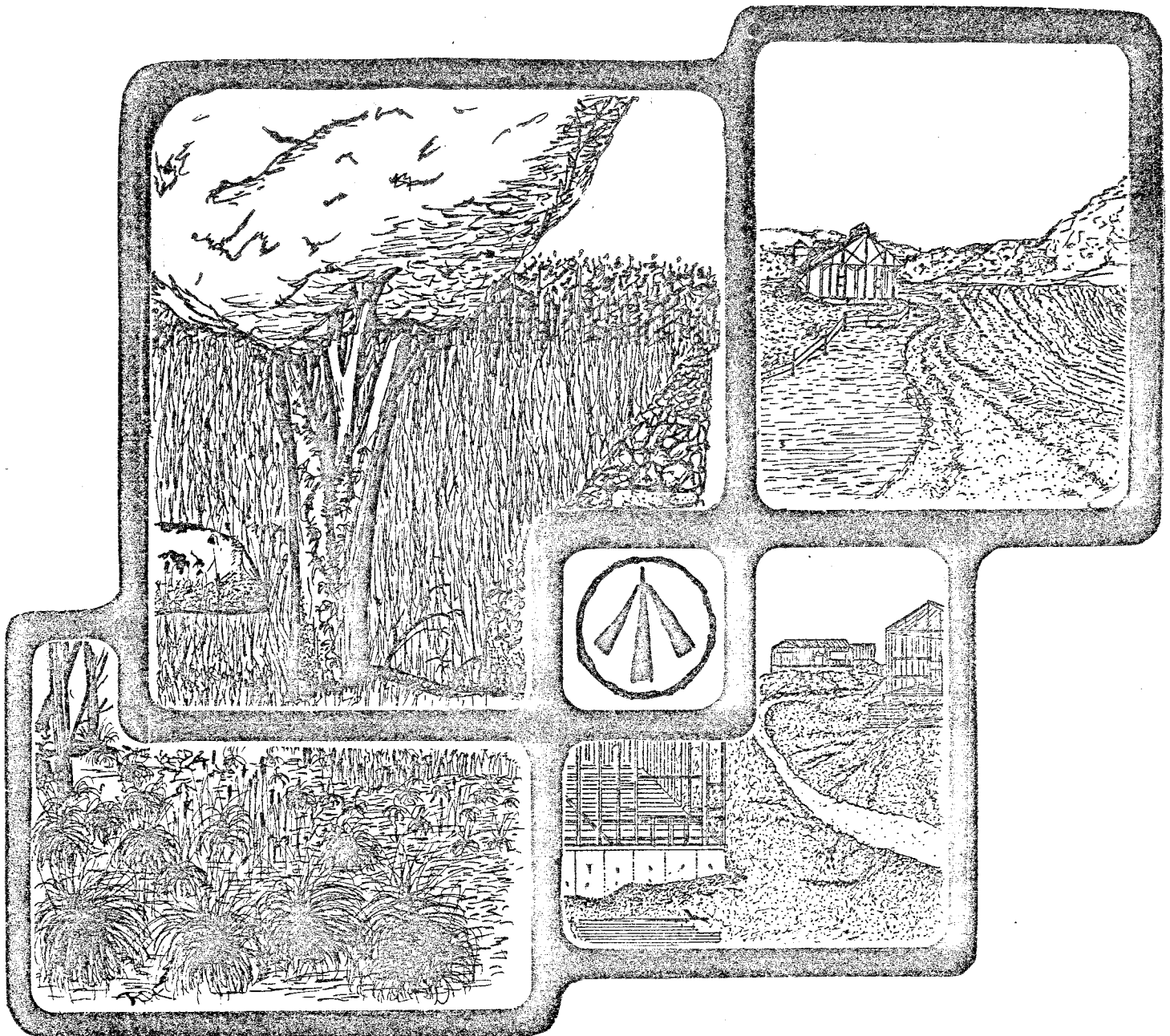


ENVIRONMENTAL REVIEW TEAM REPORT



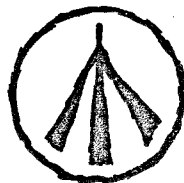
WALLINGFORD LAND TRUST PROPERTIES
WALLINGFORD, CONNECTICUT

KING'S MARK
RESOURCE CONSERVATION & DEVELOPMENT AREA

KING'S MARK
ENVIRONMENTAL REVIEW TEAM REPORT

WALLINGFORD LAND TRUST PROPERTIES
WALLINGFORD, CONNECTICUT

MARCH 1982



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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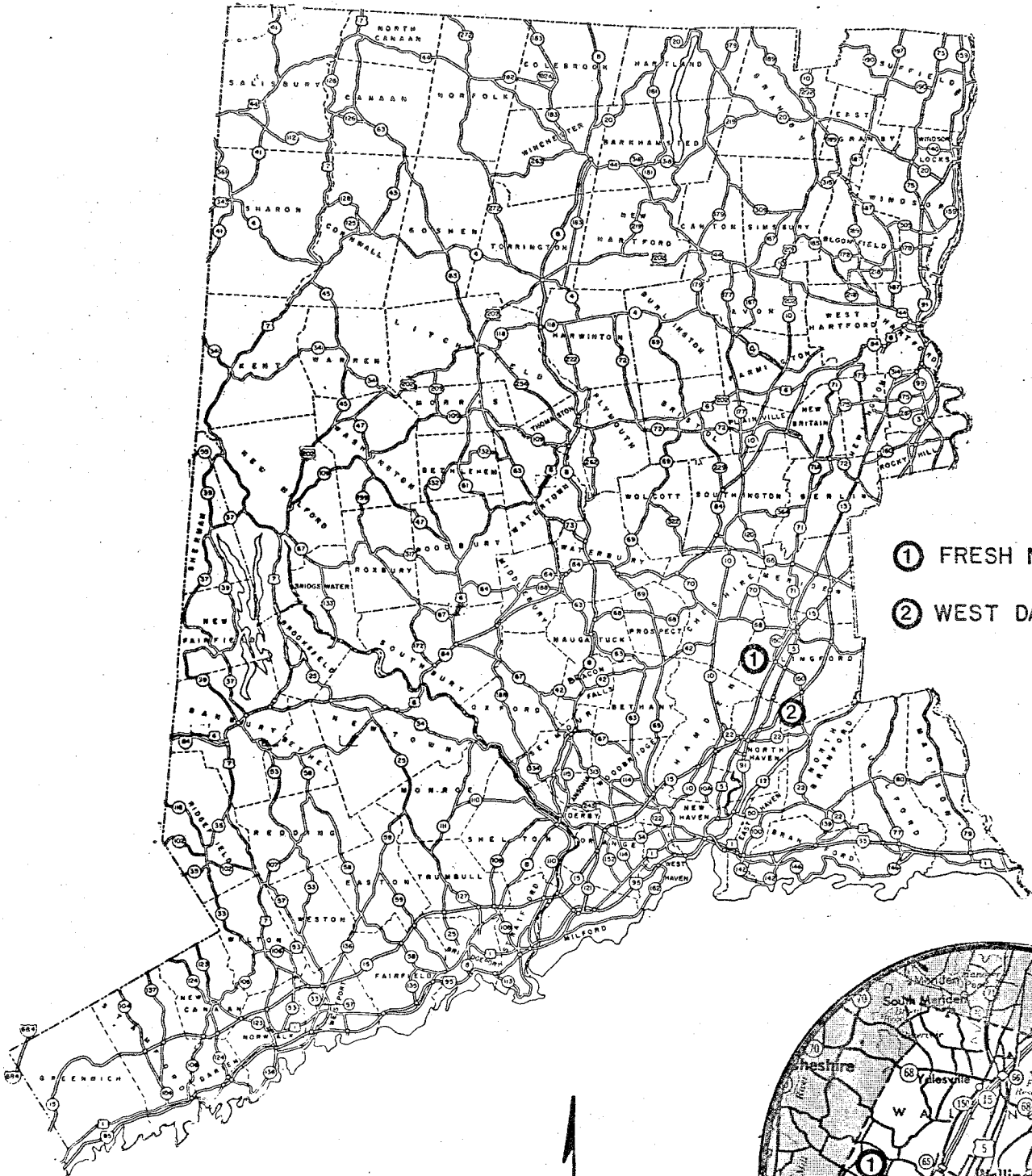
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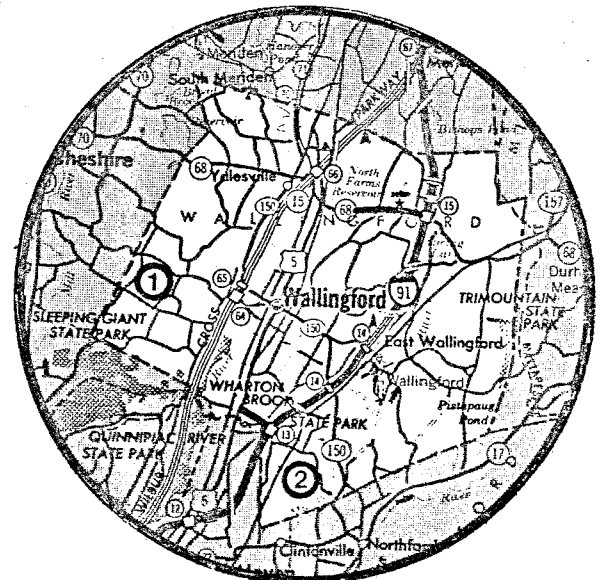
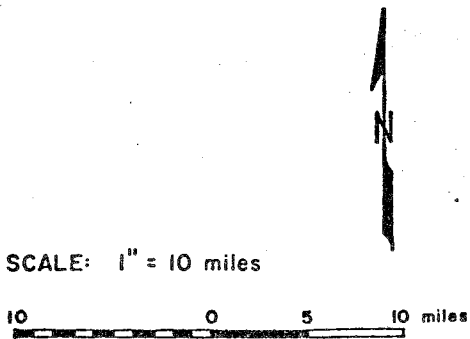
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LOCATION OF STUDY SITE

WALLINGFORD LAND TRUST PROPERTIES WALLINGFORD, CONNECTICUT



- ① FRESH MEADOWS SWAMP
- ② WEST DAYTON HILL WOODS



ENVIRONMENTAL REVIEW TEAM REPORT
ON
WALLINGFORD LAND TRUST PROPERTIES
WALLINGFORD, CT

a. Introduction

The Wallingford Land Trust, in cooperation with the Wallingford Conservation Commission, requested the King's Mark Environmental Review Team to perform an environmental review of two of the Trust's land holdings. The two properties include:

1) Fresh Meadows Swamp, + 44 acres located in the westcentral portion of town off School House Road and Jeremy Wood Drive.

2) West Dayton Hill Woods, + 19 acres located in the southeastern portion of town off Fox Run Drive.

The preceding map shows the general location of the two properties.

The Wallingford Land Trust initiated this review to better understand the environmental characteristics of the two properties. Specifically, the Team was requested to prepare a natural resource inventory of the sites and also to comment on the potential of the properties for forest management, wildlife management, public education, and recreational use. The King's Mark Executive Committee considered the Trust's request, and approved the project for review by the Team.

