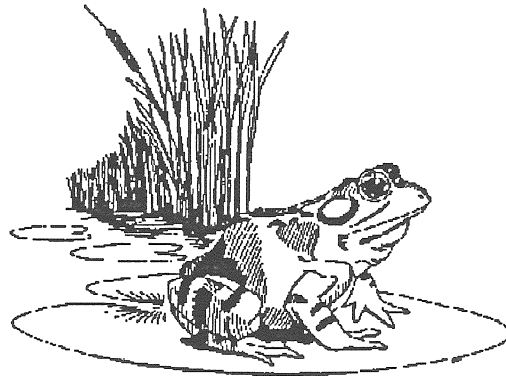


**EASTERN CONNECTICUT  
ENVIRONMENTAL REVIEW TEAM REPORT**



**The Renn Property and  
Dennis Pond Property**

**Stafford, Connecticut**

# **The Renn Property and Dennis Pond Property**

**Stafford  
Connecticut**

## **Environmental Review Team Report**

**Prepared by the  
Eastern Connecticut Environmental Review Team  
of the Eastern Connecticut  
Resource Conservation and Development Area, Inc.**

**for the  
Stafford Conservation Commission**

**August 1999**

**CT Environmental Review Teams  
1066 Saybrook Road, P.O. Box 70  
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(860) 345-3977**



# Acknowledgments

This report is an outgrowth of a request from the Stafford Conservation Commission to the Tolland County Soil and Water Conservation District (SWCD). The SWCD referred this request to the Eastern Connecticut Resource Conservation and Development Area (RC&D) Executive Council for their consideration and approval. The request was approved and the measure reviewed by the Eastern Connecticut Environmental Review Team (ERT).

The Eastern Connecticut Environmental Review Team Coordinator, Elaine Sych, would like to thank and gratefully acknowledge the following Team members whose professionalism and expertise were invaluable to the completion of this report.

The field review took place on Wednesday, June 2, 1999.

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I would also like to thank Joe Neafsey and Robert Boarque of the Town of Stafford Conservation Commission for their cooperation and assistance during this environmental review.

Prior to the review day, each Team member received a summary of the proposed project with location and soils maps. During the field review Team members were given additional information. Following the review, reports from each Team member were submitted to the ERT coordinator for compilation and editing into this final report.

This report represents the Team's findings. It is not meant to compete with private consultants by providing site plans or detailed solutions to development problems. The Team does not recommend what final action should be taken on a proposed project - all final decisions rest with the town. This report identifies the existing resource base and evaluates its significance to potential development, and also suggests considerations that should be of concern to the town. The results of this Team action are oriented toward the development of better environmental quality and the long term economics of land use.

The Eastern Connecticut RC&D Executive Council hopes you will find this report of value and assistance in managing these parcels of town land.

If you require additional information please contact:

Elaine Sych, ERT Coordinator  
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(860) 345-3977

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# Introduction

## Introduction

The Tolland Conservation Commission has requested assistance from the Eastern Connecticut Environmental Review Team in conducting a natural resource inventory and providing guidance on the use and management of two parcels of town owned land.

The Renn Property is approximately 12 to 14 acres in size located on New City Road, east of Staffordville Reservoir, near New City Pond. The property was donated to the town in 1998 with the restriction that it be used for open space/passive recreation. The site is wooded and contains a stream with a bypass pond.

Dennis Pond is an existing 40 acre town park that is very close to downtown Stafford Springs (about 1/4 mile from the town hall). There is an existing garage/building on the west side of the pond and other buildings on the east side were either taken down or have fallen down. The area also has a gazebo near the north end of the pond near the dam. The site is currently used for fishing, hiking and skating in the winter.

The Conservation Commission has been given the stewardship responsibilities for both of these properties.

## Objectives of the ERT Study

The Commission will use this ERT report as a reference document to assist in the stewardship of these properties. They have asked that the ERT make recommendations for the appropriate use and management for the Renn Property in keeping with the stipulation that the property be used for open space/passive

recreation. The Commission would like to initiate a park improvement plan for the Dennis Pond parcel and they do have some limited funds for this purpose. The ERT was asked to provide information and guidelines on improving the park for wildlife, nature study, trail development, demonstration areas, natural landscaping using native plants, group camping, and educational opportunities.

### **The ERT Process**

Through the efforts of the conservation commission this environmental review and report was prepared for the Town of Stafford.

This report provides an information base and a series of recommendations and guidelines which cover the topics requested by the commission. Team members were able to review maps and aerial photos provided by the town.

The review process consisted of four phases:

1. Inventory of the site's natural resources;
2. Assessment of these resources;
3. Identification of resource areas and review of plans; and
4. Presentation of education, management and land use guidelines.

The data collection phase involved both literature and field research. The field review was conducted on Wednesday, June 2, 1999. The emphasis of the field review was on the exchange of ideas, concerns and recommendations. Being on site allowed Team members to verify information and to identify other resources.

Once Team members had assimilated an adequate data base, they were able to analyze and interpret their findings. Individual Team members then prepared and submitted their reports to the ERT coordinator for compilation into this final ERT report.

Figure 1.

Location and Topographic Map - Renn Property

Scale 1" = 2000'

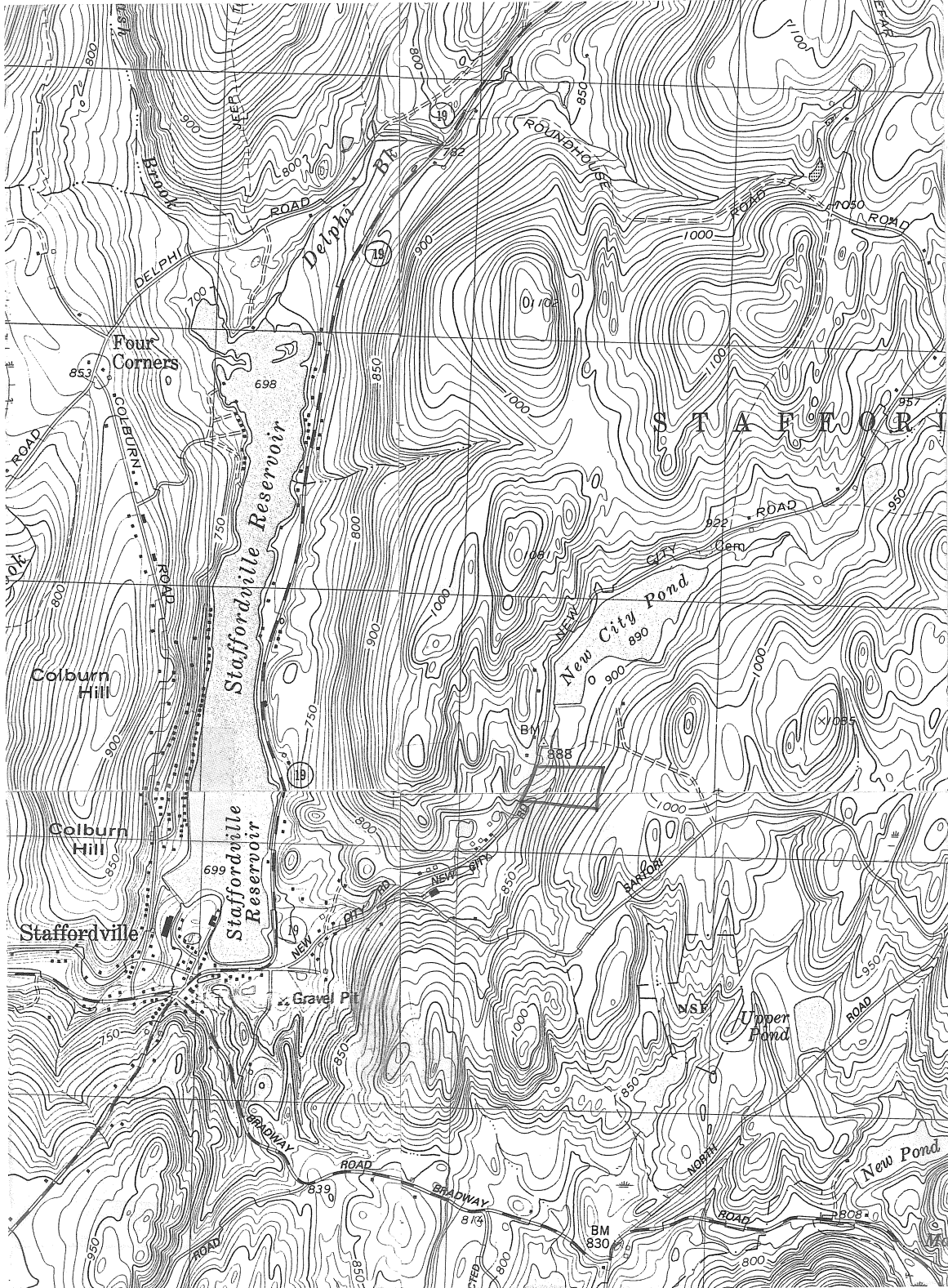




Figure 2.

