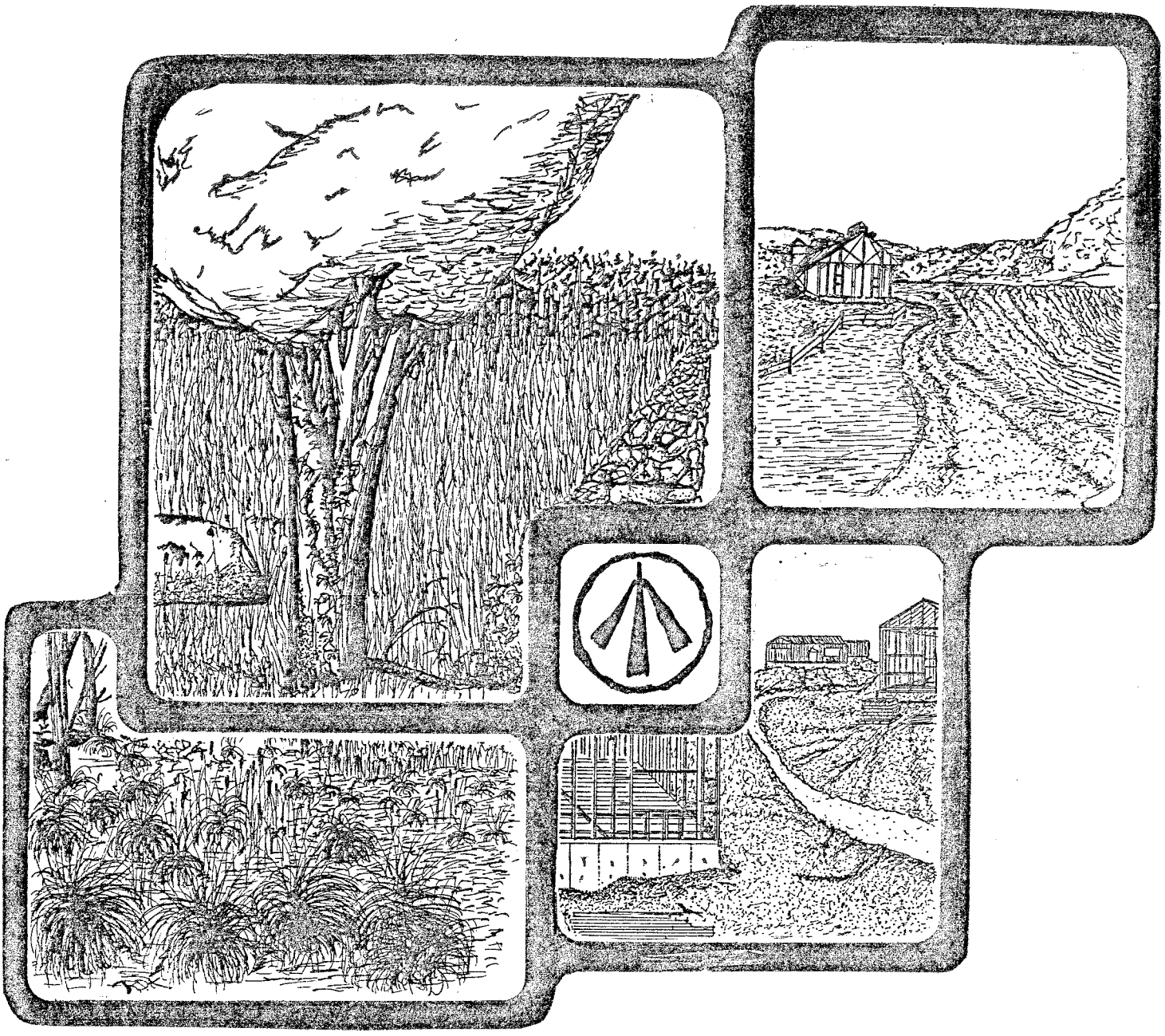
ENVIRONMENTAL REVIEW TEAM REPORT



HARTUNG SUBDIVISION
SHARON, CONNECTICUT

KING'S MARK
RESOURCE CONSERVATION & DEVELOPMENT AREA

KING'S MARK
ENVIRONMENTAL REVIEW TEAM REPORT

HARTUNG SUBDIVISION
SHARON, CONNECTICUT

MAY, 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

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FUNDING PROVIDED BY
State of Connecticut

POLICY DETERMINED BY
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Sandra Bausch, ERT Cartographer
Irene Nadig, Secretary

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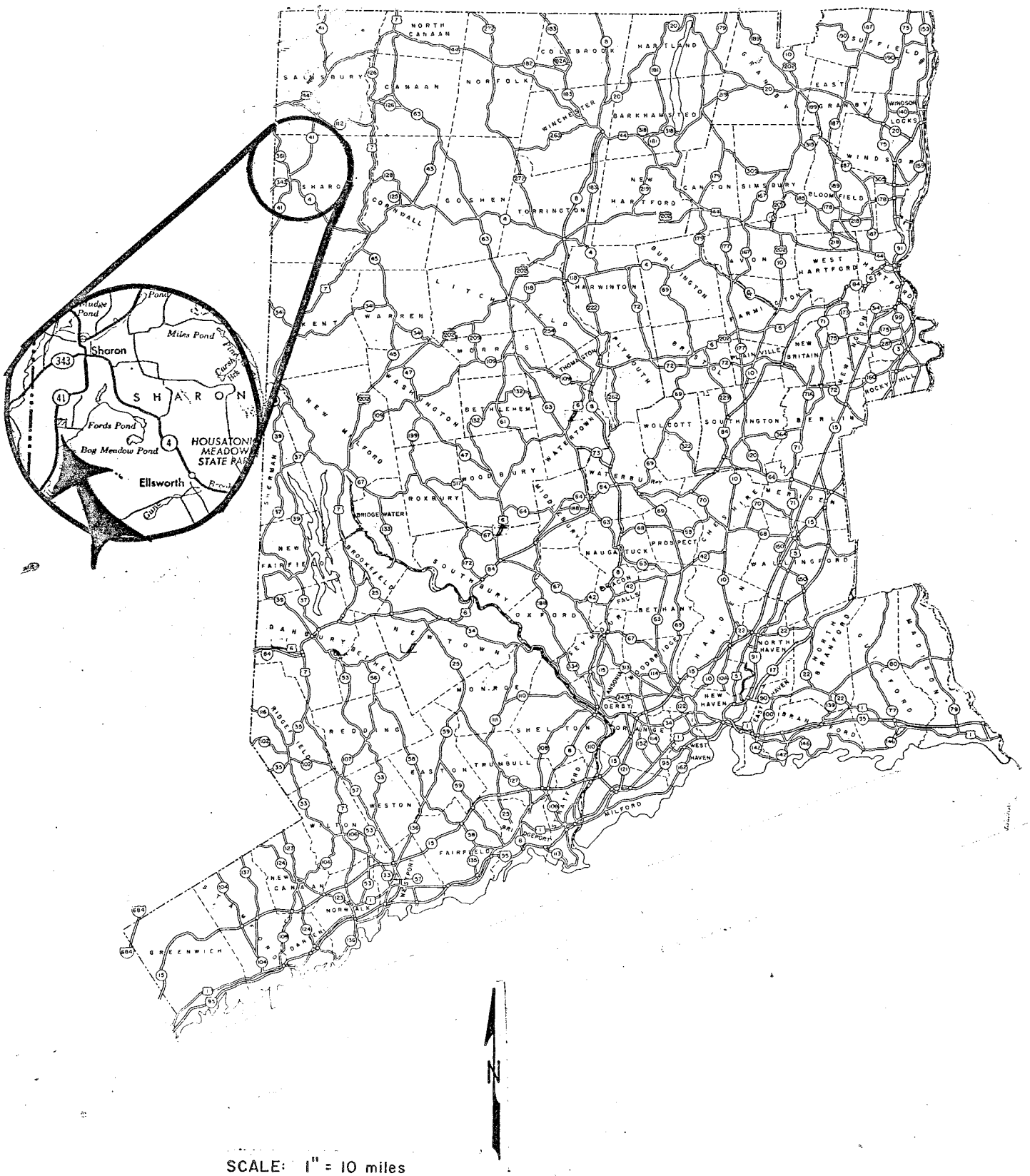


ENVIRONMENTAL REVIEW TEAM REPORT
ON
HARTUNG SUBDIVISION
SHARON, CT

I. INTRODUCTION

The Sharon Planning and Zoning Commission is presently considering an application for residential subdivision of ± 41 acres of land.