The ERT met and field reviewed the sites on January 20, 1982. Team members participating on this project included:

Brant Burz.....	Wildlife Biologist.....	Ct. Dept. of Environmental Protection
Frank Indorf.....	District Conservationist.....	U.S.D.A. Soil Conservation Service
Rob Rocks.....	Forester.....	Ct. Dept. of Environmental Protection
Mike Zizka.....	Geohydrologist.....	Ct. Dept. of Environmental Protection

Prior to the field review day, each team member was provided with a summary of the proposed study, a checklist of concerns to address, a topographic map, a soils map, and a soils limitation chart. During the ERT's field review, team members met with representatives from the Land Trust and walked the two properties. Following the field review, individual reports were prepared by each team member and forwarded to the ERT Coordinator for compilation and editing into this final report.

This report presents the team's findings. The report identifies the natural resource base of the properties and discusses opportunities and limitations for land management. All conclusions and final decisions with regard to future land use rest with the Wallingford Land Trust. It is hoped the information contained in this report will assist the Land Trust 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.

* * * * *

FRESH MEADOWS SWAMP

I. FRESH MEADOWS SWAMP

Fresh Meadows Swamp is about 44 acres in size (See Figure 1.1). The northern two thirds of the site is wetland; the southern third is wooded upland. Access to the site is available from the east off School House Road and Jeremy Wood Drive. One trail has been constructed on the property which winds around the southern and western border of the site.

A. Geology

As noted above, this parcel consists of two major sections: the swamp, and the gently to moderately sloping upland bordering it to the south and west (See Figure 1.2). The upland area is covered by till, a glacial sediment that was deposited directly from an ice sheet. Till consists of a nonsorted, generally structureless mixture of clay, silt, sand, gravel, and boulders. Silt and fine sand are the principal components of the till on the parcel, but there is a substantial percentage of angular cobbles and boulders. An excavation along Jeremy Wood Drive suggested that bedrock is not close to the surface on the property; till thicknesses probably exceed 10 feet in most places.

Till probably also underlies the swamp, but the surficial materials of the swamp are peats and mucks. These are partly decomposed organic materials mixed with relatively minor amounts of silt, sand, and clay. The peats and mucks are reportedly as much as 14 feet deep, and probably deeper in the center of the swamp. Evidently, the swamp formed from a continuous growth, settling, and decay of plants in a preexisting glacial pond.

B. Hydrology

Drainage from the site all moves into and through Fresh Meadows Swamp. The swamp itself drains northwestward under Tuttle Avenue via a tributary of Mill River. Mill River empties into New Haven Harbor.

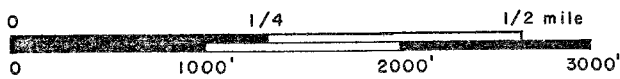
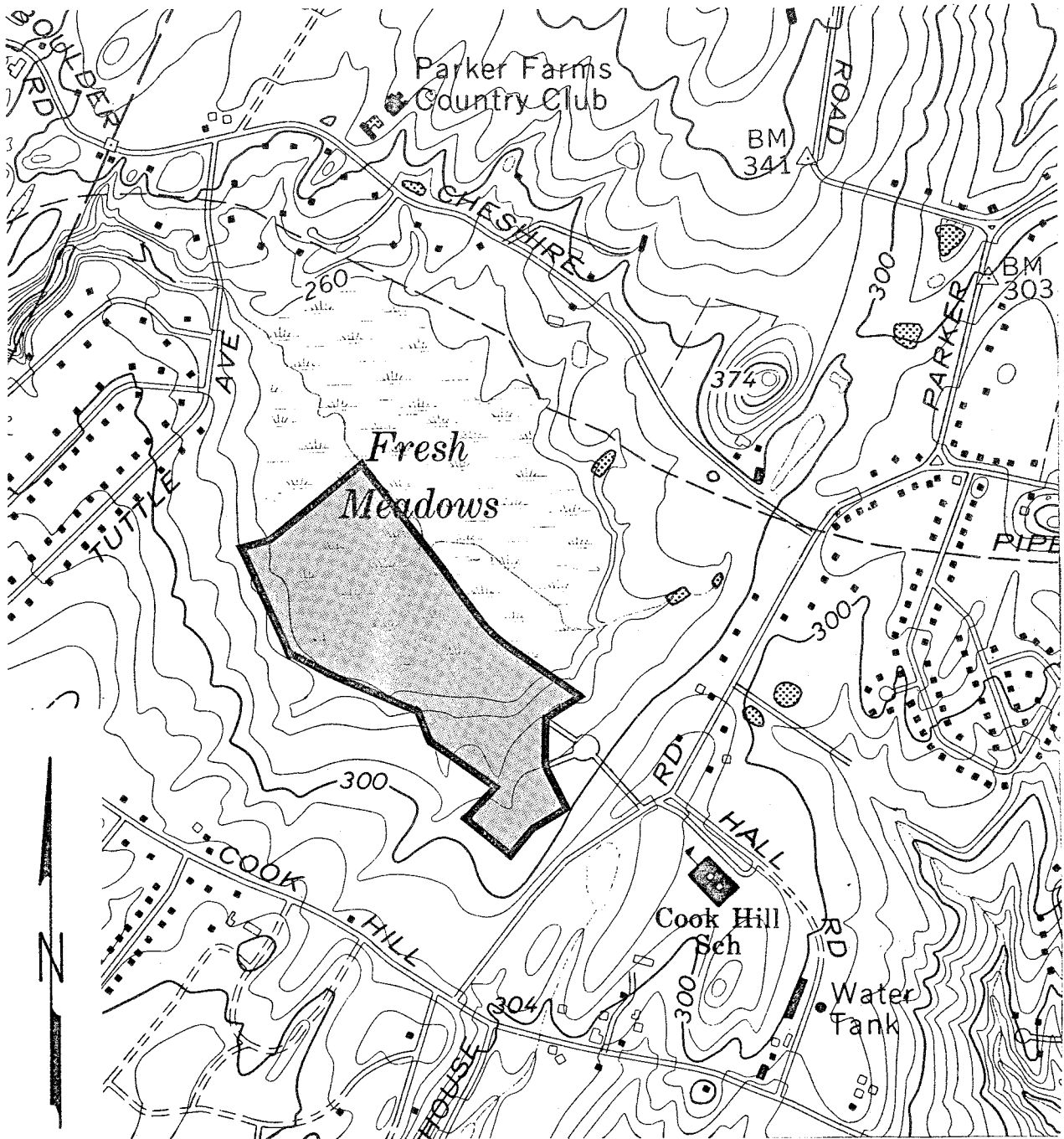
The swamp, because of its size (approximately 100 acres) has considerable hydrologic importance. It serves as a natural detention basin during periods of heavy runoff. This modulates the flood flows in the outlet stream, reducing the flow rates and the possibility of flood damage downstream. The swamp also buffers the quality of inflowing runoff, removing sediment and dissolved materials and generally improving the water. This may be a particularly important function in view of the extensive residential developments around the property. In addition to its hydrological value, the swamp may also have considerable ecological and wildlife importance.

No potentially high-yielding aquifers are known or believed to exist on the site.

C. Vegetation

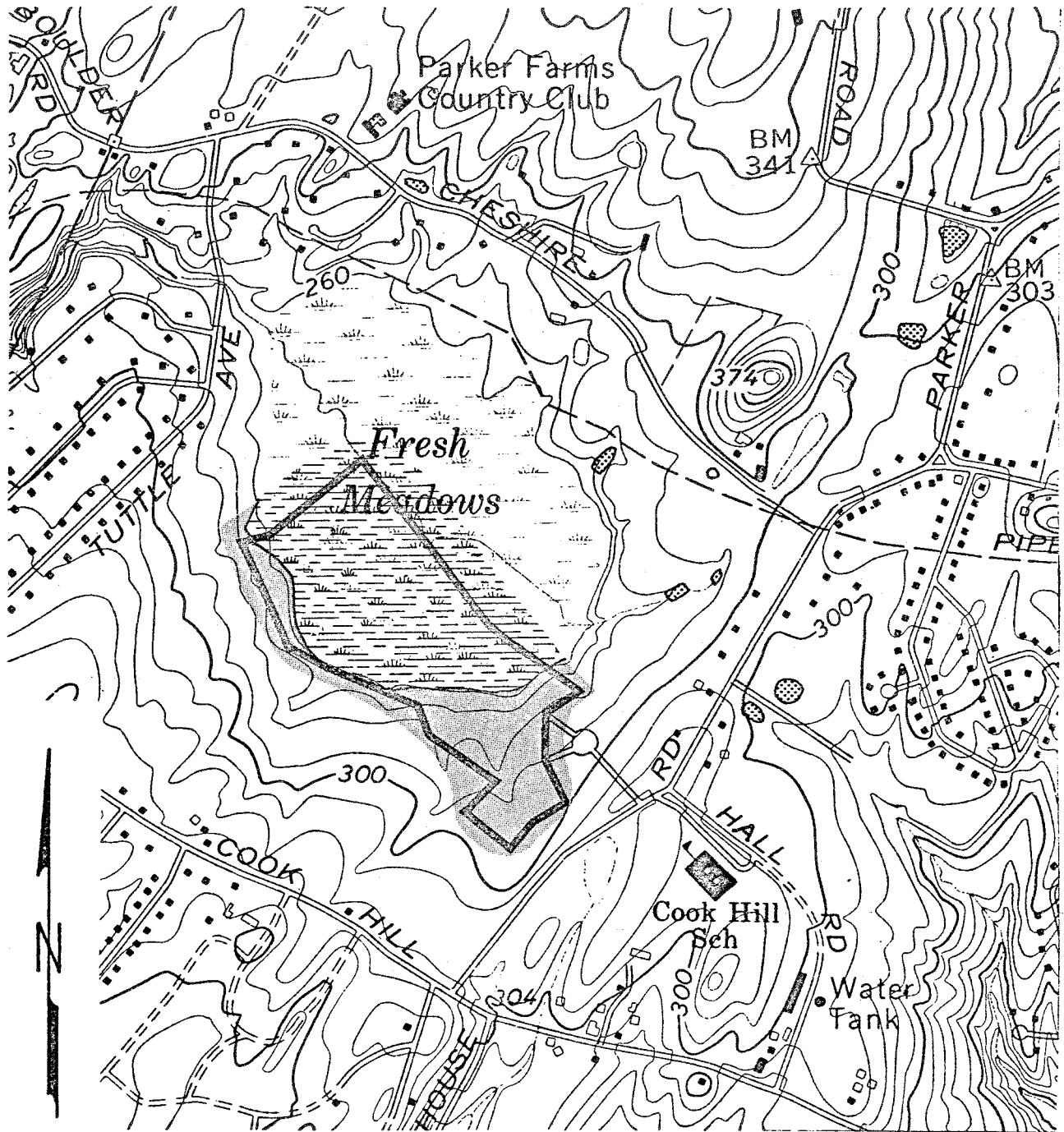
As shown in Figure 1.3, five vegetation types are present at the Fresh Meadows property. The composition of each type is described below together with suggestions for forest management.