Aerial Photograph - Renn Property

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N



Renn

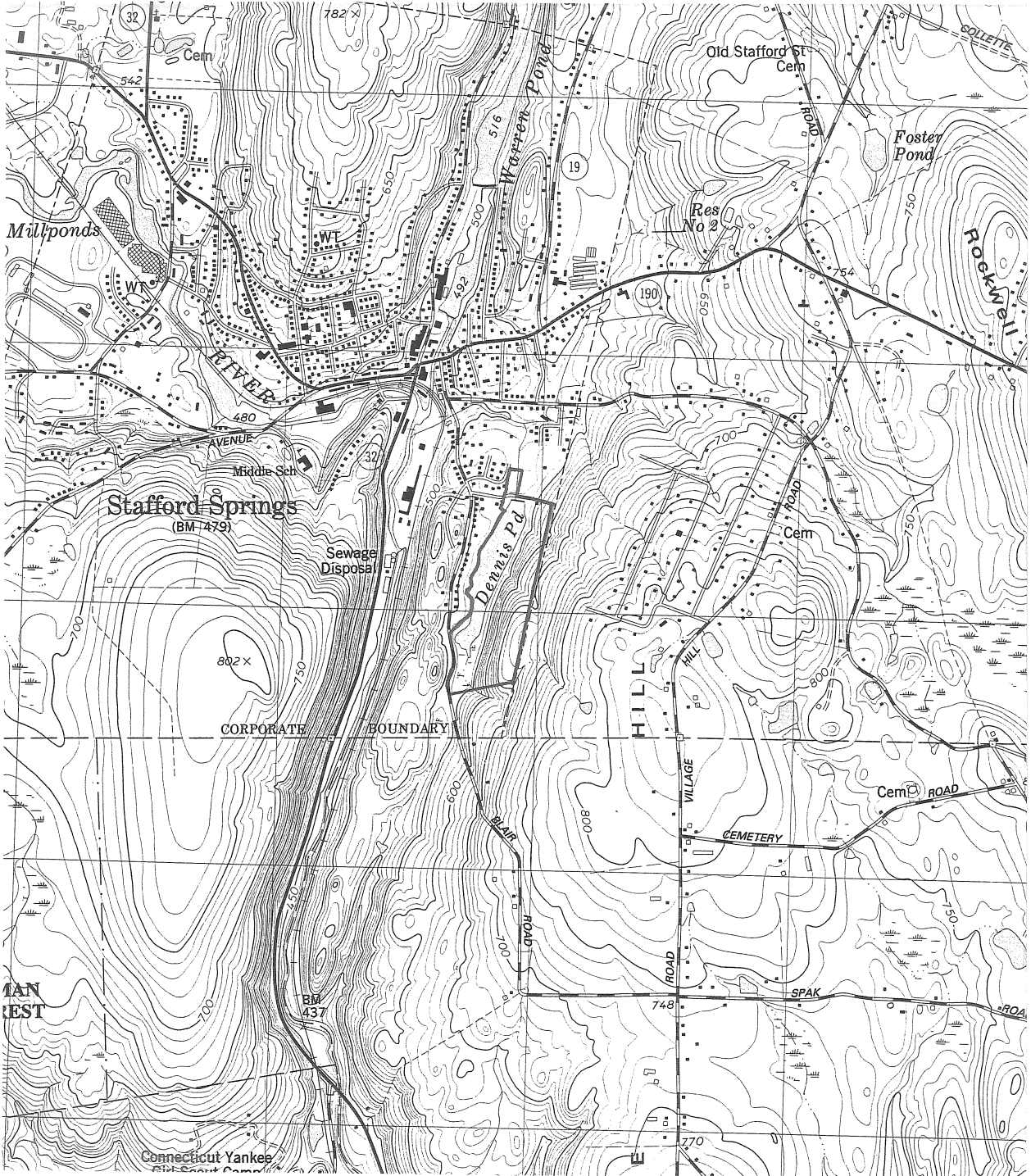




Figure 3.

Location and Topographic Map - Dennis Pond Property

Scale 1" = 2000'





# Topography, Surficial and Bedrock Geology

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## Renn Property

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The 12 acre Renn Property straddles the valley of a small unnamed stream that drains New City Pond. The hillslopes on both sides of the stream are relatively steep (1 in 6) and are mantled by a thin veneer of glacially deposited till. This material is compact, and very poorly sorted with grains ranging in size from microscopic clay to large angular boulders several feet in diameter. Large glacial erratics up to ten or more feet in size are scattered about the surface, especially along the stream. These boulders were probably carried high in the ice and were deposited when the ice melted. The till on the other hand was plastered directly on the scoured bedrock by the flowing ice. The last major ice sheet to cover the area probably reached a maximum thickness of several thousand feet roughly 20,000 years ago. The ice retreated north and disappeared from this area approximately 13,000 years ago.

Rusty weathering sulfide bearing schists belonging to the 500 million year old Brimfield formation (Obr on the State Bedrock Geology Map) outcrop along New City Road and lie beneath the discontinuous till veneer elsewhere on the site. Groundwater in these rocks is likely acidic and iron and sulfide rich. The well known "spring" of Stafford Springs is fed by waters from similar Brimfield rocks.

Additional information on the surficial and bedrock geology of the site can be found in:

Peper, J. D. and Pease, M. H. Jr., 1975, Geology of the Westford Quadrangle, USGS GQ-1214.

Rodgers, John 1985, Bedrock Geological Map of Connecticut 1:125,000, Connecticut Geological and Natural History Survey.

Seiders, V. M., 1976, Bedrock Geology of the Wales Quadrangle, USGS GQ-1320.

Stone, Janet, 1992, Surficial Materials Map of Connecticut 1: 125,000. Connecticut Geological and Natural History Survey.

# Topography, Surficial and Bedrock Geology

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## Dennis Pond Property

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Dennis Pond is an artificial 12.9 acre impoundment lying in a linear fault controlled valley. Slopes along its eastern shore are steep, whereas much gentler slopes characterize its western edge. A thin discontinuous layer of glacial till, (poorly sorted debris dragged along at the base of the last major ice sheet 20,000 years ago), blankets the hillsides. Sands and gravels transported by rapidly flowing glacial meltwaters, underlie the northern half of the pond and the flat area north of the dam. This material is relatively permeable and groundwater leakage from the pond is undoubtedly significant. However, the pond probably receives a major input of water from "springs" localized by fractured bedrock along the Hollow Brook fault (see Bedrock Geological Map). As the pond directly drains only 193 acres, the actual surface water contribution to its annual water budget must be limited.

Rusty weathering sulfide bearing schists belonging to the 500 million year old Brimfield formation (see Bedrock Geological Map) underlie the entire Dennis Pond property. Groundwater in these rocks is likely to be acidic and iron and sulfur rich. The well known "springs" of Stafford Springs are fed by waters from these rocks. A sliver of non-rusty weathering micaeous quartzite and schists of the 400 million year old Littleton formation outcrops just to the west of the pond.

Additional information on the Surficial and Bedrock geology of the site can be found in:

Pease, M. H., Jr., Bedrock Geology of the Stafford Quadrangle, USGS Open File Report (available at the Connecticut Geological and Natural History Survey, DEP).

Pease, M. H., Jr., 1975 Surficial Geology of the Stafford Springs quadrangle, USGS GQ-1216.