The subject site is located in the northwestern quarter of town off Boland Road and Route 41. The site is characterized by slight to moderate relief (see Figure 1) and is mostly open land. The central portion of the site consists of inland wetlands.

The proposed project calls for 14 lots of 2-11 acres in size (see Figure 2). Three lots on the site (numbered 2, 3, 11 on the accompanying plan) have previously been approved. The proposed project would therefore create 11 new lots and one new road of ± 700 feet off Boland Road. Each of the proposed lots would be served by an on-site septic system and well.

The Sharon Planning and Zoning Commission requested the ERT 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 adverse environmental effects.

The King's Mark Executive Committee considered the town's request for an ERT study of the development proposal and approved the project for review by the Team.

The ERT met and field reviewed the site on March 16, 1983. Team members for this review consisted of the following:

Tim Dodge.....Wildlife Biologist.....U.S.D.A. Soil Conservation Service

Ralph Goodno.....Land Planner.....Housatonic Valley Association

Kathy Hanford.....Soil Conservationist.....U.S.D.A. Soil Conservation Service

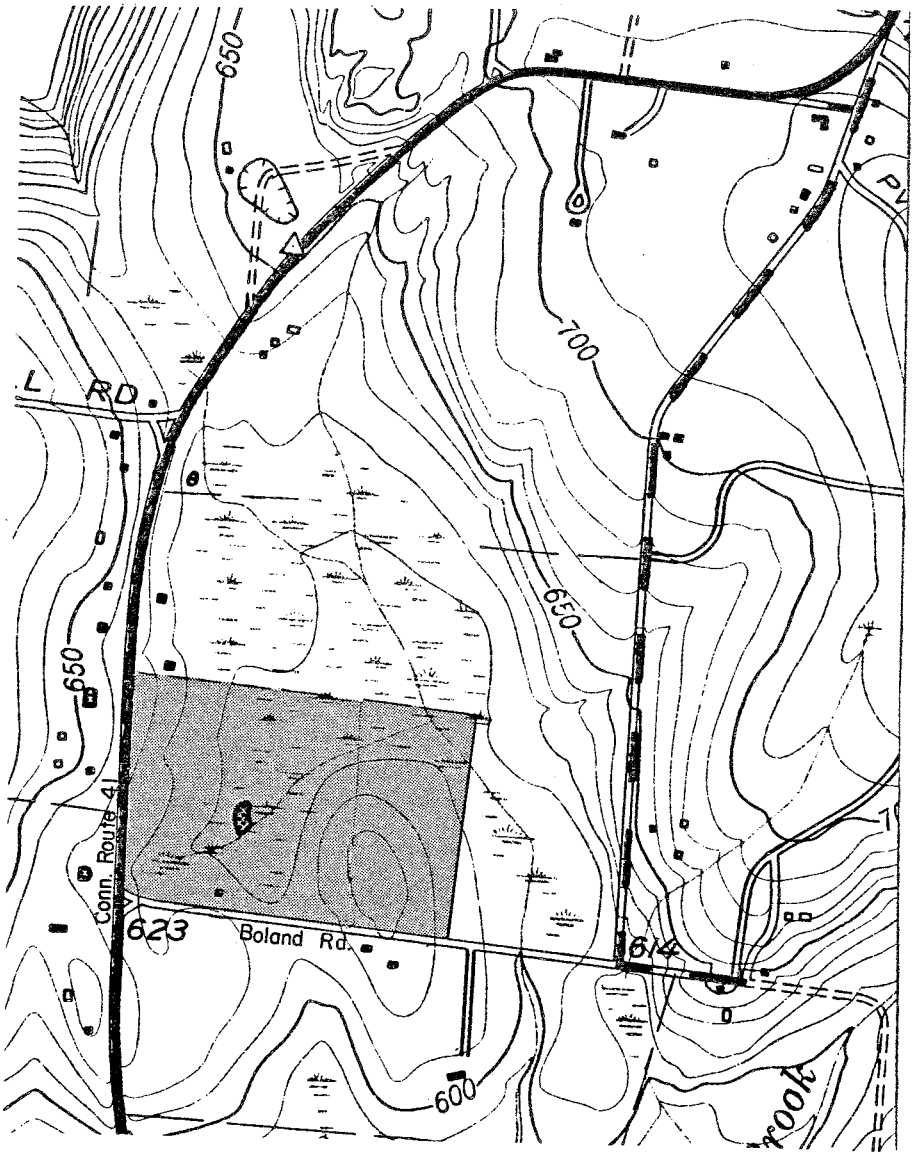
Larry Johnson.....Municipal Planner.....CT Office of Policy & Management

Ken Metzler.....Ecologist.....CT Department of Environmental Protection

Frank Schaub.....Sanitary Engineer.....CT Department of Health

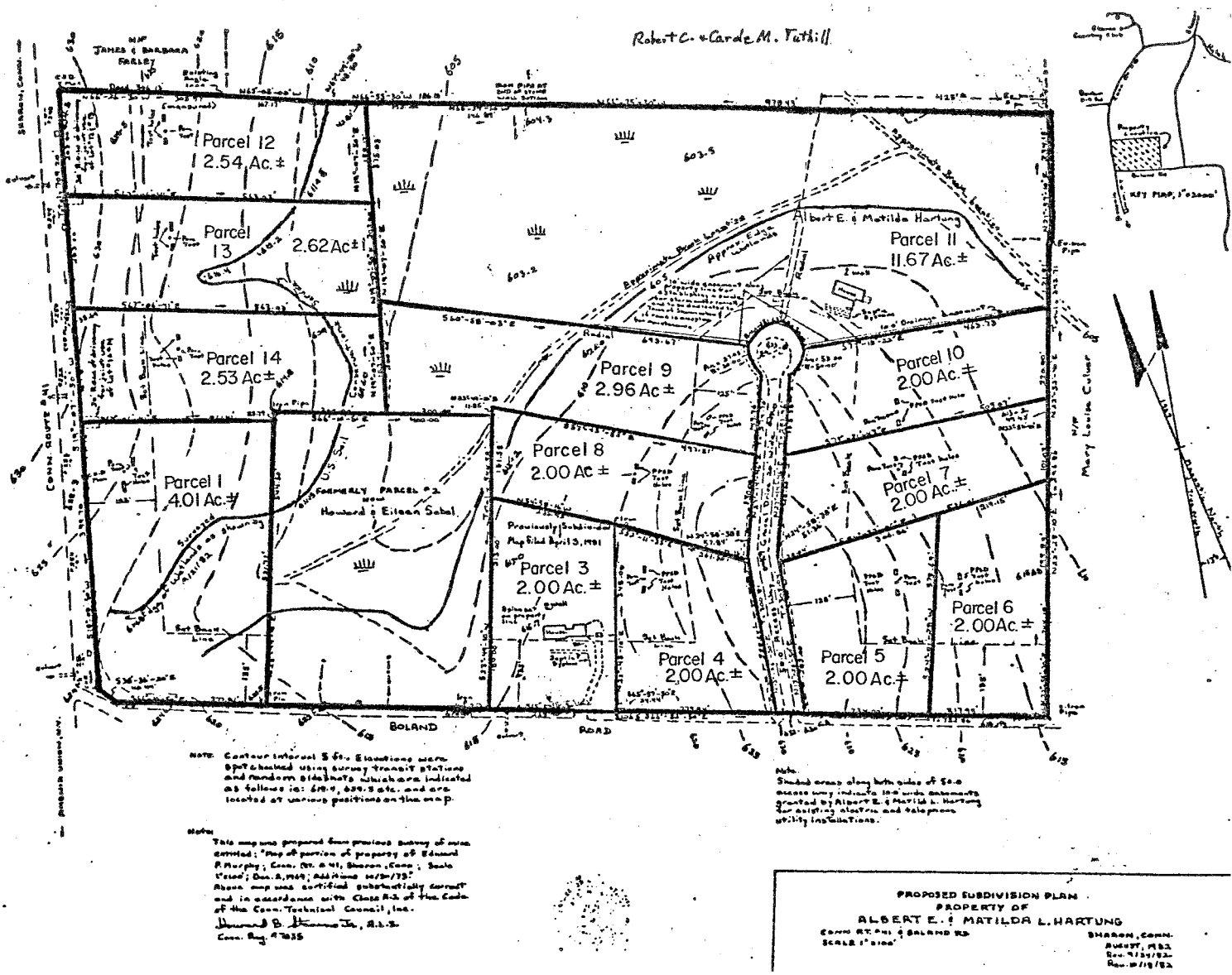
Bill Warzecha.....Geohydrologist.....CT Department of Environmental Protection

Figure 1
TOPOGRAPHIC MAP



Scale 1"=1000'

Figure 2
SITE PLAN



Scale reduced from 1"=100' to 1"=300'

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 Sharon 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) The subject site consists of inland wetland soils and upland soils with a hardpan layer at about 2 feet below the ground surface. Inland wetland soils have severe limitations for residential development and are generally unsuited to this use. The hardpan soils on this site present severe limitations for septic systems due to slow percolation rates and wetness, moderate to severe limitations for roads and driveways due to frost heaving, and slight to severe limitations for buildings with basements due to wetness. The limitations posed by the hardpan soils for the proposed project, however, can generally be overcome with good planning, engineering, and construction. If the proposed project is approved, all septic systems should be designed by a professional engineer, building footing drains should be installed to prevent wet basements, and underdrains should be considered to prevent frost heaving of roads and driveways.