FIGURE 1.1
TOPOGRAPHIC MAP

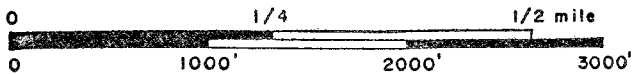


SCALE: 1" = 1000'

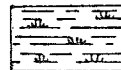
FIGURE 1.2
SURFICIAL GEOLOGY



EXPLANATION



SCALE: 1" = 1000'

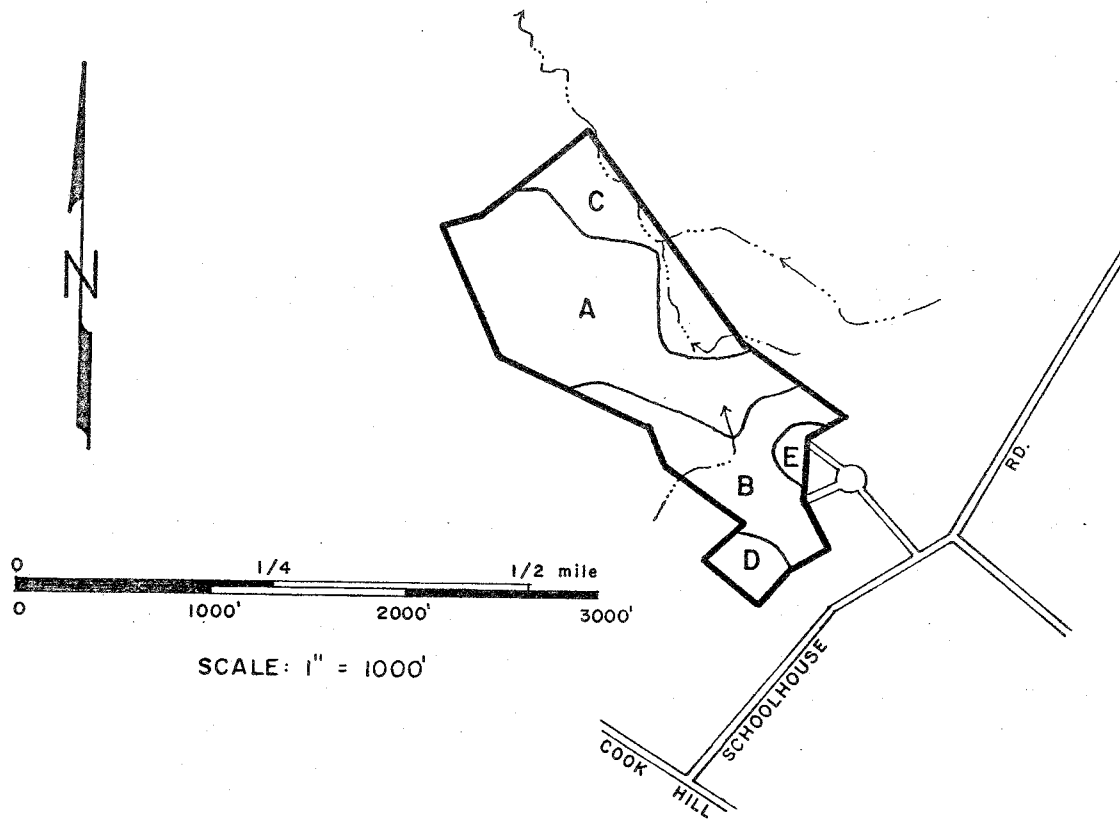


Swamp sediments (peat and muck mixed with small amounts of sand, silt, and clay).



Till, estimated to be generally more than 10' thick.





FIGURE 1.3
VEGETATION TYPE MAP



VEGETATION TYPE DESCRIPTIONS*

- TYPE A HARDWOOD SWAMP, 23+ acres.
Under-stocked, sapling to pole size.
- TYPE B MIXED HARDWOODS, 11+ acres.
Two aged, fully-stocked, sapling to pole
and sawtimber size.
- TYPE C OPEN SWAMP/SHRUB SWAMP, 9+ acres.
- TYPE D HEMLOCK, 2+ acres.
Over-stocked, pole to small sawtimber size.
- TYPE E MIXED HARDWOODS/OLD FIELD, 1+ acres.
Over-stocked, sapling to small pole-size.

LEGEND

-  ROAD
-  PROPERTY BOUNDARY
-  VEGETATION TYPE BOUNDARY
-  STREAM

*Seedling size = Trees less than 1 inch in diameter at 4½ feet above the ground (d.b.h.)
 Sapling size = Trees 1 to 5 inches in d.b.h.
 Pole size = Trees 5 to 11 inches in d.b.h.
 Sawtimber size = Trees 11 inches and greater in d.b.h.

TYPE A. HARDWOOD SWAMP. Approximately 23 acres of this tract is hardwood swamp which is understocked with sapling to pole size red maple, and occasional american elm, white ash, black ash and black gum. A majority of the trees which are present are of very poor quality due to the excessive moisture conditions which prevail. Spice bush, sweet pepper bush, high-bush blueberry, swamp azalea, swamp rose, and winter berry form an extremely dense understory in this area. Ground cover vegetation consists of tussock sedge, cinnamon fern, sensitive fern, shinning club moss, spagnum moss and skunk cabbage. Management of this area for the production of wood products is not economically feasible. This is due to the saturated soils which limit operability and restrict tree growth rates.

TYPE B. MIXED HARDWOODS. This 11 + acre two aged stand is made up of well spaced sawtimber-size scarlet oak, white oak, tulip tree and shagbark hickory with sapling to pole size black birch, black oak, yellow birch, shagbark hickory and red maple. Occasional black gum and sycamore are present where this mixed hardwood type grades into the hardwood swamp type. The understory is dominated by maple leaved viburnum, flowering dogwood, blue beech, spice bush, highbush blueberry, hardwood tree seedlings, barberry and occasional hemlock seedlings. Club moss, poison ivy, partridge berry and striped pipsisewa were observed during the field investigation. Snow cover prevented a more detailed inventory of ground cover vegetation by the Team. Many of the largest trees within this stand are healthy and have high aesthetic value. Several of these trees, although healthy, do have large dead branches which could be removed to reduce potential hazards. This should be done if the dead branches are directly over trails. The smaller trees in this stand are begining to decline in health and vigor as a result of their crowded condition. These trees would respond well to a fuelwood thinning which removes approximately one third to one half of the trees in the sapling to pole-size class. This thinning should be focused on the removal of poor quality trees, damaged trees, and undesirable species such as red maple and those trees which are directly competing with healthy high quality trees. This thinning should provide approximately 5 cords of fuelwood per acre.

TYPE C. OPEN SWAMP/SHRUB SWAMP. Shrub species such as speckled alder, winter berry, leather leaf, nannyberry, arrowwood, spice bush, highbush blueberry, and swamp loosestrife dominate this 9 + acre area along with red maple seedlings and poison sumac. The herbaceous species which are present include cinnamon fern, tussock sedge, sensitive fern, skunk cabbage, dodder, false hellebore and sphagnum moss.

TYPE D. HEMLOCK. This 2 + acre over-stocked stand is made up of pole to small sawtimber-size eastern hemlock with black birch, black cherry, red maple, white oak, yellow birch, black gum and hickory inter-mixed. No understory to speak of is present within this area, because the closed canopy does not permit sunlight to penetrate significantly. Ground cover is sparce, however club moss and partridge berry have become established. In an effort to reduce the crowded condition of this area, half to three quarters of the hardwoods could be removed and utilized as fuelwood. The highest quality hardwood trees should remain in the residual stand.

TYPE E. MIXED HARDWOODS/OLD FIELD. This 1+ acre area is over-stocked with sapling to small pole size red maple, white ash, black oak, black birch, gray birch and eastern red cedar. Blue beech, hawthorn, witch hazel and high bush blueberry are present in the understory. Ground cover consists of Pennsylvania sedge, goldenrod, club moss and poison ivy. This area would benefit by receiving a fuelwood thinning which removes one-third of the trees present in the over-story. Only poor quality trees and trees directly competing with high quality trees should be removed. A thinning at this time will provide 3 to 4 cords of fuelwood.

Additional Considerations

Snow cover during the ERT's field investigation prohibited an indepth inventory of the herbaceous vegetation present within this parcel. The Land Trust should consider preparing a detailed species list for educational purposes. Botanists may be available locally to assist in this endeavor.

The improvement thinnings which are prescribed above will reduce the competition for space, sunlight, water and nutrients between residual trees and result in their improved health, vigor and stability over time. As mentioned above, these thinnings should focus on the removal of poor quality trees, damaged trees and undesirable species and those trees that directly compete with healthy, high vigor trees.

A public service forester or private forester should be contacted to discuss federal cost sharing which may be available to cover certain management practices. A forester should also be contacted to mark the trees to be removed, should any of the proposed thinnings be desired.

Gypsy moth infestation was evident throughout this property. It is possible for a single defoliation in hemlock, or two successive defoliations of deciduous (broad leaved) trees to severely stress trees, allowing secondary insect and disease infestation to cause mortality. Thinnings in those areas which are becoming overcrowded should help the residual trees to become healthier and more vigorous, lessening the chances of wide spread mortality started by gypsy moth infestation. Even with such thinnings, however, eventual loss of some of the oak and hemlock components may occur.

Eastern hemlock seedlings planted along the southern and eastern boundaries of this parcel will produce a well defined property border and eventually provide a visual barrier that will screen out residential development. To be effective, several staggered rows should be planted with trees approximately 8 to 10 feet apart. It should also be noted that the more direct sunlight that these trees receive the faster and fuller they will grow. Therefore the removal of some of the trees in the overstory above the newly planted hemlock may be desirable.

D. Wildlife

The Fresh Meadows property contains two major wildlife habitat types. These include forestland, and wooded swamp habitat.

The wooded swamp habitat encompasses about 32 acres of this site (see Vegetation Type Map). Species observed utilizing the swamp area during the

ERT's field review were: deer, cottontail rabbits, woodpeckers, gray squirrels, a red tailed hawk, and various small mammals and birds. This wetland habitat is very valuable to wildlife, and is most desirable when consistent water levels are maintained.

During the winter months, a limited amount of cordwood cutting in the swamp would be beneficial to wildlife if this resulted in the creation of a few small irregular openings. Such openings in wooded land increase the amount of "edge", which is desirable to wildlife.

Within these small openings, a few wood duck boxes could be installed.

The forestland habitat is made up of roughly 14 acres. Wildlife observed in this habitat type during the Team's field review included numerous gray squirrel nests, a hairy woodpecker, deer tracks and raccoon tracks. Thinning out the overcrowded trees (as previously mentioned), encouraging some young growth in the hemlock stand, and selectively making small (1/8 acre) clearings would improve this land for wildlife.

Snag trees and den trees are important for cavity nesting wildlife. At least 5-7 snag trees (large, dead trees) or den trees (trees with cavities) should be left per acre on this property.

E. Soils

A soils map of the property is presented in Figure 1.4. The Appendix contains a soils limitation chart which identifies limiting factors for various land uses, and a wildlife habitat potentials chart. A comparison of the charts and the soils map will show the suitability of each area for various land uses.

The soils on the Fresh Meadows Swamp site are typical soils found at the base of slopes or in depressions of glacial uplands. Five soil mapping units are present on this site. Each of these is described below.