Rodgers, John, 1985, Bedrock Geological Map of Connecticut 1:125,000, Connecticut Geological and Natural History Survey.

Figure a  
Drainage Basin - Dennis Pond Property

# Drainage Basin, Dennis Pond, Stafford Springs, CT

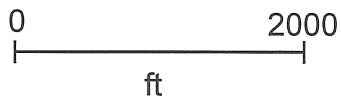
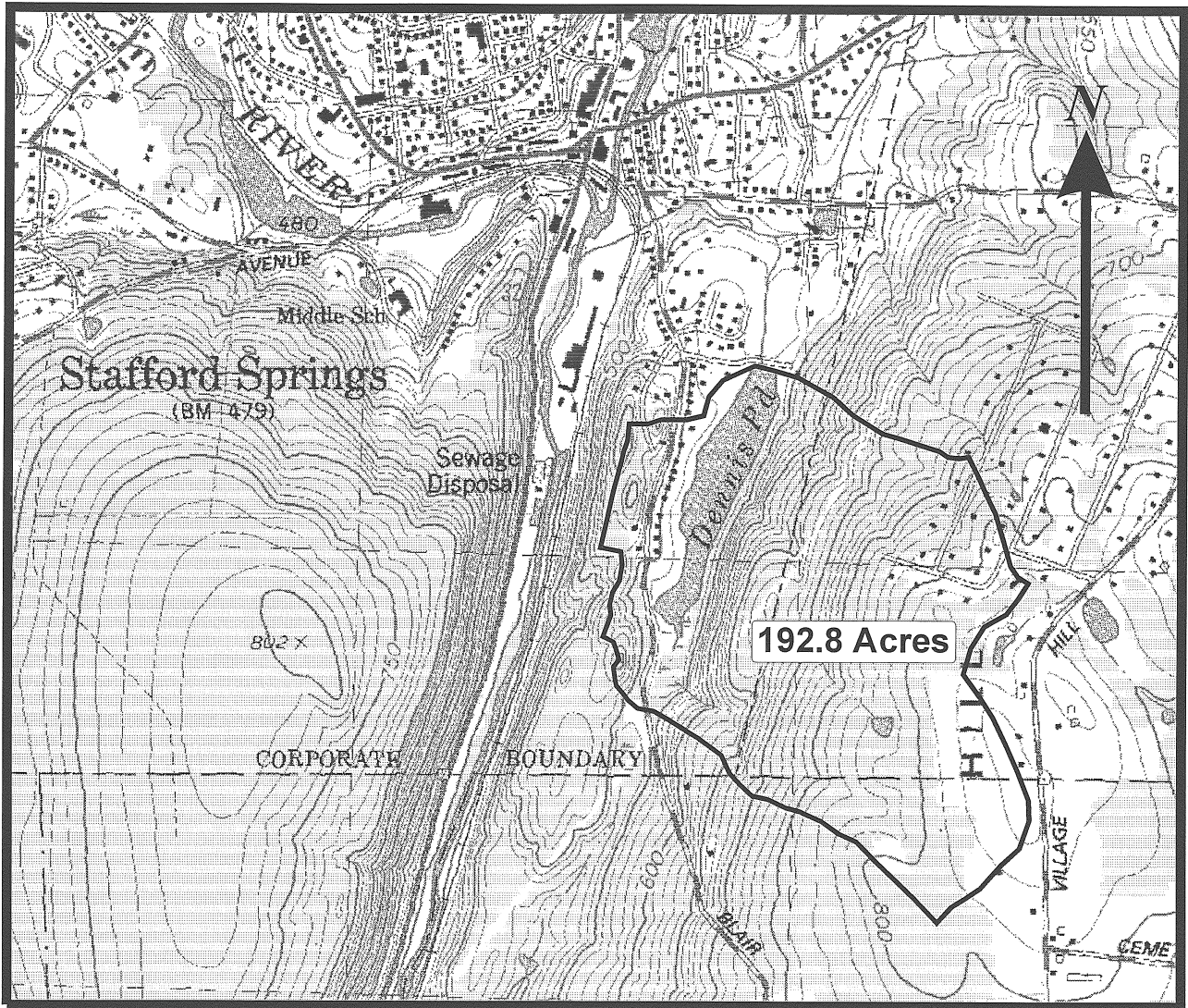
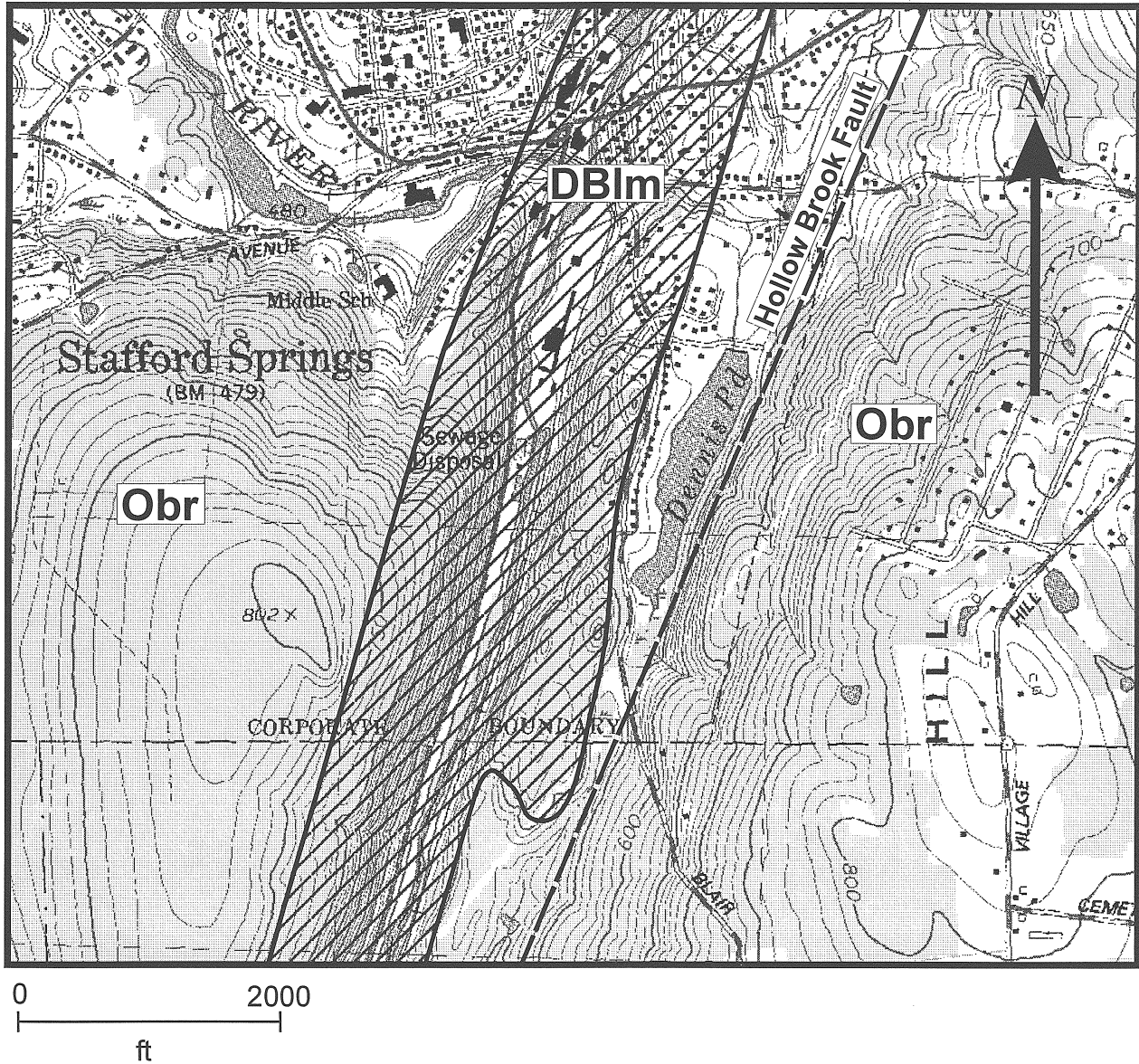