2) The upland soils on this site are prime farmland soils. Except for use as home vegetable gardens, the value of the prime farmland soil for food production will be lost if development occurs as planned.

3) Although there is room for construction on each lot without encroaching on the inland wetlands, the wetlands can easily be affected by improper construction techniques. Negative impacts which could result are from erosion from construction sites depositing sediment into the wetlands; pollution of the wetlands from adjacent septic systems, and encroachment on the natural wetland habitat by future landowners. If the project is approved, erosion and sediment controls should be used during construction on every house lot. Suggested controls are described in the text of this report.

4) With the exception of lot #13, the ERT's sanitary engineer considers all the remaining proposed lots suitable for on-site sewage disposal systems. Due to seasonally high ground water conditions, however, each of the lots would be classified as areas of special concern which would require that sewage disposal plans be prepared by a professional registered engineer. Properly designed and constructed sewage disposal systems should function adequately for residential use without adversely affecting water quality in the adjacent wetlands.

5) Bedrock appears to be the only aquifer within the site. Bedrock based wells are usually capable of supplying small but reliable yields for individual residences. Water quality is expected to be good but possibly "hard" which may require softening. Attention should be paid to locating each well at a relatively high point on each lot, properly separated from nearby septic systems.

6) Development of the property as planned will cause some increase in runoff; however it will probably be slight due to the comparatively low density of the project. A runoff control plan for the project should nevertheless be prepared for the project as part of a comprehensive erosion and sediment control plan.

7) *The surface water carried by the drainage swales on lots #1, 13, and 14 should be addressed in the site plan. If the drainage ways are to remain as is, they should be located on the site plan so that the future locations of houses, septic systems and driveways can be made accordingly. If the water flow is to be rerouted, a new drainage swale or pipe should be shown.*

8) *A high amount of diversity is provided within the site by the mix of vegetation types. The site thus has high value for wildlife. Development of the property will result in an overall loss of habitat quality and quantity. There are some opportunities available during planting and landscaping activities to lessen the impacts of the development on wildlife.*

9) *The wetland on this site is unique in providing habitat for rare plant and animal species. Protection of the wetland and the habitat it provides should be a high priority. This wetland is considered among the top 25 biologically vital areas in need of preservation in Connecticut.*

10) *The proposed project may have a significant impact on the character of the wetland unless certain mitigation procedures are undertaken. Measures which should be considered to minimize the impact of this project on the wetland system include: a) proper engineering of on-site septic systems, b) effective control of erosion and sedimentation, c) restricting activities within the wetland, d) reassessing the suitability of parcels 1, 13 and 14 for subdivision, e) encouraging the applicant to sell or donate the wetland area to the town or a conservation organization or alternately establishing a conservation easement which would restrict use of the wetland.*

11) *The proposed project will have a visual impact of "high density" when compared to the past pattern of "rural" development in Sharon. The openness of the site reduces the possibility of scenic containment (i.e. screening). The visual impact of the project can be mitigated by reducing the number of lots along Route 41 and/or encouraging vegetative screening along Route 41 and Boland Road.*

12) *If the project is approved, the site offers good passive solar opportunities to prospective homeowners wishing to take advantage of them.*

III. EARTH RESOURCES

A. Topography and Geology

As shown in Figure 1, the central portion of the site consists of wetlands which are nearly level. To the west of this central wetland the land rises at slight to moderate grades to Route 41. East of the central wetland is a small knoll which is also characterized by slight to moderate relief. Elevations throughout the site range from a low of 610 feet above mean sea level throughout the wetland area to a high of 630 feet above mean sea level east and west of the wetland. The steepest slopes observed on the site are in the 5-8% range.

The proposed subdivision is located in the Ellsworth topographic quadrangle. No publications of the geology of that quadrangle have been made to date, but preliminary maps of both the bedrock and surficial geology are available for study at the Natural Resources Center of the Department of Environmental Protection in Hartford.

No bedrock outcrops were observed on the site during the ERT's field review. However, bedrock underlying the site, as mapped from surrounding outcrops, is referred to as the Inwood Marble formation. This formation consists largely of a tan to light grey dolomite marble containing the minerals quartz, muscovite, biotite, phlogopite, diopside and pyrite. A "marble" is a metamorphosed (rock that has been geologically altered by great heat and pressure) dolomite limestone which has been formed chiefly through the recrystalization of magnesium-rich limestone. The result is that marble is usually coarser grained than the original limestone. Depth to bedrock throughout the site is probably about 15 feet. In terms of the proposed subdivision, bedrock will have little influence except in terms of the on-site water supply and water quality. Additional information about the local bedrock may be found in the DEP open file map of the bedrock geology of the Ellsworth quadrangle by Jonathan Burr.

The surficial geologic material overlying bedrock throughout the upland areas of this site is till. "Till" is a grayish brown, poorly sorted, generally non-stratified mixture of angular to sub-rounded rock fragments ranging from clay size to boulders which was deposited directly by a glacier. Till deposits throughout this site are approximately 15 feet thick. The major limitation of the on-site till has to do with the suitability of the site for septic systems. Due to the compact substrata and presence of a seasonal high water table at approximately 18-24" below ground level, all subsurface sewage disposal systems should be designed by a professional engineer licensed in the State of Connecticut. Swamp deposits, found throughout the wetland on this site,are composed primarily of decayed organic material mixed with silt, sand and clay. The swamp deposits are probably about 10 feet thick and are underlain by till deposits similar to the surrounding area.

B. Soils

Soils Inventory

The soils on this site have developed in firm to very firm calcareous glacial till. The PH range in these soils is from neutral to mildly alkaline. The soils range from prime farmland soils to inland wetland soils. A general soils map

is included in the appendix of this report. Descriptions of individual soils is as follows:

Stockbridge Series - (SnB) - The Stockbridge series occupies approximately half of the property and consists of well-drained soils. Permeability is moderate in the surface layer and subsoil but is slow or very slow in the substratum.

A typical profile in a cultivated field has a surface layer of very dark grayish-brown loam about 8 inches thick. The upper part of the subsoil is olive-brown loam, and the lower part is dark grayish-brown loam. This layer extends to a depth of about 26 inches. It is underlain by very dark grayish-brown to olive-colored loam in which dark yellowish brown limestone ghosts are common. SnB soil is classified as a Prime Farmland soil.

Amenia Series - (AnB) - The Amenia series occupies approximately one-quarter of the property and is made up of moderately well drained soils. They occur on drumlins generally downslope from the well drained stockbridge soils.

A typical profile in a cultivated area has a plow layer of very dark grayish-brown silt loam 10 inches thick. The subsoil is a loam that is olive brown in the upper part but grades to olive mottled with olive gray and dark brown in the lower part. This layer extends to a depth of about 26 inches. The substratum is firm or very firm gravelly loam that is distinctly mottled in the upper part and is calcareous.

These soils are moderately permeable in the surface layer and subsoil but are slowly or very slowly permeable in the substratum. Their available moisture capacity is high. AnB is classified as a Prime Farmland Soil.

Kendaia Series - (Ka) - The Kendaia series is located in the central wetlands area and consists of nearly level, poorly drained soils. Their permeability is moderate in the surface layer and subsoil but is slow in the substratum.

A typical profile in a cultivated area has a surface layer of friable, very dark gray silt loam about 7 inches thick. The subsoil is silt loam in the upper part and gravelly silt loam in the lower part. It is olive gray but contains distinct mottles of olive brown, yellowish brown, and similar colors. This layer extends to a depth of 24 inches. The substratum is olive-gray and dark grayish-brown silt loam that is commonly mottled with shades of brown and gray. The substratum contains many fragments of limestone and is calcareous. This soil is classified as an inland wetland.

Lyons Series - (Ly) - The Lyons series is also located in the central wetlands area and consists of very poorly drained, nearly level soils. They are moderately permeable in the surface layer and subsoil and are slowly or very slowly permeable in the substratum.