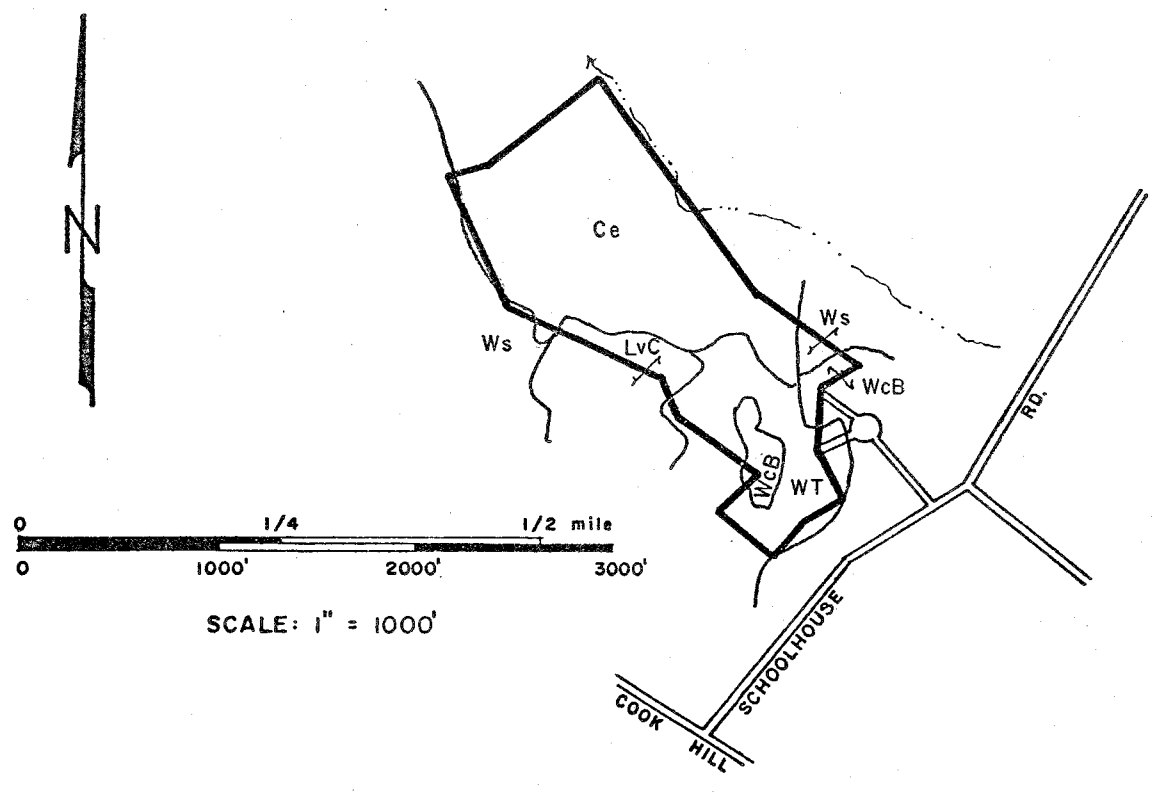
1. WcB - Watchaug fine sandy loam, 3 to 8 percent slopes:

This is a gently sloping, moderately well drained soil. There are two small (2-3 acre) areas of this soil type in the southern portion of this site. Typically, the surface layer of this soil is dark reddish brown fine sandy loam 8 inches thick. The subsoil is 16 inches thick; it is reddish brown and yellowish red fine sandy loam and is mottled in the lower 6 inches. The substratum, described to a depth of 60 inches, is reddish brown, mottled, friable, gravelly sandy loam with discontinuous firm lenses up to 2 inches thick.

This soil has a seasonal high water table at a depth of about 20 inches from late in fall until mid-spring. This soil has moderate permeability. It has a high available water capacity. Runoff is medium. This soil tends to dry out and warm up rather slowly in the spring. It has a low shrink-swell potential. If it is not limed, this soil is very strongly acid through medium acid in the solum and very strongly acid through slightly acid in the substratum.

This soil is well suited to trees and cultivated crops. It is classified as a prime farmland soil. Wetness is the major limiting factor in growing most crops, and drainage is needed for best crop production. The hazard of erosion

FIGURE I.4
SOILS MAP



• ADAPTED FROM NEW HAVEN COUNTY
SOIL SURVEY, U.S.D.A. - S.C.S.

is moderate, and controlling runoff and erosion is a concern in managing this soil.

If an area for grasses and legumes or other openland plantings for wildlife foods is desired, this soil would be well suited. The woodland wildlife habitat potential is also good.

2. LvC - Ludlow extremely stony silt loam, 3 to 15 percent slopes.

This is a gently sloping and sloping, moderately well drained soil. The surface is 3 to 25 percent stones and boulders. About three acres of this soil type are found on this site.

This soil has a seasonal high water table at a depth of about 20 inches from late in fall until mid-spring. Permeability is moderate in the surface layer and subsoil and is slow or very slow in the substratum. The available water capacity is moderate. Runoff is medium to rapid. This soil dries out and warms up slowly in spring. It has a low shrink-swell potential. Unless limed, this soil is very strongly acid through medium acid in the surface layer and subsoil and very strongly acid through slightly acid in the substratum.

This soil is well suited to growing trees. Productivity is moderately high. The stones and boulders hinder somewhat the use of some harvesting equipment and make machine planting generally unfeasible. The soil's highest potential for wildlife habitat is as woodland.

This soil is poorly suited to crops because of the stoniness. The erosion hazard is moderate to severe, and conservation measures such as the use of a permanent vegetative cover are needed to control runoff and erosion if the soil is managed.

3. Ws - Wilbraham very stony silt loam.

This is a nearly level, poorly drained soil. It has 0.1 to 3 percent of the surface covered with stones and boulders. Slopes range from 0 to 3 percent. This soil is classified as an inland wetland soil in Connecticut. The site contains about 2 acres of this soil type.

In fall until mid-spring, this soil has a seasonal high water table at a depth of about 8 inches. During summer, the water table may drop to a depth of 5 feet or more. This soil has moderate permeability in the surface layer and subsoil and slow or very slow permeability in the substratum. The available water capacity is moderate. Runoff is slow. This soil dries out and warms up slowly in the spring. It remains wet for several days after heavy rains in the summer. In areas that are not limed, this soil is very strongly acid or strongly acid in the surface layer and subsoil and strongly acid or medium acid in the substratum.

This soil is suited to growing trees. It is limited mainly by wetness. Productivity is moderate. The use of equipment is severely limited by wetness. When the soil is not wet, machine planting is practical in open areas. Seedling mortality is high. Tree windthrow is common because of the shallow rooting zone of the trees, which is caused by the high water table.

This soil is poorly suited to cultivated crops used by wildlife due to wetness. It does have fair potential for the growth of herbaceous plants and rates good for wetland types. The construction of shallow water areas for wildlife is limited by the large stones.

4. WT - Wilbraham and Menlow extremely stony silt loam.

This undifferentiated group consists of nearly level to gently sloping, poorly drained and very poorly drained soils. Slopes range from 0 to 5 percent. About 3 to 25 percent of the surface is covered with stones and boulders. About 60 percent of the total acreage consists of Wilbraham extremely stony silt loam, about 30 percent in Menlo extremely stony silt loam and about 10 percent is other soils. This mapping unit is classified as an inland wetland soil in Connecticut. The southeastern third of this property is dominated by this soil type.

From late in fall until mid-spring, the Wilbraham soils have a water table at a depth of about 8 inches. The Menlo soils have a water table at the surface from fall through spring and after heavy rains. In many places, they are ponded for several weeks in winter. During the summer, the water table in these soils may drop to a depth of 5 feet or more. Permeability is moderate in the surface layer and subsoil and slow or very slow in the substratum. The available water capacity is high. Runoff is slow or very slow. The soils have a low shrink-swell potential. In areas that are not limed, the Wilbraham soils are very strongly acid in the surface layer and the Menlo soils are very strongly acid through medium acid in the surface layer.

The soils of this map unit were not separated in mapping because they react similarly to most uses and management. In many places the soils occur in intricate patterns. The typical Wilbraham soil was described under Ws above. Typically, the Menlo soil has 3 inches of black muck on top of the surface layer.

This unit has fair suitability for woodland use. The Wilbraham soils have moderate productivity, and the Menlo soils have low productivity. The soils are limited mainly by their wetness and stoniness. Seedling mortality is high and windthrow is common. Woodland, nevertheless, may be one of the most productive uses of these soils.

This soil has good potential for the growth of wetland plants. However, wetland habitat management is limited because shallow water areas are difficult to excavate due to the large stones.

5. Ce - Carlisle Muck.

This nearly level, very poorly drained, deep organic soil occupies more than 50% of this site. The organic layers range from 50 inches to more than 30 feet in depth. Slopes are 0 to 3 percent but are dominantly less than 1 percent. This soil is classified as an inland wetland soil in Connecticut.

Typically, the surface layer is very dark brown muck 10 inches thick. The subsurface layer is dark reddish brown muck 19 inches thick. The bottom layer, described to a depth of 70 inches, is dark reddish brown and dark brown muck.

This soil has moderately rapid permeability. It has a high available water capacity. Runoff is very slow. This soil remains wet most of the year and is ponded for several weeks from fall to spring and after heavy rains in summer. Unless limed, the soil ranges from medium acid through neutral.

This soil has moderate productivity for woodland use; however, it has severe limitations to the use of modern equipment. Seedling mortality is high. Plant competition is severe. This soil has a severe windthrow hazard; the trees are shallow rooted because of the high water table.

This soil is poorly suited to cultivated crops because of wetness. Most areas are difficult to drain. Areas that are drained can be used for vegetables. If this soil is cultivated, the water table level needs to be maintained to minimize subsidence. Cover crops are necessary to prevent wind erosion.

This soil has good potential for wetland wildlife habitat management. It is well suited to wetland plants. The potential for shallow water areas is also good. An excavated pond for fish production is possible on this soil.

F. Recreation Potential

The diversity of vegetation types on this property enhances the passive recreation and nature study potential of this property. An attractive trail has been constructed off Jeremy Wood Drive which winds through the southern and western portions of the site. As shown in Figure 1.5, there is potential for additional passive recreation development on the property.