Figure b  
Bedrock Geology - Dennis Pond Property

## Bedrock Geology Dennis Pond, Stafford Springs, CT

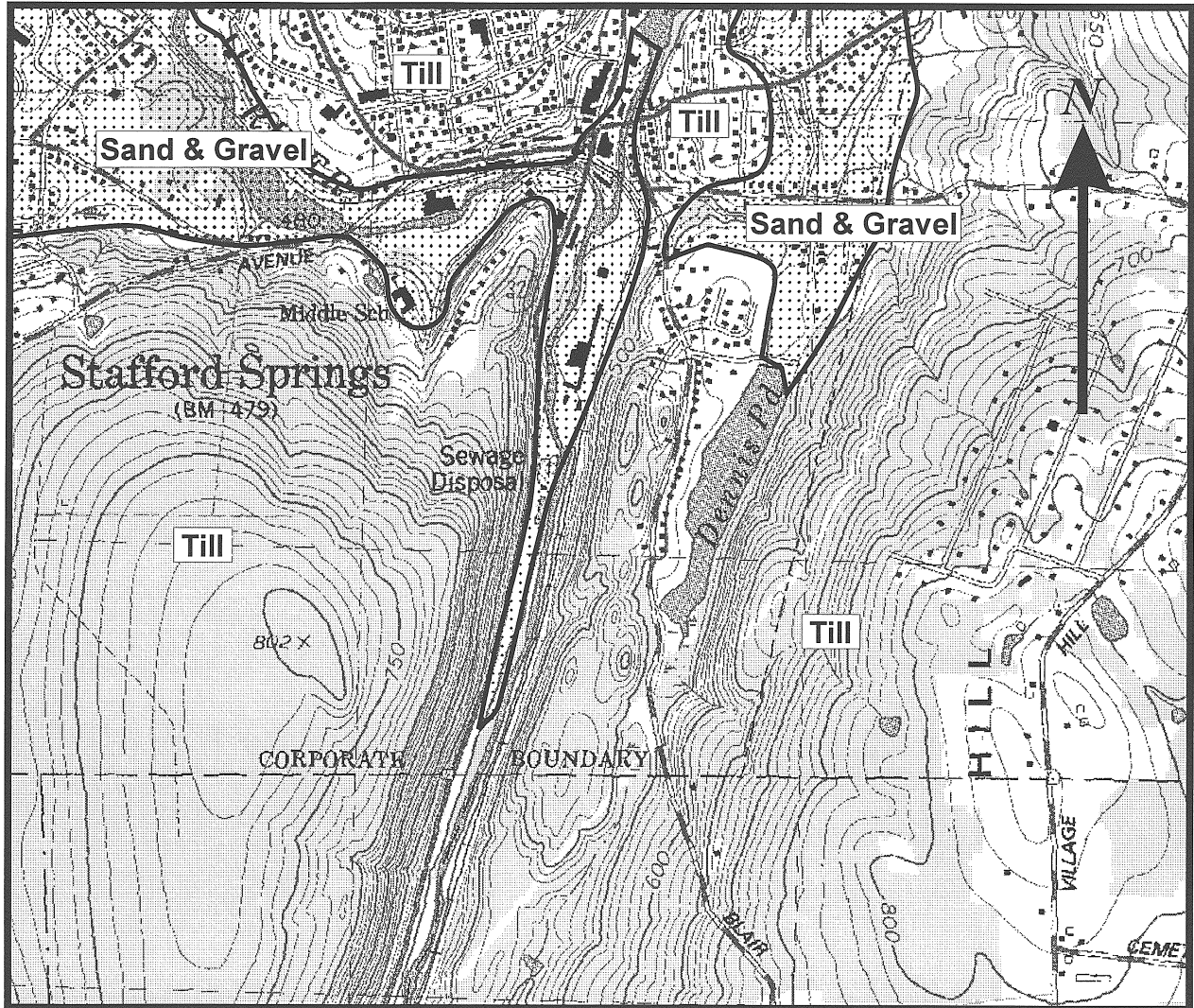


**Obr:** Rusty weathering Brimfield Schist

**DbIm:** Littleton micaeous quartzite and schist

Figure c  
Surficial Materials - Dennis Pond Property

# Surficial Materials, Dennis Pond Area, Stafford Springs, CT



0 2000  
ft





Figure 4.

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Aerial Photograph - Dennis Pond Property



# Soil Resources

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## Renn Property

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Upland soils on the site are limited to the Charlton series, specifically Charlton stony fine sandy loam, and Charlton very stony fine sandy loam.

There are no severe limitations for these soils related to potential uses (passive recreation, trails etc.). Erodability of the Charlton soils is in the medium range. Therefore, there is some erosion hazard for trails on slopes over 8 percent. If trails are to be cleared, efforts should be made to limit the length of the trails as they rise vertically up slopes. Moderate switchbacks and water bars should be sufficient to control erosion. Excessive use of footpaths may expose stones and rocks.

The only wetland soil on the site is Leicester-Ridgebury-Whitman very stony complex. This soil is limited to the stream corridor. No other wetlands were noted on the parcel, except for one small groundwater seep at the base of the slope, near the stream.

Detailed soil descriptions may be found in the Appendix.

Soils and geological features of the parcel are typical for Stafford Springs and have no special significance for educational purposes.

## Potential Uses

Most of parcel consists of uniform hardwood forest with an understory of mountain laurel. As such, the parcel is similar to other woodlands in Stafford Springs. Except for the stream, there are no special features that make the parcel particularly unique or noteworthy. While the property has value as open space and wildlife habitat, educational and recreational value is limited.

Both the stream and pond are within 200 feet of the road. These are the most aesthetically appealing features on the parcel and the area could be developed into a small picnic area. The following suggestions are offered:

- Develop a small gravel parking area along the road, limited to perhaps 5 parking spaces.
- Selectively clear a small area between the road and the pond to provide a view of the pond.
- Provide a marked trail from the parking lot to the pond.
- Selectively clear portions of the west side of the pond and provide a few picnic tables.
- Clear the berm around the pond of all trees and brush.

Unfortunately, the berm around the pond has been neglected and there are many small trees growing there. After the trees are cleared there is a possibility that voids in the berm will develop as the tree roots rot. Seeps may develop over time and may require repair. Allowing the trees to grow would eventually lead to failure of the berm, so clearing the young trees is the only option.

The pond is a good example of a pond created outside of the course of a stream, fed by a diversion. This is the preferred method for constructing ponds associated with streams, since this method eliminates many of the detrimental effects of in-stream ponds (blocking fish passage, heating of water etc.).

During the field inspection, there was discussion between Team members regarding possible detrimental effects to wildlife with intensive use of the area east of the stream for passive recreation. There was a general consensus that since the parcel is relatively small, its habitat value could be diminished with intensive use. For that reason, it is recommended that the area east of the stream be left relatively undisturbed. One possibility is to provide a single trail across the brook and then terminate the trail. This will encourage informal exploration of the property without encouraging intensive use on an organized trail network. The property boundaries should be clearly marked to reduce the potential for trespassing onto adjacent properties.

With the limitations suggested above, the parcel could be publicized to schools in Stafford to allow use of the property for education. Although there are no particularly noteworthy features on the parcel, there is value in studying the common features of a typical New England hardwood forest, stream, and pond.

Figure 5.  
Soils Map - Renn Property

Scale 1" = 1320'



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## Dennis Pond

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The entire east side of the pond consists of Gloucester and Charlton very stony soils. This undifferentiated mapping unit may consist of either soil in any combination. Both soils are very stony; the Gloucester soils may contain large boulders. On this parcel, there are also areas of steep, nearly vertical ledge. Areas of ledge and steep slopes will be the most limiting factors for trail development on the upland soils. There are also a number of intermittent streams and groundwater seeps on the property.

The park-like area on the west side of the pond consists entirely of Hinckley gravelly sandy loam. This soil is excessively drained and droughty. It will be difficult to maintain a grass cover on this soil with heavy foot traffic. Bare sandy areas have already developed along the edge of the pond with current use.

Both the Gloucester and Charlton soils are in the medium range for erosion hazards. Any trails constructed on the east side of the pond will have to be carefully planned to minimize erosion on slopes along the north and south property boundaries. Short cross backs and water bars will be required. The Appalachian Mountain Club publishes a good guide to trail maintenance on difficult areas.

