hydrologic buffer for the local area. This buffering function is important because of the natural topography of the area which creates conditions of rapid runoff. As some of the land in the drainage basin becomes developed, the buffering functions of the wetland-watercourse system become more important by offsetting changes in runoff from development and consuming some of the wastes discharged into the ground-surface water system. The maintenance of the buffering functions of the wetland-watercourse system should become important objectives in wetland and watercourse management. Direct changes to the wetland-watercourse system can affect the buffering function, as can excessive land development effects which overtax the stability of the wetlands watercourse system. A wetlands or stream

ecologist, who deals with the water-land and biological systems as a whole is best able to make judgements concerning the successful management of this kind of a system.



An unrelated observation is that much of the land area of the southwestern and northwestern parts of the site is highly visible from other areas of the valley and from the surrounding hillsides. An important consideration in developing any of this site should be protecting the scenic character of the whole valley. Site design, density of development, architectural and landscaping features, and setbacks from natural zones should be given real consideration.

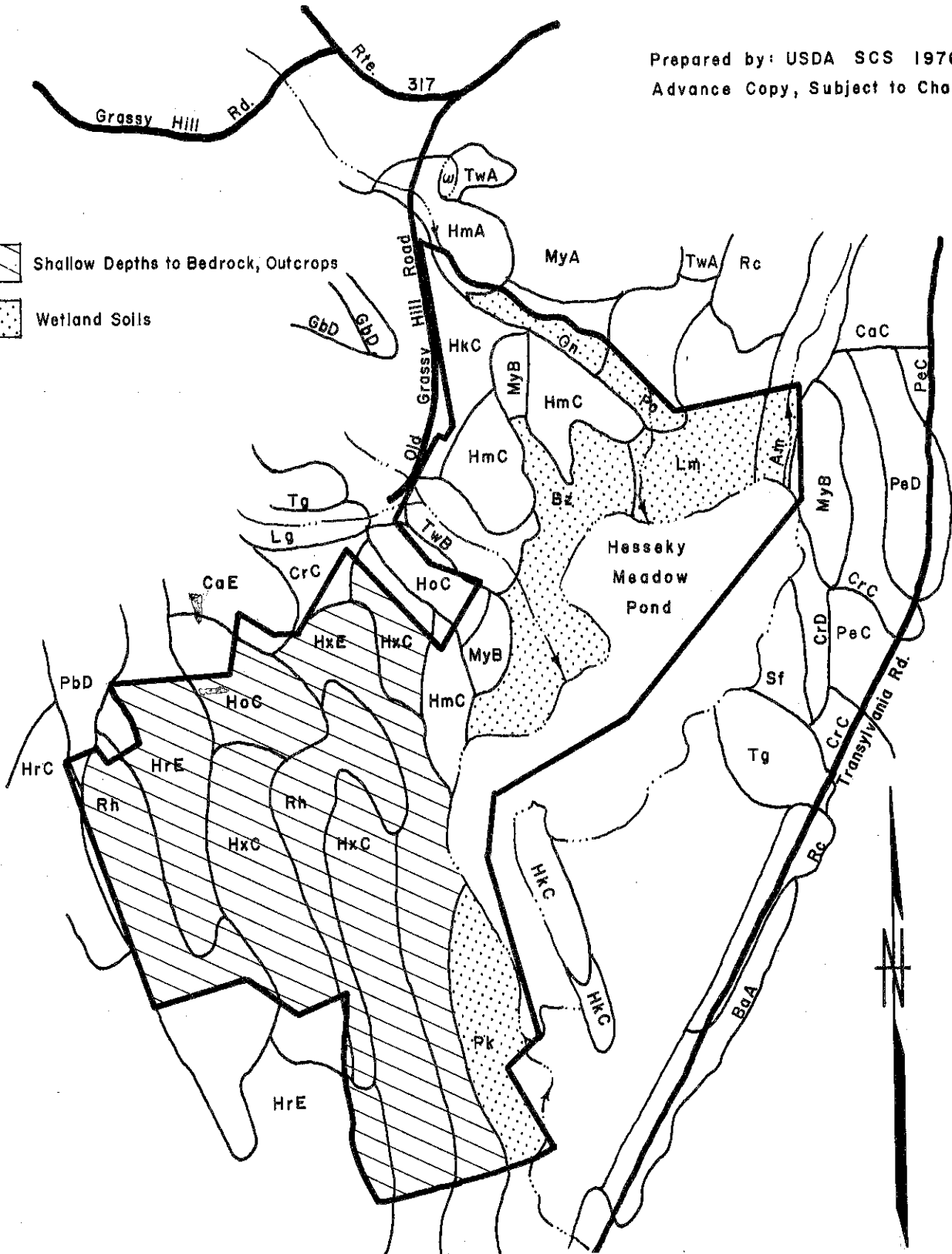
APPENDIX

SOIL MAP

HESSEKY MEADOW POND SUBDIVISION

Prepared by: USDA SCS 1976
Advance Copy, Subject to Change

-  Shallow Depths to Bedrock, Outcrops
-  Wetland Soils



SCALE 1" = 660'