A typical profile has a black silt loam surface layer about 8 inches thick. The subsoil is gray loam that contains mottles of yellowish brown and strong brown. It extends to a depth of about 22 inches. The substratum is gray gravelly loam that is firm and calcareous. This soil is classified as an inland wetland soil.

Peat and Muck - (PK) - Peat and Muck is also located in the central portion of the site and consists of organic materials deposited in bogs and swamps, where the water table is at or near the surface most of the year. These materials are the decomposed and partly decomposed ramains of plants, chiefly mosses, sedges, cattails, and the roots, leaves and stems of woody vegetation, all laid down in permanent bodies of water. The deposits range from extremely acid in the surface layer to medium acid in the lower layers. This soil is classified as an inland wetland.

Soils Suitability for Development

The use of inland wetland soils is regulated by public law 155. Inland wetland soils have severe limitations for residential development and are generally unsuited to this use.

The moderately well drained Amenia soil is severely limited for development by its seasonal high water table and slowly permeable substratum.

The only major limitation to development of the Stockbridge soil is its slowly permeable substratum.

The Soils Limitation Chart in the appendix of this report gives more specific information on the soils suitability for development.

Environmental Impacts of Development Relating to the Soil Resources

The two major types of soil resources that will be affected by the proposed development are the prime farmland soils and the inland wetland soils. Except for use as home vegetable gardens the value of the prime farmland soil for food production will be lost if development occurs as planned.

Although there is room for construction on each lot without encroaching on the inland wetlands, the wetlands can easily be affected by improper construction techniques. Negative impacts which could result are from erosion from construction sites depositing sediment into the wetlands, pollution of the wetlands from adjacent septic systems, and encroachment on the natural wetland habitat by future land owners.

Mitigating Factors

If the project is approved,erosion and sediment controls should be used during construction on every house lot. Hay bales or some other type of temporary sediment barrier should be placed downslope from construction on each lot. These can be shown on the site plan to inform future lot owners of the need for and approximate placement of the barriers. All exposed soil areas should be seeded to a permanent vegetative cover as soon as possible after construction. (April 1 - June 15, August 15 - Oct. 1).

All septic systems should be installed in accordance with the state health code, be constructed as far away from the wetland boundary as possible and be maintained properly. Since all lots have soils which are rated as having severe limitations for the proper functioning of systems, the location and construction of these systems should be observed by a sanitarian. Engineered systems will be needed on each lot. Some engineering measures which can be used to improve septic system functioning are discussed in the next section of this report.

It is difficult to require future landowners to maintain the wetland area in its natural state. The preservation of the brushy growth around the edge of the wetland and the natural vegetation in the wetland are important in mitigating the effects of the actual house construction. A conservation easement on the inland wetlands is one way in which to help keep this area in its natural state. This opportunity is discussed later in this report.

C. Septic Systems

Limited soil data concerning the suitability of the land for septic systems was available during the ERT's field review. A report dated December 10, 1982 which was prepared by Jack Riley, Town Sanitary Inspector, provided seepage test data and general comments concerning his observation of soil conditions. Town regulations did not require a professional engineer be employed by the property owner to prepare a report and supervise activities related to sewage disposal testing. The proposed subdivision map prepared by Howard B. Stearns, Jr., Registered Land Surveyor, defined all property lines and indicated proposed test hole locations.

Several observations were made during the ERT's field review of the site. Although ground water was not present during tests observed by Mr. Riley, ground water during the ERT's field review appeared to be flowing approximately 24 inches below existing grade as observed from a soil cut along the property line of lots 10 and 11. Actual test hole locations shown on the site plan differed somewhat from test pits observed in the field. Ground water levels on parcels 1, 12, 13, and 14 appeared extremely high with water observed within 6 inches of grade in monitoring pipes placed on each of these lots. It was difficult to determine the day of the field review if water observed was representative of maximum ground water table. Ground water conditions on parcels 1 and 13 were obviously aggravated by road drainage discharging across natural surface swales.

As a result of the ERT's site inspection, it was recommended by the Team's sanitary engineer that Mr. Hartung engage a professional engineer and conduct additional soil tests, primarily to observe seasonally high ground water elevations. On March 30, 1983 the Team's sanitary engineer witnessed additional soil tests in the presence of Jack Riley, Mr. Hartung, and Arthur Howland, Consulting Engineer. Ten additional deep test pits were excavated to observe soil and ground water conditions. Six holes were dug on parcels 4, 5, 6 and 10. Four additional holes were dug within proposed leaching areas on parcels 1, 12, 13, and 14. Ground water levels were somewhat lower in the cornfield (i.e. eastern upland) than those observed in lots fronting along Route 41. Ground water levels in the cornfield were observed 3 to 4 feet from existing grade with soil mottling observed from 2 to 2.5 feet from ground surface. Although soil types appeared similar to those along Route 41, the limited watershed in the cornfield area obviously affects ground water levels. Water observed in test holes on the four parcels fronting Connecticut Route 41 were observed 2 feet below existing grade. Test pit data indicated ground water monitoring pipes were not reflecting actual water levels.[1] A typical description of soil profiles observed is as follows: 0-8" top soil, 8" to 24" brown silty loam, 24" to 84" in olive moderately compact glacial till, mottled, saturated.

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[1] Note: this difference in water levels could have been caused by silting-in of the monitoring pipe.

Upon conclusion of the March 30th soil testing, all parties present discussed feasibility for development of on-site water and sewage disposal systems. The following items were discussed:

1. Parcel 13 is extremely limited in suitable area for sewage disposal due to surface drainage and high ground water. It was agreed that parcel 13 would be eliminated and its land area equally divided between parcels 12 and 14.

2. All of the remaining parcels would be considered suitable for on-site sewage disposal systems. Due to ground water conditions observed, each of the lots would be classified as areas of special concern which would require sewage disposal plans be prepared by a professional registered engineer.

3. Lot development with the 125 foot building setback line requested by the property owner is workable on the majority of parcels. The owner may wish to modify this requirement on parcels 4 and 5 to provide flexibility with house, well and septic system location.

4. All water supply wells should be located at the higher elevations on each lot. Septic systems should be located down gradient from the building served with both the primary and reserve areas available for gravity flow.

5. Although each of the lots will require engineered plans, subsurface sewage disposal construction would not be unreasonably expensive on each of the lots. With proper house location and extension of ground water intercepting drains on the uphill side of leaching areas, shallow leaching trench systems could be constructed in approximately 2 feet of select sandy fill. Trenches should extend at least 120 feet parallel with the contours to maximize dispersion. This small amount of fill in the rear of each yard would not be objectionable and would provide added safety during periods of high surface and ground water. Ground water intercepting drains and building footing drains would discharge clean water to the ground surface away from sewage disposal areas.

Sewage disposal systems constructed over shallow permeable soil layers underlain by hardpan do work satisfactorily if properly designed and constructed. It is essential that primary and reserve leaching areas not be disturbed or compacted by heavy construction equipment. The organic soil layer (top 8 inches) should temporarily be removed or plowed parallel to existing contour prior to placement of fill material. In addition, the native soil interface should be plowed, rototilled or otherwise excavated to create a disturbed surface. In the opinion of the Team's sanitary engineer, properly designed and constructed sewage disposal systems on this site should function adequately for residential use without adversely affecting water quality in the adjacent wetlands.

IV. WATER RESOURCES

A. Water Supply

Each lot in the proposed subdivision would be served by an on-site well. Bedrock appears to be the only aquifer within the site. Bedrock based wells are usually capable of supplying small but reliable yields to residential homes. The yield of a well depends upon the number and size of water bearing fractures within the bedrock that are intersected by the well. Since the distribution of these fractures may be highly irregular, there is no way to determine what the actual yield will be of a well drilled at any particular location. It should be noted that the carbonate bedrock underlying this site is more susceptible to fracturing than many of the bedrock types due to its softness and therefore has a tendency to produce higher water yields to wells.

It has been shown that the probability of increasing the yield of a well decreases with depth after a certain point. If a well is unproductive (less than 1 gpm) after drilling a few hundred feet into the bedrock, it may be more fruitful to drill in a new location on the site rather than to continue drilling in the same place. Of those bedrock based wells surveyed in the Upper Housatonic River Basin for Water Resources Bulleting #21, 90% yielded 2 gallons per minute or more, 30% yielded 13 gallons per minute or more and 2% yielded 80 gallons per minute or more. In many cases, smaller yielding wells can be made adequate by storage capacity provided either in the well casing or by using surface water storage tanks.