Wetland soils consist of Peat and Muck within the swamp at the south end of the pond. There is also a very narrow and unmapped fringe of wetland along the east side of the pond.

Detailed soil descriptions may be found in the Appendix.

### **Potential Uses**

The west side of the pond already serves as an informal park. With the addition of the east side of the pond, this use can be expanded. The east side previously supported a

house and cabin. There was also a dirt road extending approximately 300 feet up the side of the pond, with access across the dam. The road is currently overgrown with brush. Since this area along the pond has a relatively level grade, it has the most potential for expanded use. Following are some suggestions for consideration:

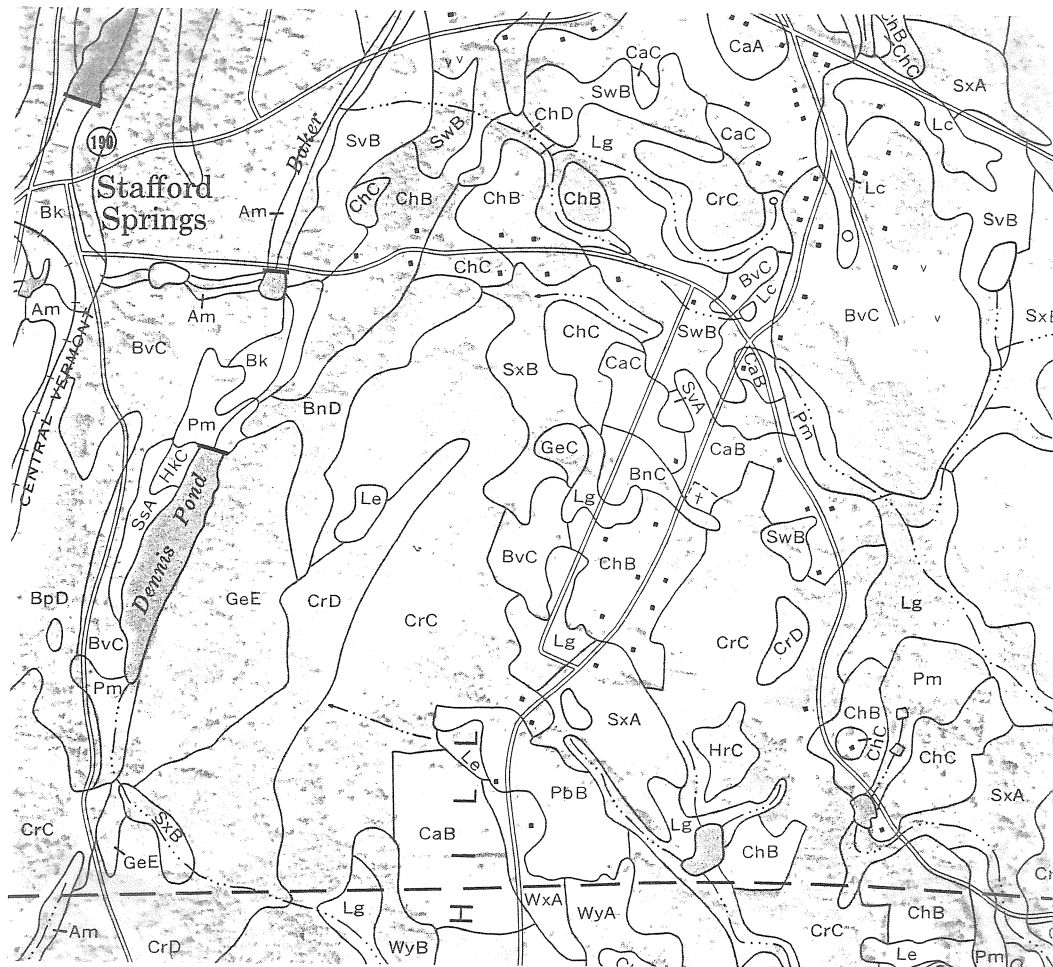
- Parking should be confined to the west side of the pond and a more defined parking area should be developed.
- A sign should be erected proximate to the parking area to spell out rules for use of the park. It is assumed the town will want to restrict swimming to avoid liability issues.
- The extent of clearing on the east side of the pond will help guide use of the area. There are a number of sections along the first 200 - 300 feet that could be developed into picnic areas or fishing spots. Fishing areas would have to be more extensively cleared to allow casting. If picnic areas are developed, it might be necessary to move the existing trail along the side of the pond to a location a little further up the slope.
- Currently, the west side of the pond appears easy to access with hand carried boats (kayaks, canoes, etc.). Carry-in boat access locations should be marked with signs. If picnic areas are developed on the east side, people will choose their own areas unless they are marked. The swamp at the south end of the pond can be canoed and appears to have a diverse vegetative cover. It should be highlighted as a point of interest on signs.
- The upland area on the east side of the pond is large enough to support a trail around the perimeter without disturbing the interior portions of the property. The steepest slopes are also within the interior of the parcel and should be avoided where possible. There is an existing trail running up the north side of parcel to the utility line. This trail would have to be improved in some locations. The entire perimeter was not walked so this Team member is not familiar with the entire east and southern boundaries. The southernmost portion of the upland appears to contain steep slopes and some ledge. A number of intermittent streams will also be

encountered during trail construction. As stated previously, the lower trail should be moved upslope 20-30 feet if picnic areas are to be developed along the pond.

- The town parks and recreation staff should be contacted to discuss maintenance issues such as trash removal, etc.
- If not already done, the town should have the dam inspected by the DEP's dam safety division.
- Although the town apparently owns a legal easement along the west side of the pond, enforcement of the easement is not advisable, given the existing use.

Figure 6.  
Soils Map - Dennis Pond Property

Scale 1" = 1320'





## The Natural Diversity Data Base

The Natural Diversity Data Base maps and files regarding the project areas have been reviewed. According to our information, there are no known extant populations of Federal or State Endangered, Threatened or Special Concern Species that occur at the sites in question.

Natural Diversity Data Base information includes all the information regarding critical biologic resources available to us at the time of the request. This information is a compilation of data collected over the years by the Environmental & Geographic Information Center's Geological and Natural History Survey and cooperating units of DEP, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Consultations with the Data Base should not be substituted for on-site surveys required for environmental assessments. Current research projects and new contributors continue to identify additional populations of species and locations of habitats of concern, as well as, enhance existing data. Such new information is incorporated into the Data Base as it becomes available.

It's now possible for you to conduct an initial endangered species review using the "State and Federal Listed Species and Significant Natural Communities" maps available for viewing through each town's town hall. The Town planner should have a copy of the map and instructions on how to use the maps. This map shows the generalized locations for listed species and communities as gray-shaded areas on a 1:24,000 scale map of the town.

# Forest Resources

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## **Renn Property**

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This ±12 acre parcel can be divided into two forest stands or management units. New City Brook serves as the dividing line between the two Mixed Hardwood stands. Below are descriptions of each of these forest stands. The location and acreage of each of these types were obtained from 1995 aerial photographs and are only approximate. These are depicted on the Vegetation Cover Type Map (Figure 7). A field reconnaissance of the site was completed on June 2, 1999. A more comprehensive inventory of the herbaceous vegetation which is present in each of these types should be made at different times throughout the year by a botanist.

A forest management plan was written for the property when owned by Claire Renn (letter of August 15, 1968 by Richard Harris, Service Forester, with map, see Appendix). Many of the management recommendations were carried out as evidenced by findings during the fieldwork and notes on the plan.

The hemlock which are present within the property are not presently infested with the Hemlock Woolly Adelgid. This insect can cause widespread hemlock mortality, significantly altering the species composition in the portions of the forest where it is found.

### Present Conditions

- **Management Unit 1, Mixed Hardwoods.**

This stand covers approximately 4 acres, and occurs west of New City Brook. The overstory is comprised of pole to sawtimber-sized sugar maple, white pine and white ash with an occasional yellow birch. Hemlock planted in 1969 and naturally established sugar maple form the sapling to pole-sized understory. A moderately open shrub layer

of viburnums, Japanese barberry\*, winged euonymus\* and an occasional multiflora rose\* exists, with spicebush, sweet pepperbush and winterberry being found near the brook. The ground cover consists of grasses, hardwood and white pine seedlings, and ferns. Skunk cabbage occurs along the brook.