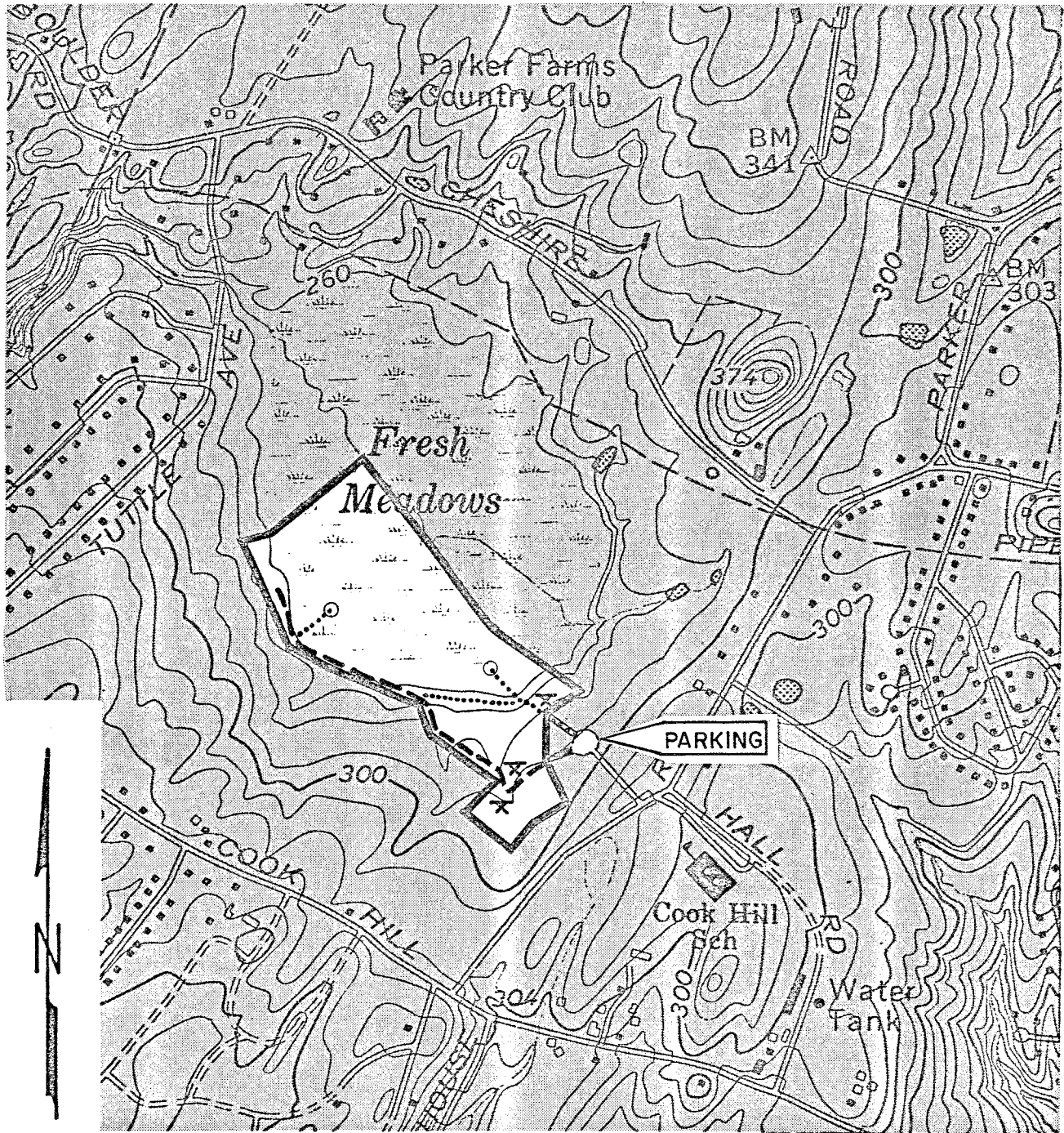
Opportunities for trail construction on the property are limited by the large swamp. This wetland is an interesting natural feature however, and can be a focal point for a bordering nature trail. A couple elevated loop trails out into the Ce(swamp) soil could provide an interesting view of the wetland habitat. Creating a loop trail in the southeastern portion of the property would also be desirable. As shown in Figure 1.5, this trail could be designed to be about 3/8 of a mile in length and wind through several vegetation types. It should be noted that a portion of this loop trail would wind through the WT soil area and may not be suitable for year-round use due to wetness unless the trail is elevated.

All trails should be planned so that slopes are not excessive to reduce erosion hazards. Water bars can be placed periodically along sloping trails to divert runoff water away from the trails to a more stable soil area. An erosion and sediment control plan should be prepared and followed during trail construction to protect nearby streams and wetlands from sediment deposition. The New Haven County Conservation District is available to provide assistance in erosion and sediment control planning and in trail design and construction.

The following guidelines should be followed in trail design and construction:

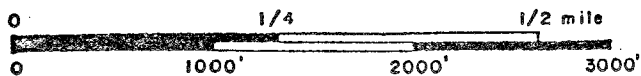
1. A general plan showing the approximate line, grade and width of trails and erosion and sediment control measures should be prepared.
2. All trees, shrubs and fallen timber should be removed for a distance of 2 feet each side of the trail centerline. Stumps should be cut close to the ground. All protruding limbs should also be removed for a distance of 2 feet each side of the trail centerline. Where other than foot traffic is planned, protruding limbs should be removed to a height of 10 feet. Limbs removed should be cut off as close to the trunk as possible.

FIGURE I.5
RECREATION POTENTIAL



EXPLANATION

- Existing trail
- Potential trail
- X Potential picnic/camp sites



SCALE: 1" = 1000'

3. All undesirable material such as soil high in organic matter, stumps and large stones should be removed from the tread area of the trail.
4. All grading should be to the lines shown on the plan. All culverts, bridges, turnouts, handrails, grade dips and erosion control measures should be installed as shown on the plan.
5. The trail surface should be finished to a uniform firm surface and be free of loose material.

A typical trail section is shown in the Appendix of this report.

Any camp or picnic areas developed at this site should be limited to the WCB soil areas. These areas are certainly suitable for picnic use, but may not be suitably buffered from adjacent properties for overnight camping use.

* * * * *

WEST DAYTON HILL WOODS

II. WEST DAYTON HILL WOODS

West Dayton Hill Woods is approximately 19 acres in size (see Figure 2.1). Access to the site is available from the north off Fox Run Drive.

A. Geology

As shown in Figure 2.1, West Dayton Hill Woods consists of a steep, rocky knoll surrounded by flat to moderately sloping terrain. The knoll is actually a small part of a ridge that runs northeastward from the southwestern corner of the town of Wallingford. Snow cover prevented a more detailed examination of the knoll, but available geologic data shows that the bedrock that underlies and crops out on the knoll is primarily an intrusive igneous rock. The rock has a basic mineral composition; that is, it is relatively low in silica but rich in iron, magnesium, or calcium-bearing minerals. Augite and labradorite are generally the predominant mineral components. Accessory magnetite and local olivine may also be present. The rock is called basalt if very fine-grained, or dolerite if somewhat coarser grained. It is very dark-colored on fresh surfaces.

The bedrock surrounding the intrusive rocks is composed of feldspar-rich sandstones and siltstones (see Figure 2.2). These sedimentary rocks are weaker and more susceptible to erosion than the igneous rocks; this explains the sharp topographic contrast between the knoll and the surrounding terrain. The sedimentary rocks are generally reddish or reddish-brown. Both the sedimentary and the igneous rocks are estimated to be of Upper Triassic age, which would make them about 200 million years old.

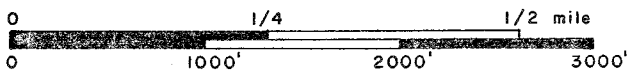
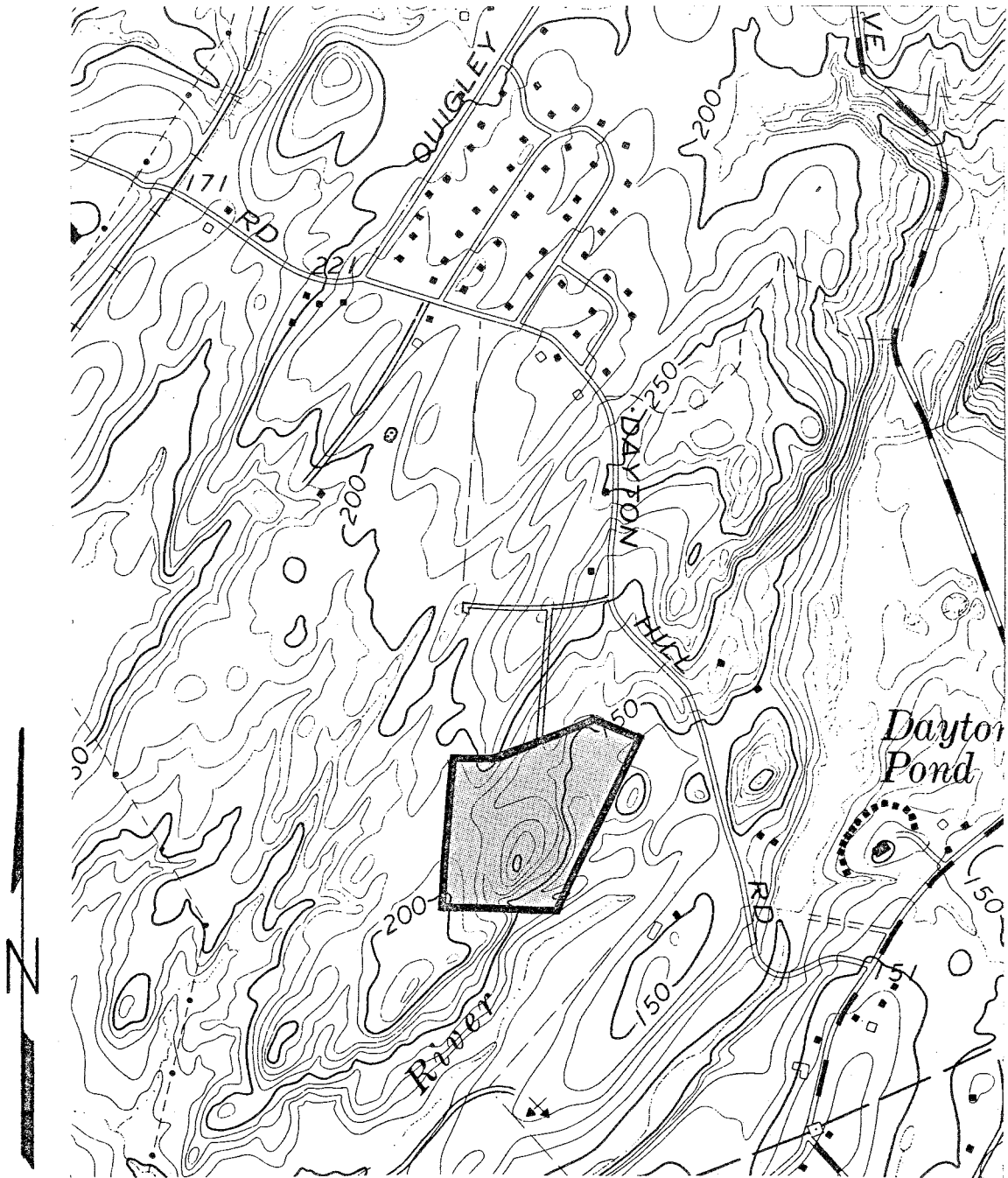
A discontinuous, generally thin blanket of till overlies bedrock on the site. Till, which was deposited directly from glacier ice more than 12,000 year ago, is a nonsorted and generally structureless mixture of clay, silt, sand, gravel, and boulders. It may be sandy and loose or silty and tightly compact. The upper few feet of a till deposit are usually sandy, very stony, and loose. Compact till underlies the looser material in most places where the till is thick (5 feet or more). The compact till severely restricts the movement of groundwater and can result in a "perched" water table during wet periods. The flat, low areas of the site probably experience seasonal wetness for this reason.

B. Hydrology

West Dayton Hill Woods is in the headwater area of Pine River, a short tributary to Muddy River. Muddy River empties into Quinnipiac River in the Town of North Haven. There are several intermittent streamcourses on the site itself. Although one stream contained a noticeable flow on the day of the field review, a member of the Wallingford Land Trust stated that the channel is dry for most of the year.