Water obtained from carbonate bedrock, which underlies this property has a tendency to be hard to very hard. "Hard" waters are those which are basic (i.e. alkaline), while "soft" waters are acidic. Water that is "hard" makes the lathering of soaps more difficult and may form a scale in hot water tanks and boilers which reduces their thermal efficiency and may cause eventual plugging of pipes. As indicated in Water Resource Bulletin #21 (Upper Housatonic), most of the water in this basin contains calcium bicarbonate which tends to be less alkaline and has a lower hardness than water containing calcium sulfate. As a result, distribution systems carrying water of the calcium bicarbonate type are less likely to fail through corrosion and are also less likely to be plugged by hard scale which is difficult to remove.

Water which exceeds 180 mg/l in hardness commonly require softening. If the property owner or prospective buyer of any of the lots is concerned about possible hardness, owners of existing bedrock wells in the area could be surveyed. It should be noted however that hardness can be overcome by various filtration methods. Also, while carbonate bedrock has a tendency to be "hard", it is on the other hand commonly low in iron and manganese.

Attention should be paid to locating each well at a relatively high point on each lot, properly separated from nearby sewage disposal systems, and in a direction other than the expected direction of ground-water movement from nearby septic systems. It should be noted that with regard to the siting of wells, groundwater flow tends to follow the same general direction as the land surface.

B. Hydrology

The entire site lies within the watershed of Mill Brook. An unnamed watercourse originates in the southwest corner of the property then flows northeastward through the wetland area until it discharges into a watercourse in the northeast section of the site. This watercourse then flows in a southerly direction until it joins Mill Brook which is south of the site. This subwatershed of Mill Brook drains an area of approximately 1.07 square miles (see Figure 3).

Development of the property as a subdivision will cause some increase in runoff; however, it will probably be slight. The reason for this is that 1) the Hartung site represents only about 8 percent of the overall watershed, 2) the density of the subdivision would be low (2-4+ acres per residence), 3) the property owner's plans to leave the new access road unpaved as opposed to paved which would lead to an increase in runoff. Runoff created by developing lots 1, 4, 8, 9, 12, 13 and 14 will drain into the wetland area in the middle section of the property. Runoff emanating from lots 5, 6, 7 and 10 will drain into the unnamed watercourse east of the site.

Runoff increases would be caused by the removal of vegetation during the construction phase, compaction of soils, and the creation of impervious surfaces (e.g. roofs and paved driveways). Since the site is subject to a seasonal high ground water condition and because the eastern portion of the site is an open cornfield with no vegetative cover, the potential for erosion and sedimentation should be of concern. Therefore, it is recommended that the developer prepare and implement a sediment and erosion control plan which also incorporates runoff control measures. The plan should include measures which will prevent 1) the worsening of flooding problems downstream and 2) erosion and sedimentation problems to the wetland and watercourses which may in turn adversely affect the ecology of this area. This is especially important since the wetland provides a restricted habitat for plants and animals which are not commonly found in other parts of Connecticut.

If the proposed road run-off swales on lot #11 are constructed at or below the depth of the hardpan in the soil it is likely that seeps will flow into these swales during most of the year. These seeps may make it difficult to maintain a good stand of vegetation in the swales. If vegetation cannot be maintained properly, piping or rock rip-rap may be needed to control erosion. An energy disipator should be installed at the outlet of each swale.

A road culvert running beneath Rt. 41 outlets onto lot #1. Water from this culvert currently flows in two directions: diagonally across lot #1 and diagonally across lots #13 and 14. This surface water should be planned for in the site plan. The water should not be allowed to flow across future driveways or septic systems. If the drainage ways are to remain as is, they should be located on the site plan so that the future location of houses, septic systems and driveway culverts can be made accordingly. If the water flow is to be rerouted, a new drainage swale or pipe should be shown.

The town questioned whether or not the proposed subdivision lies in an area which is subject to flooding. Based upon the Flood Hazard Boundary Map of the Town of Sharon (see Figure 4), the extreme rear portion of Lots 1, 8, 9 and 12-14 appear to lie within an area which is subject to flooding during a 100-year storm event. If homes and sewage disposal systems are constructed towards the front and middle section of each lot, they should be far enough removed from any potential flood hazard area.

Figure4

WATERSHED MAP

WATERSHED/DRAINAGE MAP LEGEND

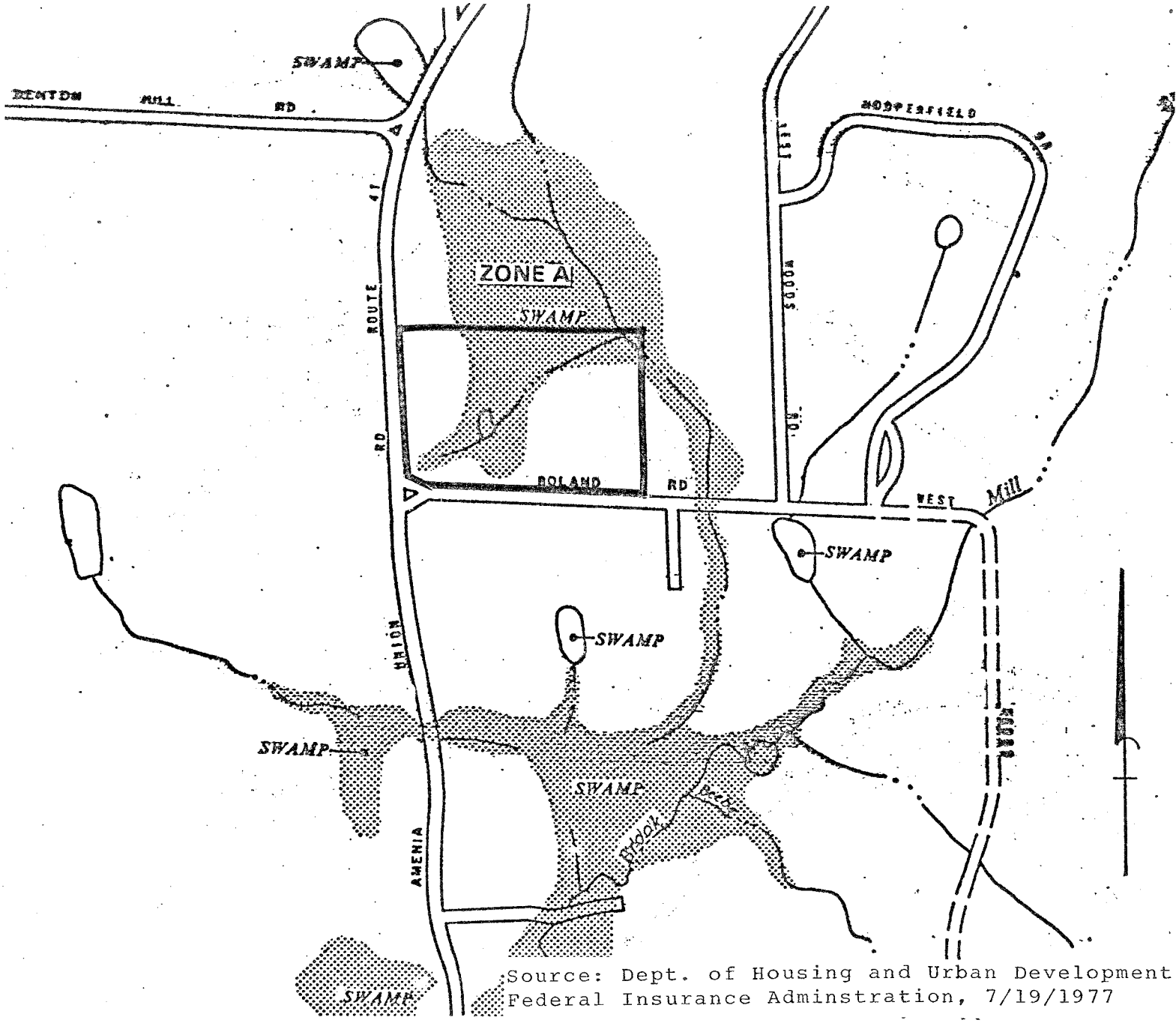
Watershed boundary

Watercourses and direction of flow

Direction of surface runoff

Figure 3

FLOODHAZARD BOUNDARY MAP



Source: Dept. of Housing and Urban Development
Federal Insurance Adminstration, 7/19/1977

FLOODHAZARD BOUNDARY LEGEND

Special flood hazard area

Site Boundary

Scale 1"=1000'

Note: These maps may not include all Special Flood Hazard Areas in the community. After a more detailed study, the Special Flood Hazard Areas shown on these maps may be modified, and other areas added.