The site has the potential to grow trees of good to excellent timber quality. Presently, the Management Unit is fully to overstocked with trees of good timber quality.

- **Management Unit 2, Mixed Hardwoods.**

Covering approximately 8 acres, this Management Unit occupies that portion of the property east of New City Brook. Red oak, black oak, sugar maple, red maple, white ash, white pine, hickory and white oak poles and sawtimber form the overstory. A number of these trees have a diameter at breast height (4-1/2' above ground) of 25 - 28". Aspen, a short-lived species, is also present in the overstory but is declining in health and vigor. An open understory of sapling-sized red maple, sugar maple, white pine, American chestnut, black oak and hickory is present. A moderately open shrub layer of witch hazel, spicebush, sweet pepperbush and viburnums occur in the numerous ephemeral drainages which are found on this portion of the parcel. On the slightly drier areas of this Management Unit, mountain laurel, lowbush blueberry and huckleberry are found. The mountain laurel occurs in small clumps and for some unknown reason much of it is short in stature. The ground cover consists of ferns, grasses, pine and hardwood tree seedlings and various other species of herbaceous plants. Skunk cabbage is abundant in the drainages.

Site quality is high and the stand is fully to overstocked with trees of good timber quality. Overall health and vigor of the trees within this Management Unit is good to excellent.

*\* Invasive non-native vegetation has become established on parts of the review site especially in open areas or areas open in the more recent past. Of special concern are several invasive plant species which have the potential to become major components of the ecosystem by out competing native species. These include barberry, multiflora rose, Japanese bittersweet, Japanese knotweed, winged euonymus and autumn olive. Although some of these species provide wildlife with food and cover, they are aggressive competitors with native plant species. In some areas, the presence of one or more these species may preclude the establishment of the more desirable native plant species. Mechanical removal and/or chemical control of these plants may be effective but will become more difficult as they become more widespread.*

## **Forest Management Recommendations**

- **Management Unit 1.**

This Management Unit could be managed to produce income from timber and to maintain or improve water quality and aesthetics. A crop tree release of 20 - 30 trees per acre could be performed to meet these objectives. A crop tree release focuses on selecting and releasing trees that will yield multiple landowner benefits based on the landowner's objectives for each stand. A crown touching release is then applied to free the selected crop trees from competing trees. Once released, the crop trees respond with accelerated growth and production on landowner benefits. Sugar maple would provide fall foliage and timber while the young trees, especially white ash, will accumulate nutrients. The hemlock should, if possible, remain shaded as the Hemlock Woolly Adelgid is less likely to be as destructive as in full sun. This release would not be a commercial sale, but might yield a small quantity of homeowner fuelwood.

- **Management Unit 2.**

Management objectives for this Management Unit might include income from timber, wildlife habitat, aesthetics, and water quality. While much of the present sawtimber might be removed in a commercial sale, a crop tree release of 15 - 30 trees per acre could be performed to meet the management objectives and create larger trees in the younger

age class. Red oak, black oak, white oak, sugar maple, white ash, white pine and hickory could be released.

An inventory of the Management Unit would be necessary to determine whether or not the crop tree release would be feasible as a commercial sale.

The groups of aspen may be regenerated by creating patch cuts of 0.3 - 0.4 acre in size. All trees 2" and larger diameter at breast height must be removed. These patch cuts would allow for the creation of an age class and wildlife habitat not presently represented on this property.

A Service Forester from the Department of Environmental Protection may be contacted to provide basic advice and technical assistance in forest management. These services are provided free of charge. Services of a more intensive nature such as timber marking and sale administration is available from certified private consulting foresters at a cost. These individuals are listed in the current edition of the *Directory of Certified Forest Practitioners* published the State of Connecticut Department of Environmental Protection, Division of Forestry. The *Directory* contains information of the Connecticut Forest Practices Act, including the different levels of certification and the activities permitted for each level.

### **Property Wide**

All non-native invasive plants should be eliminated or controlled prior to the commencement of any other forest management activity. Creating conditions to enhance tree growth will also improve the growing conditions for the invasive allowing further development and spread.

The trees and shrubs should be removed from the dam to prevent its failure due to water seepage following the root systems. Grasses or other herbaceous vegetation

should be established and mowed at least annually to prevent the reestablishment of woody plants.

### **Demonstration Area**

The property might be used as a demonstration area to showcase forest management and other stewardship activities on small parcels. It may be formal with established plots or displays or informal being used as needed to convey ideas or concepts. A limiting factor in the use of this parcel as a demonstration area is the small number of Management Units. One highlight might be to identify sugar maple released in 1969 and now released for the second time.

Use of this property as an outdoor classroom by town schools is dependent upon the land area available at the schools proper, the travel time to and from the schools, amount of diversity of this property in relation to the diversity of the school properties. A parking area for buses would likely have to be constructed.

### **Limiting Conditions/ Potential Hazards**

Hemlock occurs as scattered trees and small groups on portions of the parcel. Many of these trees were planted following the recommendations of the 1968 management plan. Infestation by the Hemlock Woolly Adelgid was not found during the field reconnaissance. The Hemlock Woolly Adelgid is a small aphid-like insect that feeds on young Eastern hemlock twigs during all seasons of the year with the greatest damage occurring in the spring. The loss of new shoots and needles seriously impairs the hemlock's health and vigor. The Adelgid is dispersed by wind, birds and mammals and is at the present time almost impossible to control in a forested environment. Cultural and chemical control methods have proven to work well in ornamental landscape. Biological control agents such as the Asian ladybird coccinellid beetle show promise, but widespread availability and use is probably years off.

Defoliation and resulting mortality can occur within several years after infestation. Infested hemlock in a given area will die at varying times but will deteriorate quickly

after death. Although standing dead hemlock provide excellent foraging and cavity nesting habitat for many species of birds, they do create problems. Dead hemlock trees not only pose a direct threat to the safety of people and property, they may also pose a long term wildfire hazard and are generally not aesthetically pleasing. Hemlock, once dead, has no timber salvage value and therefore the Town would incur costs if removals become necessary.

Potential hazards throughout the property include dead trees, dead tree parts and those trees whose roots or trunks have a high probability of failing due to excessive decay, lean, severe crowding, or poor form. These trees become hazard trees if there is a high probability of them falling and injuring people or damaging property. All trees with the above mentioned characteristics would be hazardous if located within striking distance of a structure or utility, and/or along areas of high use such as hiking trails or roads.

Any creation of large openings in the forest will increase the susceptibility of the trees to windthrow at the leeward edge of the openings. Trees adjacent to or in openings that are created on soils with a high moisture content or on windward slopes will have the greatest risk for windthrow. These newly exposed trees are also susceptible to ice, snow and wind storms which may cause considerable crown breakage.

Access to Management Unit 2 will require a stream crossing. When harvesting timber, a temporary bridge should be installed for the duration of the operation. Upon completion of the operation, the bridge should be removed and the approaches stabilized with seed and mulch. A narrow width footbridge, to preclude use by ATVs, should be constructed if hiking trails are created or the property is used as a demonstration area.

Figure 7.  
Vegetation Cover Type Map - Renn Property



↑  
NORTH  
SCALE: 1" = 1000'

**LEGEND**

- > STREAM
- STRUCTURE
- PROPERTY BOUNDARY
- 2 MANAGEMENT UNIT

**VEGETATION COVER TYPES**

- MANAGEMENT UNIT 1 MIXED HARDWOODS
- MANAGEMENT UNIT 2 MIXED HARDWOODS



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## Dennis Pond

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This parcel of approximately  $\pm 40$  acres may be divided into 4 vegetative management units in addition to the open water of Dennis Pond. These include Hemlock/White pine with Mixed Hardwoods, Open Field, Old Field and Marsh/Hardwood Swamp. Below are brief descriptions of each of these vegetation management units. The location and acreage of each of these types were obtained from 1995 aerial photographs and are only approximate. These are depicted on the Vegetation Cover Type Map (Figure 8). A field reconnaissance of the site was completed on June 2, 1999. A more comprehensive inventory of the herbaceous vegetation which is present in each of these types should be made at different times throughout the year by a botanist.