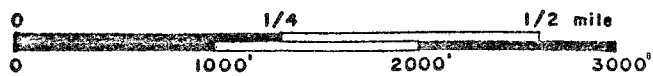
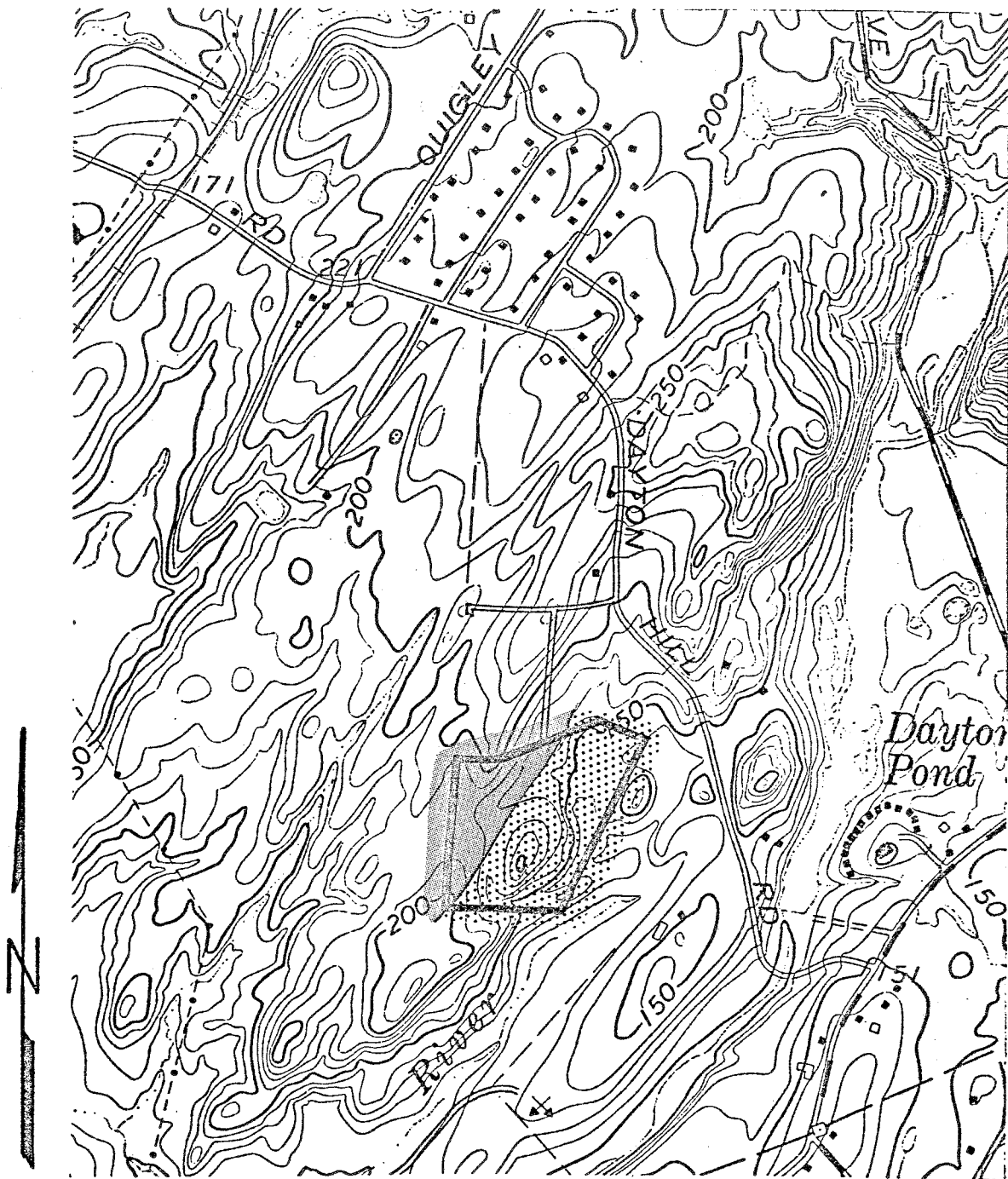
The intermittent surface flow patterns are radial around the central knoll and a smaller knoll to the east. Groundwater flow paths presumably mirror the surface flow patterns. Areas of seasonal soil wetness are caused by hardpan or the proximity of bedrock to the surface.

FIGURE 2.1
TOPOGRAPHIC MAP



SCALE: 1" = 1000'

FIGURE 2.2
BEDROCK GEOLOGY



SCALE: 1" = 1000'

EXPLANATION

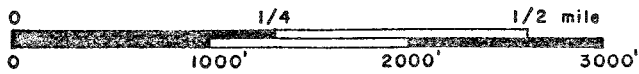
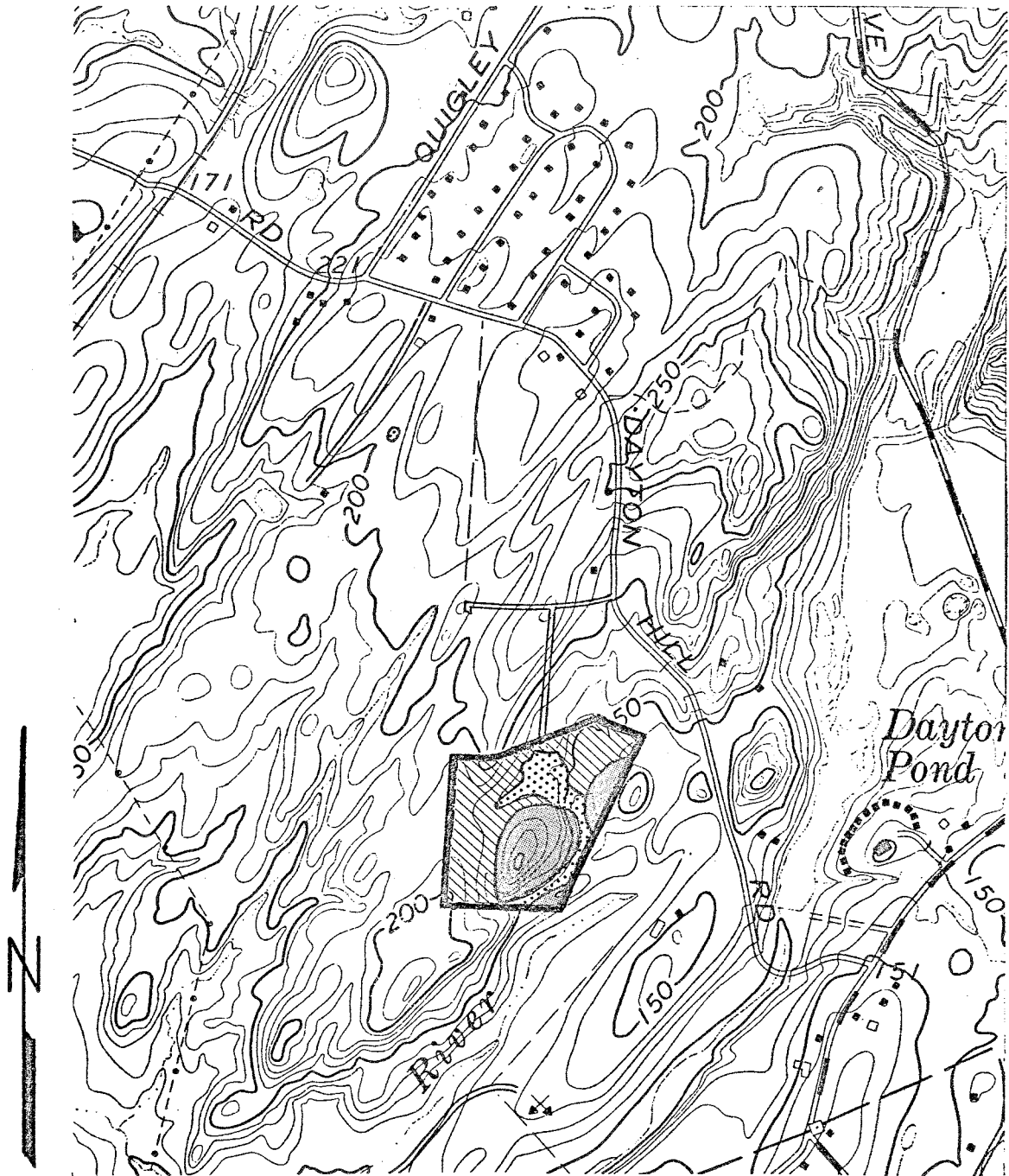


Area underlain principally by basalt or dolerite.






Area underlain principally by feldspar-rich sandstones and siltstones.

FIGURE 2.3
SURFICIAL GEOLOGY



SCALE: 1" = 1000'

EXPLANATION

-  Thin till (generally less than 10' thick) overlying igneous bedrock.
-  Till, probably generally 5'-15' thick.
-  Areas of seasonal wetness and intermittent streamflow.

There are no outstanding aquifers on the site. Bedrock would be the most logical source of groundwater on the property. Bedrock is usually capable of supplying small but reliable yields of groundwater to individual wells. The groundwater quality in the area is generally good.

C. Vegetation

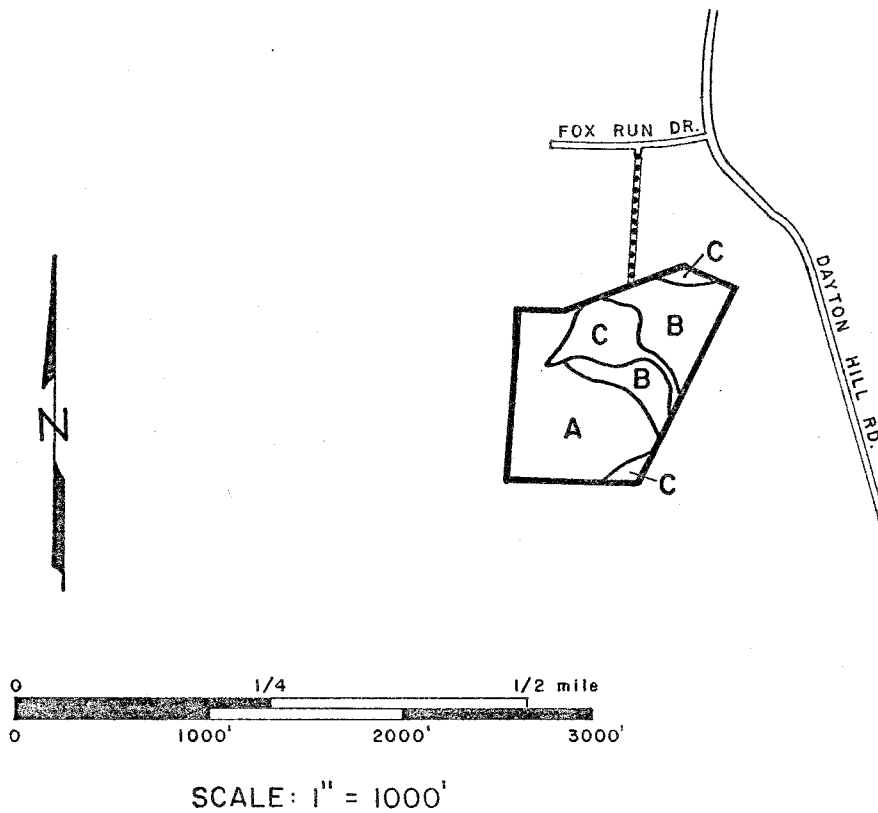
As shown in Figure 2.4, West Dayton Hill Woods consists of three major vegetation types. The composition and management potential of each type is discussed below.

TYPE A. MIXED HARDWOODS. This 10+ acre fully-stocked stand is made up of pole to small saw timber size black oak, white oak, scarlet oak, American beech, black birch, pignut hickory and occasional red maple. The understory consists of hardwood tree seedlings, maple leaved viburnum, witch hazel, blue beech, azalea, flowering dogwood, sassafras saplings and American chestnut sprouts. Lowbush blueberry, huckleberry, poison ivy, Christmas fern, club moss, green brier, partridge berry, striped pipsissewa, aster and Pennsylvania sedge are the dominant species of ground cover vegetation which are present in this area. This stand would benefit from the removal of the poor quality and damaged trees which are competing with the high quality trees. Between three and five cords of fuelwood per acre could be removed from this area, if suitable access can be obtained. At the present time, access to this property for forest management is very limited. Implementation of the suggested fuelwood thinnings would likely require up-grading of the present right-of-way.