V. BIOLOGICAL RESOURCES

A. Wildlife Habitat

The 41 acre site provides elements of openland wildlife habitat and wetland habitat. The wetland portion of the site is part of a much larger wetland system extending to the north and draining to the southeast. Approximately 13 acres of the site are included in this wetland system. The remaining 28 acres of upland are presently devoted to agricultural uses and divided between grassland (parcels 1 and 12-14) and cornland (parcels 4 through 10).

The wetland has an open canopy and is characterized by emergent vegetation. Portions have been wooded, however changing water levels have resulted in the death of most trees. Purple loosestrife is one of the major emergent plants.

Around the perimeter of the wetland a well developed edge of trees and shrubs serve as a wildlife border and separate the wetland from the other land uses. Tree and shrub species within this edge or border include red maple, black cherry, white ash, blueberries, silky dogwood and viburnums. Switchgrass, reedcanary grass, purple loosestrife, cocklebur and other perennial weeds provide moderately dense ground cover. The edge serves as protective cover and as a travelway for wildlife such as the whitetail deer which venture from it into the cornfield. Smaller animals may find food and cover available in this edge that is not available elsewhere on the site.

This wetland system has been documented as providing habitat for several rare or threatened species of flora and fauna. The biological characteristics of this wetland are described in more depth in the next section of this report.

Other wildlife species which utilize this type of wetland habitat include black ducks, mallard ducks, songbirds, pheasant, muskrat, fox and raccoon. The wetland was rated using a system devised by Francis C. Golet for measuring wetland values for wildlife. Considering wildlife habitat alone, primarily waterfowl, the wetland rated 76 on a scale of 36 to 105. While this is a favorable rating, the uniqueness of the wetland is not reflected in it. For a more meaningful evaluation of the wetland, the wetland needs to be compared to surrounding wetlands, taking into account uniqueness and other natural wetland values in addition to wildlife habitat values. The wetland on this site is unique in providing habitat for rare plant and animal species. Protection of the wetland and the habitat it provides should be a high priority.

Since most upland wildlife use an area larger than the site to meet all of their daily and seasonal needs, the site needs to be evaluated in light of adjacent land uses and values as well as what occurs on the site proper.

Much of the land surrounding the site is openland previously used for agricultural purposes and now reverting to weeds and brushy vegetation. Red cedar, juniper and perennial weeds have invaded portions of these fields. Pasture grasses still provide much of the ground cover.

Collectively, the site is mostly openland. The site and surrounding lands provide habitat suitable for cottontail rabbits, seasonal songbirds, including the bluebird, birds of prey, small rodents, red fox, whitetail deer, woodchuck, and other small game and non-game animals.

A high amount of diversity is provided within the site by the mix of vegetation types. The more diverse the habitat, the greater its value to wildlife. The cornfield on the site is used for the production of grain corn. Harvesting usually results in some grain spillage. Migrating birds, the pheasant, squirrels, mourning dove and others will use this seed for food. The grasslands provide nesting sites and cover for birds as well as food for the cottontail rabbit and other small animals. The invasion of brushy shrubs and perennial weeds provide seeds and fleshy fruit as well as young twig growth and leaves utilized by the whitetail deer for food.

The placement of these vegetative elements of wildlife habitat is also of importance. The wetland is surrounded by sufficiently dense trees and shrubs to provide travel ways and escape cover for species using the site. The position of the wetland and perimeter vegetation provides grasses, grain and seed crops, weedy growth, shrubs and vines all within a fairly close proximity. This mix is less common today than it was 50 years ago, because so much of the state is wooded or idle farmland reverting to woodland.

Development of the site will eliminate the cornfield and the source of seed it now provides. The area of grassland will be reduced by development of lots along Route 41. Disburbance to wildlife by man and his pets will increase after development. Development will result in an overall loss of habitat quality and quantity.

There are some opportunities during planting and landscaping activities to lessen the impacts of development on wildlife. Landscaping should use native fruiting shrubs and trees rather than strictly ornamental varieties, leaving as much land and vegetation undisturbed as is reasonable. Avoiding removal of the border vegetation would also help lessen the impacts of development.

B. Wetland Characteristics

The "Hartung Subdivision" site is approximately 30 percent inland wetland. As previously discussed, this wetland is part of a much larger system that drains a number of low rounded hills in the upper reaches of Mill Brook in the Town of Sharon, Connecticut. The wetland occupies a large portion of the western half of the property and a smaller portion of the northeastern border. When subdivided, this wetland will be the partial property of eight of the fourteen sites. Presently, the wetland is open and sun-drenched with a history of impoundment and drainage, facilitated by the activity of beaver and their subsequent removal. However, with the exception of a number of dead trees in the northeastern portion of the property and the establishment of purple loosestrife (Lythrum salicaria) throughout, this wetland appears to be fairly stabilized and is part of a larger naturally functioning system.

The wetland on the Hartung property is part of a much larger hillside or sloping wetland that is influenced by calcium-rich waters from the surrounding upland. This wetland differs from those throughout most of Connecticut in

that it is underlain by calcite-cemented dolomite marble in contrast to the acidic gneiss, schist, and granite which is prevalent elsewhere. Calcareous wetlands, such as this, are rare throughout New England and are restricted to the western borders of Connecticut, Massachusetts, and Vermont. In Connecticut, many calcareous wetlands have been encroached upon; few are presently under protection from the threat or impact of development.

The predominant vegetation of this larger wetland system (Caljouw 1982) is shrubby, composed primarily of shrubby cinqefoil (Pontentilla fruticosa) and tussock sedge (Carex stricta) with marsh fern (Thelpteris palustris), river avens (Geum rivale), skunk cabbage (Symplocarpus foetidus), and the sedges Carex flava and Carex sterilis occurring to a lesser extent. Throughout the wetland, islands of trees and larger shrubs can be found, with red maple (Acer rubrum), larch (Larix laricina), wild-raisin (Viburnum cassinoides), and red osier dogwood (Cornus stolonifera) among the more common. In areas seemingly disturbed, narrow-leaved cattail (Typha angustifolia), blue-joint grass (Calamagrostis canadensis), or as on the Hartung property, purple loosestrife predominate.

This larger wetland, presently known as the Benton Hill Fen, has attracted considerable attention during the past few years. The Connecticut Geological and Natural History Survey, The Nature Conservancy, and The American Museum of Natural History have all expressed interest in its calcareous wetland vegetation, its rare species, and its proposed preservation. Recently, The Nature Conservancy has conducted a Potential Preserve Site Review (Zickefoose 1981) and a Natural Community Survey (Caljouw 1982) of the fen. In both of these reports, it is stressed that although this wetland appears to be fairly stabilized under its present hydrological conditions, its ecology and character are threatened by siltation from run-off, water level changes through ditching and draining and/or impoundment, and the increased invasion of exotic or other aggressive species.

The fragile nature of this wetland in combination with its exemplary vegetation, the presence of clear flowing rivulets and small streams, and the occurrence of rare species make this wetland a unqiue system that is considered among the top 25 biologically vital areas in need of preservation in Connecticut (Olsen 1983).

Impacts and Proposed Mitigations

The proposed "Hartung Subdivision" may have a significant impact on the character of the adjoining wetland unless certain mitigation procedures are undertaken. Since much of the surrounding upland has a seasonally high water table and numerous seeps and small intermittent brooks presently feed the wetland, any change in the flow and/or quality of run-off may influence the vegetation and its associated rare species. Channelization of run-off and/or contamination from failed or improperly designed septic systems can affect the quality of surface water resulting in the demise of the habitat. In addition, any activity such as ditching or impoundment can change the vegetation structure leading to the aggressive growth of alien or other undesired species.

Measures which should be considered to minimize the impact of this project on the wetland system include:

1. Proper engineering of on-site septic systems to reduce the possibility of failure, especially in parcels 1, 13, and 14.

2. Controlling siltation from channelized run-off by creating sedimentation traps and by eliminating direct discharge into the streams.

3. Restricting activities such as draining, ditching or impoundments within the wetland.

4. Reassessing the suitability of pacels 1, 13 and 14 for subdivision.

VI. PLANNING CONSIDERATIONS

A. Consistency with Existing Plans

The Hartung property is located within a "Conservation Area" as shown on the 1979 revision of the Connecticut Conservation and Development Policies Plan. The reason for this designation is that the property is part of an extended, contiguous area of active farm land and/or prime agricultural soils. Such conservation area land would have a very low priority for development if State funds were involved. The property is also located in an area designated for low density, rural development in the Town's Plan of Development. Sharon's zoning regulations allow single family development on 2 acre minimum lots, with a possibility of multi-family units at densities of 6 units per 4 acres. The project is not inconsistent with these plans and regulations, but will have a visual impact of "high density" when compared to the past pattern of "rural" development in Sharon.