SOILS LIMITATIONS CHART
Hesseky Meadow Pond Subdivision

Natural Soil Group	Mapping Symbol	Slope %	Approx. Acres	Percent of Total Acres	Limitation Ratings For*					Principal Limiting Factor(s)
					On-site Sewage	Buildings with Basements	Land-scaping	Streets and Park- ing Lots		
A-1a	HmA	0-3	1.0	0.8	1+	1	2	1	droughtiness	
A-1b	HKC	3-15	3.5	2.9	2+	2	3	3	slope, droughtiness	
A-1b	HmC	3-15	9.0	7.5	2+	2	3	3	slope, droughtiness	
A-1d	MyB	3-8	2.0	1.7	1+	1	2	2	droughtiness, slope	
A-2	TWB	3-8	3.5	2.9	2	2	1	2	seasonal water table, slope	
B-1c	CnC	3-15	1.0	0.8	3	3	3	3	stoniness, slope	
B-1d	CaE	15-35	0.5	0.4	3	3	3	3	slope	
C-1d	PbD	15-25	0.5	0.4	3	3	3	3	slope	
D-1	HcC	3-15	4.5	3.7	3	3	3	3	shallowness, slope	
D-2	HrE	15-35	8.5	7.1	4	4	4	4	shallowness, slope	
D-2	HxC	3-15	14.0	11.7	4	4	4	4	shallowness, slope	
D-2	HxE	15-35	11.0	9.2	4	4	4	4	shallowness, slope	
D-2	Rh	-	15.5	12.9	4	4	4	4	bedrock out crops	
E-1	On	-	2.0	1.7	3	3	2	3	flood hazard	
E-2	Po	-	1.5	1.3	3	3	2	3	flood hazard, seasonal water table	
E-3a	Am	-	1.5	1.3	3	3	3	3	variable drainage and texture	
E-3a	Lm	-	5.5	4.6	3	3	3	3	flood hazard, high water table	
F-1	Pk	-	6.5	5.4	4	4	4	4	very high water table, organic materials	
G-3b	Bz	-	9.5	7.9	4	4	4	4	very high water table	
Total	Pond	-	<u>19.0</u>	<u>15.8</u>						
			<u>120.0</u>	<u>100.0</u>						

* Limitation Ratings: 1 - slight; 2 - moderate; 3 - severe; 4 - very severe.
 + Possible pollution hazard
 ● Inland wetland soils as defined under Public Act 155.

SOIL INTERPRETATIONS FOR URBAN USES

The ratings of the soils for elements of community and recreational development uses consist of four degrees of "limitations"; slight or no limitations, moderate limitations, severe limitations, and very severe limitations. In the interpretive scheme various physical properties are weighed before judging their relative severity of limitations.

The user is cautioned that the suitability ratings, degree of limitations and other interpretations are based on the typical soil in each mapping unit. At any given point the actual conditions may differ from the information presented here because of the inclusion of other soils which were impractical to map separately at the scale of mapping used. Detailed on-site investigations are suggested where the proposed soil use involves heavy loads, deep excavations, or high cost. Limitations, even though very severe, do not always preclude the use of the land for development. If economics permit greater expenditures for land development and the intended land use is consistent with the objectives of local or regional development, many soils and sites with difficult problems can be used.

1. Slight Limitations. Areas rated as slight have relatively few limitations in terms of soil suitability for a particular use. The degree of suitability is such that a minimum of time or cost would be needed to overcome relatively minor soil limitations.
2. Moderate Limitations. In areas rated moderate, it is relatively more difficult and more costly to correct the natural limitations of the soil for certain uses than for soils rated as having slight limitations. The additional cost ranges from average to higher than average outlay when such areas are compared with areas rated as having slight limitations.
3. Severe Limitations. Areas designated as having severe limitations would require more extensive and more costly measures than soils rated with moderate limitations in order to overcome natural soil limitations. The soil may have more than one limiting characteristic causing it to be rated severe.
4. Very Severe Limitations. Areas rated as having very severe limitations are generally not feasible for the specific use or the limitations would require extreme and costly measures to correct.