TYPE B. MIXED HARDWOODS. Sapling-size black birch, black oak, red maple, pignut hickory and gray birch are present along with scattered sawtimber size white oak, pignut hickory, tulip trees and white oak in this 5+ acre two-aged stand. The understory is made up of hardwood tree seedlings, maple leaf viburnum blue beech and witch hazel. Ground cover consists of club moss, poison ivy, Virginia creeper, aster, Christmas fern and hay scented fern. Many of the large trees which are present are healthy and have high aesthetic value. Most of these trees will make quality specimen trees if retained. The younger, smaller trees are becoming crowded and beginning to decline in vigor. Removal of approximately one-third of these trees would help to reduce the crowded condition, allowing residual trees to respond over time with improved health and vigor. The highest quality trees should be retained in the residual stand. Once again, poor access to this parcel may prohibit the implementation of this thinning.

TYPE C. HARDWOOD SWAMP. Approximately 4 acres of wetlands are present within this parcel. Sapling to pole size red maple dominate these variably stocked areas along with occasional American elm, white ash and yellow birch. A dense understory made up of spice bush, highbush blueberry, elderberry, nannyberry arrowwood, winter berry, and witch hazel is present throughout. The vine species which are found within these areas include poison ivy, green brier, fox grape and oriental bittersweet. The dominant herbaceous vegetation consists of cinnamon fern, sensitive fern, tussock sedge, skunk cabbage, touch-me-not, goldenrod and pokeberry. The potential for management of this area for the production of wood products is severely limited by the high water table and poorly drained soils.

FIGURE 2.4
VEGETATION TYPE MAP



VEGETATION TYPE DESCRIPTIONS*

- TYPE A MIXED HARDWOODS. 10+ acres.
Fully-stocked, pole to small sawtimber size.
- TYPE B MIXED HARDWOODS. 5+ acres.
Fully-stocked, two age sapling to pole and
sawtimber size.
- TYPE C HARDWOOD SWAMP. 4+ acres.
Variably stocked, sapling to pole size.

LEGEND

- ROAD
- PROPERTY BOUNDARY
- VEGETATION TYPE BOUNDARY
- R.O.W. TO PROPERTY

* Seedling size = Trees less than 1 inch in diameter at 4½ feet above the ground (d.b.h.)
Sapling size = Trees 1 to 5 inches in d.b.h.
Pole size = Trees 5 to 11 inches in d.b.h.
Sawtimber size = Trees 11 inches and greater in d.b.h.

Additional Considerations

As with the Team's analysis of the Fresh Meadows parcel, snow cover during the field review prevented an in-depth inventory of the herbaceous vegetation at this site. Such an inventory would be desirable for educational purposes and should be considered at this site. Local experts may be available to assist in compiling the list.

Gypsy moth infestation was observed throughout this property. The above mentioned thinnings can help enhance the forest stand's resistance to widespread mortality. By reducing the crowded condition, the remaining trees can become healthier and more vigorous and thus better able to resist secondary insect and disease infestation which often accompany a gypsy moth infestation.

A public service forester or private forester should be contacted to discuss federal cost sharing which may be available to cover certain management practices. A forester should also be contacted to mark the trees removed should any of the proposed thinnings be implemented.

Eastern hemlock seedlings planted along the northern and eastern borders of this parcel, will produce a well defined property border and eventually provide a visual barrier that will screen out residential development. To be effective, several staggered rows should be planted with trees approximately 8 to 10 feet apart. It should also be noted that the more direct sunlight that these trees receive the faster and fuller they will grow. Therefore the removal of some of the trees in the overstory above the newly planted hemlock would be desirable.

D. Wildlife

West Dayton Hill Woods is made up of two major wildlife habitat areas. These include forestland, and forestland with intermittent riparian habitat.

The forestland habitat makes up about 18 acres of this 19 acre parcel. To improve this land for wildlife, emphasis should be placed on creating multiple habitats. Most wildlife prefer to inhabit the "edges" of where two habitats meet. Currently, squirrel nests may be observed in the mature oaks and beech trees on the site. A pileated woodpecker's signs were observed during the ERT's field review along with a few deer tracks. Although other wildlife species inhabit a mature forest, numbers and species are limited due to the lack of variety.

Enhancement of this area for general wildlife production could be accomplished by implementing the aforementioned cordwood cutting, by clearing a few canopy trees away from the berry producing brush, by removing those trees that are overcrowding mast (nut producing) trees, and by creating two one-half acre openings.

The openings should be created where access to mow brush periodically could be accomplished. Artificial nesting boxes could be put up on the "edges" of the two small openings. It would be desirable to have a nature trail loop through these clearings.

Enhancement of the old road which runs across the northern portion of the property in the form of "daylighting" would also be very beneficial to wildlife. Once light can reach the forest floor, grass and legumes could be planted and maintained in this section of the site.

The forestland with intermittent riparian habitat occupies about one acre of this site. The heavy growth of vines in this area is very valuable to wildlife as a source of food. This habitat type is attractive to deer, fox, raccoon, opossum, woodpeckers, thrushes, occasional other furbearers, and various songbirds passing through during specific seasons.

E. Soils

The West Dayton Hill Woods site contains a small depression area similar to the Fresh Meadows Swamp site. This area has the WT soil mapping unit (see Figure 2.5). This is the only mapping unit common to both sites. Four other mapping units are present. These are all common to broad glacial till plains. They are described below.

1. YaB - Yalesville fine sandy loam, 3 to 8 percent slopes.

This gently sloping, well drained soil occupies the northwestern quarter of the site. The relief is affected by the underlying bedrock. Typically, the surface layer of this soil is dark brown fine sandy loam 8 inches thick. The subsoil is 17 inches thick. It is reddish brown, friable fine sandy loam and loam. The substratum, described to a depth of 36 inches is reddish brown sandy loam. Reddish brown, hard sandstone bedrock is at a depth below 36 inches.

This soil has moderate or moderately rapid permeability above the bedrock. The available water capacity is moderate. Runoff is medium. The soil tends to dry out and warm up early in the spring. It has a low shrink-swell potential. In areas that are not limed, this soil is very strongly acid through medium acid.

This soil is suited to growing trees. It has moderate productivity. Windthrow is a hazard with large trees because of the limited rooting zone above the bedrock.

This soil is well suited to cultivated crops. It is rated a prime farmland soil. It is easy to maintain in good tilth. The hazard of erosion is moderate and controlling runoff and erosion is a concern in managing this soil for farming.

The high productivity of this soil for crops, other herbaceous plants, and trees makes its potential for both openland and woodland habitat good.

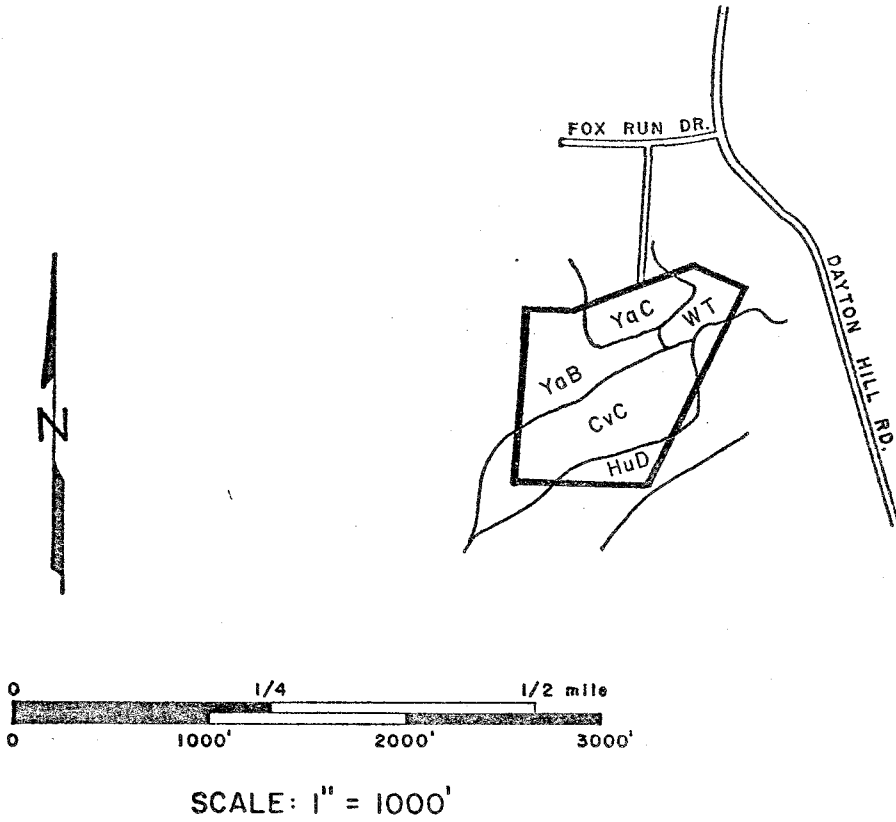
2. YaC - Yalesville fine sandy loam 8 to 15 percent slopes.

This soil is similar to the YaB soil but the slopes are steeper. This steepness causes runoff to be rapid. The steep slopes also cause a severe erosion hazard when this soil is used for cropland.

3. CvC - Cheshire extremely stony fine sandy loam, 3 to 15 percent slopes.

This gently sloping and sloping, well drained soil occupies the central portion of the site. Between 3 and 25 percent of the surface of this soil type is covered with stones and boulders.

FIGURE 2.5
SOILS MAP



• ADAPTED FROM NEW HAVEN COUNTY
SOIL SURVEY, U.S.D.A. - S.C.S.

Typically, the surface layer is very dark grayish brown fine sandy loam 3 inches thick. The subsoil is 23 inches; it is reddish brown, friable fine sandy loam. The substratum, described to a depth of 60 inches, is reddish brown, friable gravelly sandy loam with a few discontinuous firm lenses up to 2 inches thick.

This soil has moderate permeability. It has a high available water capacity. Runoff is medium to rapid. This soil dries out and warms up fairly early in spring. It has a low shrink-swell potential. Unless limed, this soil is very strongly acid through medium acid.

This soil is suited to trees. Productivity is moderate. The stones and boulders hinder the use of some equipment and make machine planting of trees unfeasible.

This soil is poorly suited to farming. The stones and boulders, which are normally very costly to remove, severely hinder the use of farming equipment. This soil has a moderate to severe erosion hazard; conservation measures are needed to control runoff and erosion when this soil is managed.