The "Westwoods-Skiff Mountain Area" study done by the King's Mark Environmental Review Team dated October 1981 as well as the Sharon Natural Resources Plan approved December 8, 1982, recognize the scenic quality and importance to the town of the Mill Brook Watershed lands. The ultimate purpose of the Natural Resources Plan is to provide guidelines for the protection of critical natural resources and to maintain the scenic quality and rural character of the Town of Sharon. The proposed subdivision, whose density as proposed conforms to current regulations, fails to reflect the intent of the natural resources plan in the opinion of the ERT's land planner. The comments and suggestions offered below are designed to elaborate on and hopefully mitigate the potential negative impacts to the region and the site from the proposed project.

B. Site Development Concerns

From a planning viewpoint, the proposed project raises a number of concerns. These include:

1. Portions of the site have been identified by both the State of Connecticut Department of Environmental Protection and the Nature Conservancy as being of ecological importance. The wetland is a calcareous wetland (a non-acid bog) which, in itself, is rare in Connecticut. It should be noted that New York State recently spent $500,000 to protect such a calcareous wetland due to its ecological significance.

The wetland also serves as a habitat for a number of species (flora and fauna) which are officially listed as rare, threatened, or endangered in Connecticut and/or New England. In point of fact, portions of the proposed subdivision site are considered to rank high in the top 25 biologically vital areas in need of preservation in Connecticut. For an essay on the importance of protecting rare and endangered species, the interested reader is referred to the Appendix of this report.

Development of the subject site cannot help but increase the likelihood of this wetland being irreparably damaged.

2. The area of the Mill Brook Watershed (of which this site is a part) is considered an important agricultural community by the Connecticut Department of Agriculture and has been rated as part of the second most important agricultural area in town in the Sharon Natural Resources Plan approved December 8, 1982. It is generally felt that the loss of the existing farm operation on the subject property is of only secondary importance due to its limited size. However, consideration should be given to the projects affect on farm operations in the surrounding area since a conflict could exist between future subdivision residents and any on-going farm operations.

3. A State of Connecticut Department of Transportation 1980 Report rated the overall condition of Route 41 as poor with little chance of timely improvement. This road is likely to be used as an access for those new homes in the proposed subdivision.

Further, Route 41 in this area has been recommended for designation as a scenic road in a Northwestern Connecticut Regional Planning Agency Report. Two reasonable suggestions for maintaining the scenic quality of the road are:

a) Limit driveway access onto Route 41
b) Increase building setbacks

The lots presently proposed to front on Route 41 are expected to reduce the recognized scenic quality of Route 41 in this area.

4. Consideration should be given to the impact of a two-acre lot complex in this area on the surrounding land values. This is especially true since the openness of the site reduces the possibility of scenic containment (i.e. screening). The proposed project will have a "high density" visual impact.

C. Site Development Suggestions

A number of compromises could be made by the town and/or the applicant which would aid in resolving the resource and visual problems associated with the proposed project.

The following alternatives deserve consideration:

1. Of prime importance is the reduction/elimination of the visual impact of development fronting on Route 41. Alternatives here include:

. Eliminating all lots on Route 41.

- Eliminating lot #13 and dividing its land area between lots #12 and #14. (Note: the applicant has expressed a willingness to do this.)

- Eliminating lot #1 due to its prominent position in the landscape and its degree of wetland soils.

- Approving one building lot on Route 41 with the house site in proximity to the high point (Lot #12) to minimize visual impact on the open area.

- Encouraging vegetative screening along Route 41 as a supplement to the existing hedgerow. A combination of evergreen and deciduous shrubs and trees is recommended. A buffer planting is also encouraged along the Boland Road frontage.

Such changes in the proposal might be facilitated in several ways:

- Utilizing the 15% set aside for open space allowed by State Statute. This set aside should focus foremost on the elimination of lot #1.

- If the resource base allows, grant slightly increased density on the Boland Road access lot area (#4, 8, 9, 10, 7, 5, 6) to balance lot reductions on Route 41.

- Require that building setbacks for lots on Route 41, be enforced as shown (i.e. greater than currently required).

2. Of significant importance is the protection of the bog area of the site. Based upon critical habitat information, the wet portions of the property represent a segment of critical ecological lands in the area. Protection of this part of the applicant's property should contribute to long term protection of this highly productive habitat area.

An alternative here would be to encourage the applicant to sell or donate the wetland/bog area to the town or a conservation organization. This is expected to have little affect in reducing the value of the surrounding lots (by reducing lot acreage) since the land is unusable for most purposes. In fact, this alternative would probably increase the value of the remaining lots and would therefore enhance sale potential. The value of a gift to a non-profit organization or municipality could also be added to the applicant's receipt side if he were able to take advantage of the available tax deduction. The elimination of the wetlands from these lots may require adjustment in lot lines or flexibility in minimum lot size by the town. If this were necessary, overall site density should not exceed that which is allowed without the open space.

An alternative to gifting the land would be the establishment of a conservation easement which would restrict use of the wetland. A number of organizations are available to assist in the preparation of conservation easements. These include the Nature Conservancy, the Northwestern Connecticut Regional Planning Agency and the Housatonic Valley Association.

Another alternative to enhance protection of the wetland area would be to label all wetland areas on the filed subdivision plan. Such labeling should reflect accurate wetland boundaries and associated restrictions to the ultimate landowner.

D. Solar Considerations

During the ERT's field review, several questions were raised about Public Act 81-334, which requires that a developer take passive solar energy considerations into account when designing a subdivision. This is now Section 8-25(b) of Chapter 126 of the Connecticut General Statutes. These requirements are covered in detail in Passive Solar Design: A Planners' Guidebook, published in September, 1981 by the Energy Division of the Connecticut Office of Policy and Management and the Central Naugatuck Valley Regional Planning Agency.

Public Act 81-334 requires that house orientation, street and lot layout, vegetation, natural and man-made topography and the protection of solar access (i.e., the prevention of shading by buildings, trees, etc.) be considered. The site is open and gently sloping, with a good southern exposure. The only possibility of winter-time shading might be on lots 4, 5 and 6 which are close to Boland Road and roadside trees. The lot layout itself is limited by existing roads and the wetland. Houses currently on the site are faced to the south, but the developer will have no control over the location of future buildings and plantings. To conclude, the site offers good passive solar opportunities to prospective homeowners wishing to take advantage of them.

* * * * *

VII. APPENDIX

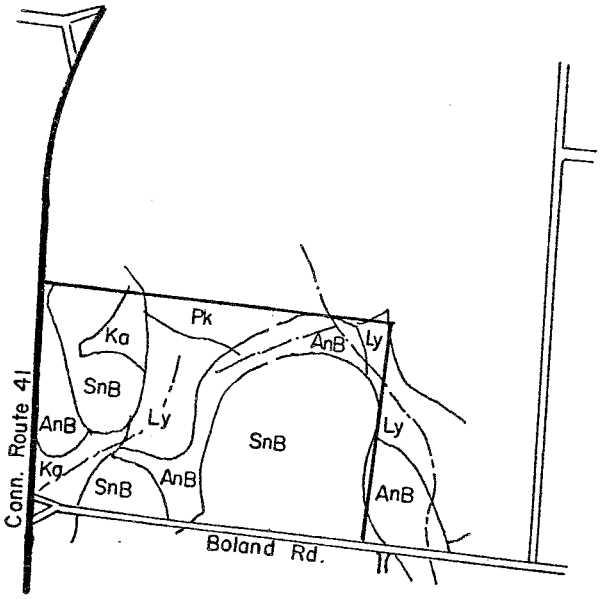
REFERENCES

Caljouw, Caren. 1982. Natural Community Survey, Benton Hill Fen, Sharon, CT. Unpublished report. The Nature Conservancy, Connecticut Chapter. Middletown.

Olson, W. Kent. 1983. Letter to Barclay Prindle, Chairman, Sharon Planning and Zoning Commission.

Zickefoose, Julie. 1981. Site Preserve Summary, Benton Hill Fen, Sharon, CT. Unpublished report. The Nature Conservancy, Connecticut Chapter. Middletown.

SOILS MAP



Scale 1"=1000'

- Soil boundary lines derived from smaller scale map (1"=1320') and should not be viewed as precise boundaries but rather as a guide to the distribution of soils on the property.