Some of the hemlock which are present within the property are lightly infested with the Hemlock Woolly Adelgid. This insect may cause widespread hemlock mortality, significantly altering the species composition in the portions of the forest where it is found.

- **Management Unit 1, Hemlock/White Pine with Mixed Hardwoods.**

This management unit covers approximately 26 acres and occupies the steep to moderately steep slope east of Dennis Pond. The slope has a west to northwest aspect. Hemlock and white pine comprise 60% or more of the overstory with the remainder being mixed hardwoods, primarily black birch, red maple, yellow birch, sugar maple, black oak, red oak and hickory. These trees are in the sawtimber size classes. An understory of hemlock and hardwood saplings and poles exists. The shrub layer of mountain laurel, witch hazel, viburnums and Japanese barberry\* and the ground cover of ferns and grasses occurs in areas where at least partial sunlight reaches the forest floor. Areas fully shaded by the hemlock crown canopy have only a ground cover, being needles.

The site has the potential to grow trees of good timber quality. Presently, the site is fully stocked to overstocked with trees of good timber quality.

- **Management Unit 2, Old Field.**

An old cottage site; the lawn, driveway and utility (pole line) clearing are reverting to woodland. The pioneer invaders have begun to populate this one (1) acre area. Seedling to sapling size aspen, black birch and red maple together with shrub species such as willow, alder, highbush blueberry and barberry\* form a dense cover. Scattered sawtimber-sized white pine and red maple occur near the old foundation and along the shore. Most of these larger trees have been damaged by past wind, snow or ice storms due their exposure and lack of complete crown closure.

This site is fully to overstocked, however, few of the trees present have the potential to produce timber. Travel through this management unit, because of the density of the trees and shrubs, is limited to the hiking trail along the old driveway. The site has the potential to grow trees of good timber quality.

- **Management Unit 3, Marsh/Swamp.**

Occupying 2 acres, this management unit is comprised of a marsh vegetated with sedges, rushes and cattails transitioning into a swamp very lightly stocked with seedling to sapling-sized red maple and black gum trees and shrubs such as buttonbush, spicebush and sweet pepperbush. The gradation from marsh to swamp occurs as one travels in a southerly direction.

The site has little potential to grow trees of timber quality due to the high water table which causes shallow rooting making the trees susceptible to windthrow.

- **Management Unit 4, Open.**

This open land at the north end of Dennis Pond forms this management unit. Included in these 2 acres is the parking area, garage, gazebo and beach west of the dam, the dam and the old house site east of the dam. The majority of the area is grass covered with portions receiving vehicular traffic covered with gravel. Scattered trees of the sapling, pole and sawtimber classes are found in this management unit. Most appear to have been planted either as buffers or specimens. Present are white pine, chestnut, black oak and red maple. The single large hemlock near the garage is heavily infested with hemlock woolly adelgid. Various shrubs are present including viburnums, spicebush, sweet pepperbush and multiflora rose\*.

Present use of the site precludes growing trees for wood product, however, the site is suitable for growing trees.

- **Management Unit 5, Water.**

Dennis Pond covers 9 acres.

*\*Invasive exotic vegetation has become established on parts of the review site especially in open areas or areas open in the more recent past. Of special concern are several invasive plant species which have the potential to become major components of the ecosystem by out competing native species. These include barberry, multiflora rose, Japanese bittersweet, Japanese knotweed, winged euonymus and autumn olive. Although some of these species provide wildlife with food and cover, they are aggressive competitors with native plant species. In some areas, the presence of one or more these species may preclude the establishment of the more desirable native plant species. Mechanical removal and/or chemical control of these plants may be effective but will become more difficult as they become more widespread.*

## Limiting Conditions/ Potential Hazards

Hemlock occurs as the principal tree in much of Management Unit 1. A light infestation of Hemlock Woolly Adelgid in some of the hemlocks was noted during the field reconnaissance. The Hemlock Woolly Adelgid is a small aphid-like insect that feeds on young Eastern hemlock twigs during all seasons of the year with the greatest damage occurring in the spring. The loss of new shoots and needles seriously impairs the hemlock's health and vigor. The Adelgid is dispersed by wind, birds and mammals and is at the present time almost impossible to control in a forested environment. Cultural and chemical control methods have proven to work well in ornamental landscape. Biological control agents such as the Asian ladybird coccinellid beetle show promise, but widespread availability and use is probably years off.

Defoliation and resulting mortality can occur within several years after infestation. Infested hemlock in a given area will die at varying times but will deteriorate quickly after death. Although standing dead hemlock provide excellent foraging and cavity nesting habitat for many species of birds, they do create problems. Dead hemlock trees not only pose a direct threat to the safety of people and property, they may also pose a long term wildfire hazard and are generally not aesthetically pleasing. Hemlock, once dead, has no timber salvage value and therefore the landowner will incur costs if removals are necessary.

Potential hazards throughout the property include dead trees, dead tree parts and those trees whose roots or trunks have a high probability of failing due to excessive decay, lean, severe crowding, or poor form. These trees become hazard trees if there is a high probability of them falling and injuring people or damaging property. All trees with the above mentioned characteristics would be hazardous if located within striking distance of a structure or utility, and/or along areas of high use such as hiking trails, lawns, driveways or roads.

The creation of openings in the forest will increase the susceptibility of the trees to windthrow at the leeward edge of the openings. Trees adjacent to or in openings that are created on soils with a high moisture content or on windward slopes will have the greatest risk for windthrow. These newly exposed trees are also susceptible to ice, snow and wind storms which may cause considerable crown breakage.

Construction activities that occur too close to trees that are to be retained will adversely affect their health, vigor and longevity, potentially creating future hazard trees. Trees are very sensitive to the condition of the soil within the entire area of their root systems which extends well beyond the spread of their crowns. Excavation, filling and the general use of heavy machinery will lead to some degree of soil compaction that will adversely affect the soil moisture and aeration balance. This imbalance could lead to a decline in tree health and vigor and may even lead to tree mortality within three to five years. Physical damage to the root system (by excavation) or bark damage may allow the introduction of decay organisms which may result in the decline of a tree's health over time. The older and/or larger a tree is, the more readily it is affected by the negative impact of construction related activities. The delayed effect of construction activities on trees can create future problems that are expensive to rectify once improvements are in place.

### **Aesthetic Considerations**

The aesthetics of a forest depends upon the numerous characteristics of the individual trees, the forest as a whole and the landscape. Some of these characteristics include: size of the trees, density of the forest, variety of the forest scenes, unique or interesting features, amount of dead or down woody material, depth of view into the forest, and visual attractiveness of the bark texture and leaf and flower color. Generally, forests with large trees and a deep unobstructed view into the woods are most desirable.

Loss of the hemlock overstory in Management Unit 1 will drastically change the aesthetics of the area by reducing the average size of the trees, the density of the forest and the depth of view into the forest as tree regeneration develops. Tree species

composition of this Management Unit will change from Hemlock/White pine with Mixed Hardwoods to Mixed Hardwoods with a component of white pine as regeneration of black birch, yellow birch and red maple begin to occupy the site. Some oak regeneration may also become established. These species are more shade tolerant than white pine and thus are able to become established as the hemlock crowns thin.

### **Forest Management Recommendations**

- **Management Unit 1, Hemlock/White Pine with Mixed Hardwoods.**

Hemlock forests can resist and/or recover from hemlock woolly adelgid infestations. Hemlocks located on northwest to northeast facing slopes and those in valleys and riparian zones appear to have the chance for long term survival. This Management Unit occupies the lower slope position of a west to northwest aspect. Options for management include:

1. Do nothing and allow the infested hemlock to die. As mortality of the hemlock occurs, hardwood regeneration will become established. Falling trees or parts of trees will create an extreme hazard to users of the property and create a liability for the Town.
2. Use pesticides to control the hemlock woolly adelgid. Impractical on forestland as spraying is cost prohibitive and difficult to implement.
3. Harvest infested hemlocks prior to the occurrence of mortality. A commercial sale would capture the economic value of the hemlocks but might eliminate a population of trees able to withstand the infestation. The site should be prepared for natural regeneration of white pine and hardwoods as part of the harvest's objectives.
4. Underplant infested stands with a native or non-invasive non-native conifer to maintain or restore the site as a conifer-hardwood stand. White pine, already



present on site or red spruce, found in northwestern Connecticut are two natives which might be planted on this site. Norway spruce, a non-invasive, non-native has been widely planted in northeastern Connecticut. These tree species would provide many of the same values and benefits as hemlock. The plantings may require protection from deer browsing for five to seven years following establishment.