4. HuD - Holyoke-Cheshire complex, 15 to 35 percent slopes.

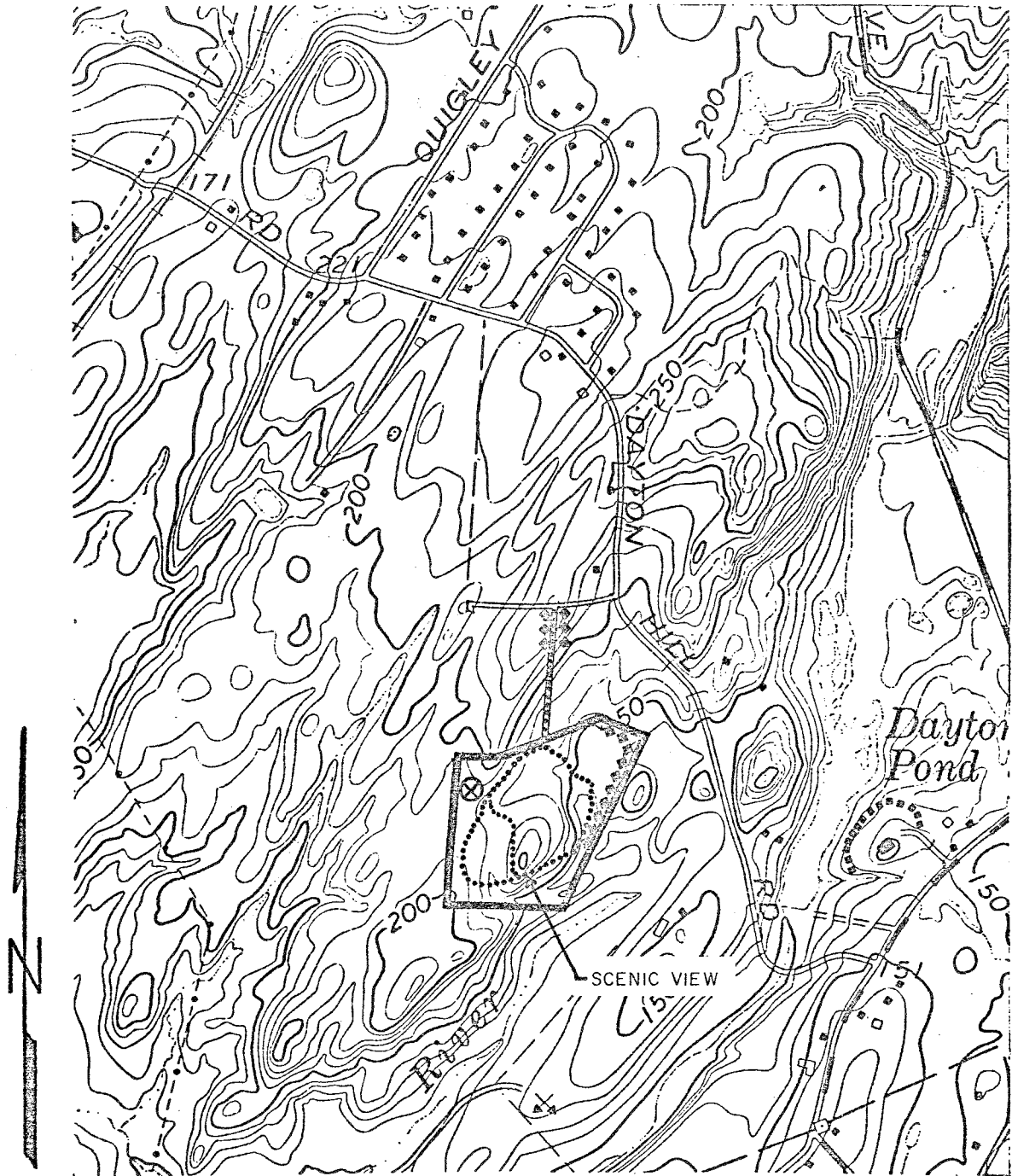
This complex consists of moderately steep and steep, well drained and somewhat excessively drained soils. The relief is affected by the underlying bedrock. The area has a rough surface with bedrock outcrops, a narrow intermittent drainage way, and small wet depression. Up to 15 percent of the surface may be covered with stones and boulders. Approximately 40 percent of this complex is Holyoke silt loam, 35 percent is Cheshire extremely stony fine sandy loam, and about 25 percent is other soils and rock outcrops.

The Holyoke soil has moderate permeability above the bedrock. It has a low available water capacity. Runoff is rapid. The Cheshire soil has moderate permeability. It has a high available water capacity. Runoff is rapid. The Holyoke and Cheshire soils have a low shrink-swell potential. Unless limed, they are medium acid through very strongly acid.

The Holyoke and Cheshire soils are so intermingled on the landscape that it was not practical to separate them in mapping. The typical Cheshire soil is described under CvC. The typical Holyoke soil has a very dark grayish brown silt loam surface layer 2 inches thick. The subsoil is dark reddish brown and reddish brown silt loam 11 inches thick. The underlying bedrock is hard unweathered basalt.

This complex is not well suited to growing trees; however, woodland may be one of its most productive uses. The Holyoke soil has low productivity and seedling survival is low because of droughtiness. Windthrow of the larger trees is common because of the shallow rooting depth. The Cheshire soils have moderate productivity. The steep slopes, stoniness and rock outcrops hinder the use of some harvesting equipment. Machine planting of seedlings generally is not feasible.

FIGURE 2.6
RECREATION POTENTIAL



SCALE: 1" = 1000'

EXPLANATION

- ◆◆◆◆◆ Hemlock buffer strip
- Suggested trail
- ⊗ Most suitable picnic and camping area

F. Recreation Potential

West Dayton Hill Woods offers a gently rolling mixed hardwood stand suitable for passive recreational activities such as hiking, bird watching, and nature study. As shown in Figure 2.6, a loop trail network should be considered at this site to enhance access for these activities. This trail should be designed according to the guidelines presented in the "Fresh Meadows" report, and be routed to take advantage of the nice view from the knoll at the southeastern corner of the site.

The eastern border of this property is very close to several single family homes. If the easternmost trail shown in Figure 2.6 is constructed on this site, buffering of the eastern border by hemlock plantings would be highly desirable. A screen of vegetation in this area would enhance the open space character of the site. A vegetative buffer should also be considered on either side of the access trail located off Fox Run Drive (see Figure 2.6).

The YaB soil area is most suitable for picnicing and camping (see Figure 2.5). As previously mentioned this area is also prime farmland; if the Trust were interested in establishing a community garden, this area would be suitable. Consideration should also be given to creating a few open fields in this YaB area to enhance the value of this parcel for wildlife.

* * * * *

III. APPENDIX

SOILS LIMITATION CHART - RECREATIONAL LAND USE

MAP

SYMBOL SOIL NAME CAMP AREAS PICNIC AREAS PLAYGROUNDS PATHS & TRAILS

FRESH MEADOWS SWAMP

Ce	Carlisle muck	Severe; Wetness, Excess humus	Severe; Wetness, Excess humus	Severe; Wetness, Excess humus	Severe; Wetness, Excess humus
WT	Wilbraham and Menlo extremely stony silt loams	Severe; Wetness, Large stones	Severe; Wetness, Large stones	Severe; Wetness, Large stones	Severe; Wetness Large stones
WcB	Watchaug fine sandy loam, 3-8% slopes	Moderate; Wetness	Slight	Moderate; Slope, Wetness	Slight
Ws	Wilbraham very stony silt loam	Severe; Wetness	Severe; Wetness	Severe; Wetness	Severe; Wetness
LvC	Ludlow extremely stony silt loam, 3-15% slopes	Severe; Large stones	Severe; Large stones	Severe; Slope, Large stones	Severe; Large stones
<u>WEST DAYTON HILL WOODS</u>					
YaC	Yalesville fine sandy loam, 8-15% slopes	Moderate; Slope	Moderate; Slope	Severe; Slope	Slight
YaB	Yalesville fine sandy loam, 3-8% slopes	Slight	Slight	Moderate; Slope, Depth to rock	Slight
CvC	Cheshire extremely stony fine sandy loam, 3-15% slopes	Severe; Large stones	Severe; Large stones	Severe; Large stones, Slope	Severe; Large stones
WT	Wilbraham and Menlo extremely stony silt loams	Severe; Wetness Excess humus	Severe; Wetness Excess humus	Severe; Wetness Excess humus	Severe;Wetness Excess humus
HuD	Holyoke-Cheshire complex, 15-35% slopes	Severe; Slope	Severe; Slope	Severe; Slope	Severe; Slope

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.

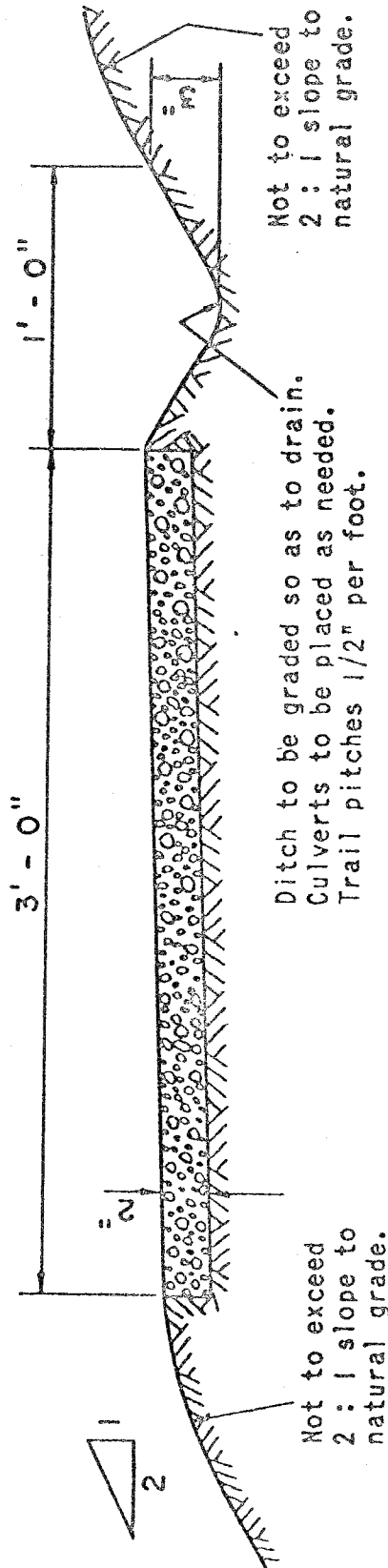
NOTE: Limitation Ratings Based Upon U.S.D.A. Soil Conservation Service

WILDLIFE HABITAT POTENTIALS CHART

Soil name and map symbol	Potential for habitat elements							Potential as habitat for----		
	Grain & seed crops	Grasses & Legumes	Wild Herba- ceous plants	Hardwood trees	Conif- erous plants	Wetland plants	shallow water areas	Openland Wildlife	Woodland wildlife	Wetland wildlife
Carlisle: Ce	very poor	very poor	very poor	poor	poor	good	good	very poor	poor	good
Cheshire: CvC	very poor	very poor	good	good	good	very poor	very poor	poor	fair	very poor
Holyoke: HuD-Holyoke part	very poor	poor	fair	poor	poor	very poor	very poor	poor	poor	very poor
Cheshire part	very poor	poor	good	good	good	very poor	very poor	poor	good	very poor
Ludlow: LvC	very poor	very poor	good	good	good	very poor	very poor	poor	fair	very poor
Yalesville: YaB	fair	good	good	good	good	poor	very poor	good	good	very poor
YaC	fair	good	good	good	good	very poor	very poor	good	good	very poor
Watchaug: WcB	fair	good	good	good	good	poor	Very poor	good	good	very poor
Wilbraham: Wr	poor	fair	fair	fair	fair	good	fair	fair	fair	fair
Ws	very poor	poor	fair	fair	fair	good	fair	poor	fair	fair
WT	very poor	very poor	fair	fair	fair	good	fair	poor	fair	fair
Wilbraham Menlo part	very poor	very poor	poor	poor	poor	good	fair	very poor	poor	fair

NOTE: Unsuitable material should be excavated and the trail filled with aggregate not exceeding 1" in diameter. Depth of filled aggregate may vary from 0" to 6" according to the soil and its trafficability. In very wet areas artificial walkways or raised embankments may be needed.

Width of trail may be increased in accord with traffic load.



SCS-REC-110
3-71

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

TYPICAL TRAIL SECTION

FROM ORIGINAL DESIGN BY
NEVADA STATE PARK SYSTEM

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 industrial 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.