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

SOILS LIMITATION CHART

HARTUNG SUBDIVISION, SHARON, CT

MAP SYMBOL	SOIL NAME	SEPTIC ABSORBTION FIELDS	BUILDING WITH BASEMENTS	ROADS OR DRIVEWAYS	LANDSCAPING
AnB	Amenia silt loam, 3-8% slopes	Severe; Percs slowly, Wetness	Severe; Wetness	Severe; Frost action	Moderate; Wetness
Ka	Kendaia silt loam	Severe; Wetness, Percs slowly	Severe; Wetness	Severe; Wetness, Frost action	Severe; Wetness
Ly	Lyons silt loam	Severe; Wetness, Percs slowly	Severe; Wetness	Severe; Wetness, Frost action	Severe; Wetness
Pk	Peat and Muck	Severe; Ponding, Unstable, Percs slowly	Severe; Ponding, Low strength	Severe; Frost action	Severe; Ponding, Excess humus
SnB	Stockbridge loam, 3-8% slopes	Severe; Percs slowly, Smears	Slight	Moderate; Low strength, Frost action	Slight

EXPLANATION OF RATING SYSTEM:

1. SLIGHT LIMITATION: indicates that any property of the soil affecting use of the soil is relatively unimportant and can be overcome at little expense.
2. MODERATE LIMITATION: indicates that any property of the soil affecting use can be overcome at a somewhat higher expense.
3. SEVERE LIMITATION: indicates that the use of the soil is seriously limited by hazards or restrictions that require extensive and costly measures to overcome.

WHY DO WE PRESERVE RARE SPECIES?

from: Rare and Endangered Species of Connecticut and Their Habitats, by Dowhan, J. and Craig, R., State Geological and Natural History Survey of Connecticut, 1976.

Although aesthetic value is a factor, most arguments for the preservation of rare species center around the possible uses of such taxa for food, medicine, and natural products. The extinction of any species means the irretrievable loss of unique genetic material that cannot be duplicated and narrows man's future options for his own use of the environment.

The total number of crop species in the world is rather small and they have originated in relatively restricted areas. Intensive breeding and hybridization programs over the centuries have resulted in the loss of many of the wild ancestors of domesticated food species and their disease-resistant characters. The preservation of wild gene pools (genetic reservoirs of variation and information) in primitive populations is essential to the development of new and resistant strains of crop plants, domesticated animals, and other economically important species (Berry, 1969; Frankel, 1970; Melville, 1970, Jenkins, 1975; Smithsonian Report, 1975).

In addition, many believe that every species--plant or animal--is important to conserve because it may in the future yield some as yet undetermined or undiscovered food, medicine, or anti-cancer drug, or some other product which may ultimately prove to be of enormous benefit to mankind. For example, the blood of the Horseshoe Crab (*Limulus polyphemus*) is currently being investigated as a possible tool in diagnostic medicine; a molluscide has been extracted from Pokeweed (*Phytolacca americana*) which may be used on disease-carrying snails, and viruses are being used to control mosquito vectors (Melville, 1970; Chapman, 1974).

Such anthropocentrism commonly leads to a choice of the species to be preserved on the basis of their relative human value. If a rare species is not good to eat, will not cure our diseases or enrich our lives, is not pleasing to our senses, or is not economically important, many preservationists fear that it will not be considered worth concerted efforts to preserve--or not as much so as species with purportedly greater human value. We share this planet with a great many species whose evolutionary history preceded by millions of years man's rather recent emergence. Within the ecosphere

they are neither richer nor poorer biologically than man; they are as well adapted and as significant as our species. It would be regrettable if we were to preserve species solely on the basis of their present or future economic or aesthetic importance to us. They have survived the rigors of natural selection throughout their evolutionary existence and if their continued existence appears imperiled, particularly as a result of man's activities, we should intervene to prevent their extinction.

Peripheral populations of species, those at the limits of their geographic ranges, are important reservoirs of biological diversity. With increasing distance from a species' geographic center of distribution, environmental conditions become generally less favorable. As a result, populations tend to become geographically isolated, restricted in habitat, and less dense, and the species may become rare or local within the peripheral zone (Andrewartha and Birch, 1954; Mayr, 1963). As mentioned earlier, many of Connecticut's rare species are peripheral species of mostly local occurrence in the state. Isolation and low density can, in turn, limit the amount of gene flow, or exchange of genetic information between populations, especially in those species which are more or less sedentary. Many peripheral populations exhibit less individual genetic variability than do central populations as a result of this limited input of genetic information, although this is also due, in part, to the relatively few "founders" of each marginal population and subsequent inbreeding. Where coupled with less than optimal environmental conditions, limited gene flow and genetic variability may lead to marked genetic differences from the central population and in such a way enable peripheral populations to acquire new and different characteristics more readily than central populations, such as the ability to withstand temperature extremes, pollution, or unusual soil types (Cook, 1961; Mayr, 1963; Berry, 1971). These locally adapted peripheral populations may serve as the advance front of a species' geographic extension, as well as in the evolutionary development of new species (Raven, 1964). They are also of great significance to man in providing an important source of genetic variation used in developing new strains of economic plants and animals. Characteristics such as wilt resistance and frost hardiness in crop and garden plants are mostly derived from peripheral populations adapted to extreme environmental conditions at their range limits. Nurseries and seed farms commonly use local populations of native species since they are most suited to the climatic and soil conditions of the region. Rare peripheral populations thus contribute considerable genetic and ecologic diversity to the species as a whole (Mayr, 1963). Because of their small size and isolation, however, they are particularly susceptible to extinction (Hooper, 1971).

In addition to genetic diversity, the preservation of biological diversity is of paramount importance to ecosystems. Ecologists have long stressed the significance of species diversity, the number of different species in an ecosystem. Accordingly, the more diverse an ecosystem is (the more species it contains), the more resistant it will be to environmental perturbations. Diverse systems purportedly function with a higher degree of reliability than do less diverse ones, presumably because of functional overlaps among many coevolved species (MacArthur, 1955; Pimentel, 1961; Odum, 1971; the Nature Conservancy, 1975). In contrast, simplified,

man-dominated systems, such as croplands and forest plantations, generally are highly unstable and functionally unreliable. According to traditional diversity-stability theories, the loss of one or a few species, through disease or other disturbance, in a species-rich habitat is less destructive to its structure and function than the same event in a simpler, less diverse system--unless, of course, the species removed are "key" or dominant ones. Although many of the traditional views concerning the relationship between diversity and stability are currently in dispute (Goodman, 1975; Murdoch, 1975), it does appear that removal of species from an ecosystem can be highly detrimental, though perhaps for reasons different than formerly supposed.

It is probable that, in any ecosystem, several species are expendable--they could be removed without adversely affecting the system as a whole. This is particularly true in trophic levels (stages of a food chain) which contain a number of ecologically similar and overlapping species. Moreover, such "expendable" species are likely to be the least abundant, or rare, members of a trophic level (Hooper, 1971). The problem is the identification of which species can be removed safely. For example, if a species is removed from a particular ecosystem, which of the remaining species will suddenly undergo a change in population status from that of a rare member to a dominant one? Which one will become a serious pest when a previously unidentified predator or competitor is removed from the system? Which species will disappear because another one is removed because of some unknown symbiotic relationship? Without detailed information on the interrelationships between all environmental factors and organisms within an ecosystem, we cannot predict the consequences of the loss of any species, rare or otherwise. Because of our ignorance in these matters, the most prudent policy is to maintain natural levels of diversity within natural systems (Murdoch, 1975).

Of even greater significance than number of species are the kinds of species present and their interactions within an ecosystem. The full complex of co-adapted species plays a greater role than mere numbers of species in making natural ecosystems more stable than artificial or simplified ones (Murdoch, 1975).

Some rare species are valuable indicators of environmental quality, their presence or absence indicative of various sorts of pollution of air, water, and soil (Doughty, 1974; the Nature Conservancy, 1975). For example, lichens are extremely sensitive to high sulfur-dioxide levels in the air; their extinction or survival in a region can be used as an indicator of ambient levels of SO_2 (Gilbert, 1970). The effect of pesticides on the reproductive success of birds of prey is well known and can be used to monitor the presence of these harmful chemicals in aquatic and terrestrial ecosystems. While some species have decreased, many species' populations and individuals have increased in numbers in response to the degradation of natural habitats; among them are Norway Rats (*Rattus norvegicus*) and Herring Gulls (*Larus argentatus*) in the vicinity of garbage dumps and urban slums (Doughty, 1974). On the positive side, the sudden increase of a previously rare species may also be a harbinger of improved environmental quality.

To conclude, rare species offer excellent opportunities for scientific

and educational studies, including investigations of the genetic differences between central and peripheral populations, the causes of rarity, management of rare species, niche separation, and the effects of introduced species on rare species. In addition, concentrations of rare peripheral species are prime areas for educational studies because many of the habitats which the species occupy are typical of ecological conditions hundreds of miles away.

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.