5. Develop a forest resource/silvicultural prescription to harvest and/or salvage the hemlock prior to widespread mortality and to establish regeneration either naturally or artificially. This prescription would over the long run restore the aesthetics and timber value of the Management Unit while maintaining wildlife habitat and water quality.

Following Option 5 is the best recommendation at this time. Annual monitoring of the infestation should be undertaken during the period from late March to early July. As the hemlocks do not die in the first year of a heavy infestation, unless attacked by a second pest, typically looper or scale, time is available to develop a forest resource/silvicultural prescription to manage this Unit. Prior to conducting a harvest, an effort should be made to eradicate or control the non-native invasives within this Management Unit to prevent their further spread.

- **Management Unit 2, Old Field.**

The old cottage site should be cleaned up, filled in and a ground cover established. Non-native invasives should be eliminated or controlled at this time. A planting of suitable native shrubs or trees may be undertaken to create more diversity on site. If deer browsing is detected, seedling protection would be necessary. The storm damaged trees should be removed if they present a hazard to users of the area.

- **Management Unit 3, Marsh/Swamp.**

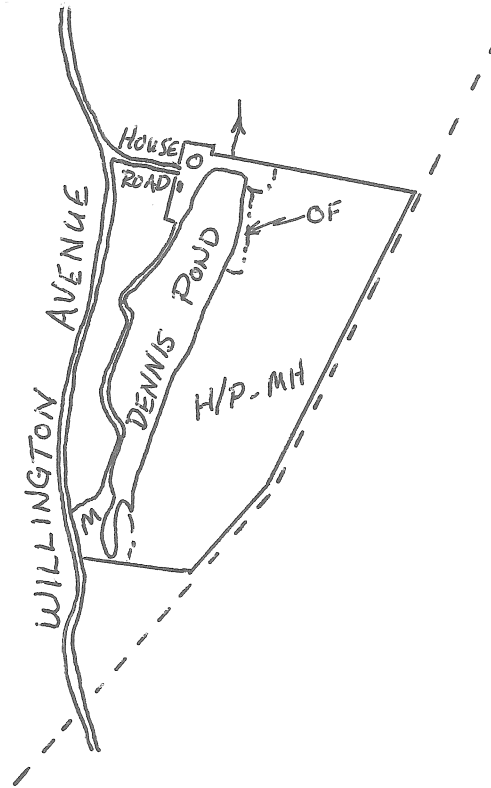
No forest management recommendations are made for this Unit at present other than to monitor for the invasion of non-native vegetation.

- **Management Unit 4, Open.**

The non-native invasives within this Unit should be eliminated and replaced with native vegetation if warranted. Pruning of the trees and shrubs to remove dead or damaged parts and to correct shapes should be undertaken before the next growing season. The single large hemlock, which is heavily infested with Hemlock Woolly Adelgid, should be removed if not sprayed annually, as it serves as a reservoir to spread the infestation into the nearby woodlands.

If this area is heavily used, a defined parking area should be created to prevent or lessen vehicle tree conflicts and soil compaction.

Figure 8.  
Vegetation Type Map - Dennis Pond Property



↑  
NORTH  
SCALE: 1" = 1000'

**LEGEND**

- STREAM
- STRUCTURE
- - - - UTILITY RIGHT OF WAY
- — — — PROPERTY BOUNDARY
- · - · - COVER TYPE BOUNDARY

**VEGETATION COVER TYPES**

- H/P-MH MANAGEMENT UNIT 1: HEMLOCK/WHITE PINE with MIXED HARDWOODS
- OF MANAGEMENT UNIT 2: OLD FIELD
- M MANAGEMENT UNIT 3: MARSH/SWAMP
- O MANAGEMENT UNIT 4: OPEN

## Water Quality and Forest Management

Healthy woodlands provide a protective influence on water quality. They stabilize soils, reduce the impact of precipitation and runoff, and moderate the effects of adverse weather conditions. By so doing, woodlands help to reduce erosion, sedimentation, siltation and flooding. Research has shown that soil protected by the cover of leaf litter and humus associated with woodland areas contributes little or no sediment to streams.

Improper and careless harvesting of timber for development or commercial purposes may, however, lower water quality in several ways: 1) Erosion, siltation and sedimentation caused by improperly located and improperly constructed access roads, skid trails, yarding areas and stream crossings; 2) Siltation and sedimentation caused by logging debris left in streams, interfering with natural flows; and 3) Thermal pollution resulting from complete or partial harvesting of streambank vegetation, eliminating shade.

In 1979, a field study and analysis of timber harvesting operations in Connecticut revealed no significant contribution to the degradation of water quality. However, this study did identify sedimentation resulting from erosion as a principal potential problem. Felling trees does not generally cause erosion. Approximately 90% of sedimentation from harvesting operations originates from exposed soil on logging roads, skid trails and yarding areas. Most erosion and sedimentation associated with woodland harvesting activities occurs during and immediately after harvesting. The basic principles of erosion control needed to reduce or avoid damage to the environment include:

1. Disturb as little land as possible.
2. Use erosion control measures to protect disturbed areas.
3. Reduce the speed and volume of runoff.
4. Divert runoff from disturbed areas.

5. Install perimeter controls around disturbed areas.
6. Conduct conscientious maintenance of erosion controls.
7. Assign someone the direct responsibility of implementing and maintaining erosion control measures.

For more in-depth information, please see "TIMBER HARVESTING AND WATER QUALITY IN CONNECTICUT; A Practical Guide for Protecting Water Quality While Harvesting Forest Products" . Prepared by: (the) Connecticut RC&D Forestry Committee, 1998. This publication and additional technical advice and information on best management practices, forest products harvesting or other aspects of forest management may be obtained from:

Department of Environmental Protection  
Division of Forestry  
79 Elm Street  
Hartford, CT 06106-5127  
Telephone: (860)424-3630

## **Conclusion**

Trees and forests have value in reducing climatic extremes, controlling runoff, filtering out pollutants from the air and water, reducing noise, providing aesthetic enjoyment, creating wildlife habitat, recharging aquifers, supplying wood fiber and functioning as a carbon sink. Healthy forests provide these long term amenities. Therefore, a good relationship between development and the retention of forested open space is essential if generations to come are to enjoy a high quality of life.

# Wildlife Resources

This report will address the following for the Renn property and the Dennis Pond property: current conditions for wildlife, educational opportunities, recommendations for habitat management and enhancement, planning for wildlife, and other considerations.

## Planning for Wildlife

As properties become developed, natural areas are divided into smaller, isolated pieces. Land that is in public ownership can be managed for wildlife habitat for the long term. In contrast, private land, which consists of 88 percent of the land in Connecticut, usually changes ownership and is mostly not managed for wildlife for the long term. Wildlife habitat near suburban areas can be places for citizens to enjoy wildlife.

## Balancing Use and Ecological Integrity of Open Space Property

Acquiring and/or maintaining town open space can have many positive effects for the people living there. The open space values to the town residents can range from gaining the ability to access natural areas for recreation or knowing that open space maintains a healthier or cleaner environment along with its clean water and habitat for wildlife. Municipalities are faced with decisions on how to utilize and manage their open spaces in ways which are ecologically responsible. With any land management decisions, some wildlife will ultimately benefit and some will not.

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## Renn Property

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### Current Conditions

The Renn property is comprised mostly of forested uplands with transition zones along a stream and a manmade pond. There is a diverse mix of native trees, shrubs, and herbaceous vegetation. There is no major infiltration of invasive non-native woody plants except for an occasional Japanese barberry (*Berberis thunbergii*). Understory vegetation in the uplands includes mountain laurel (*Kalmia latifolia*) which is characteristically low-growing (1 to 3 feet high) compared to patches growing on adjoining properties. Why it is so low is unknown, however, past vegetation management activities may have played a role in this (Harris, 1968). Deer browsing is evident throughout the understory. Fresh deer droppings and browsing of American chestnut sprouts and herbaceous vegetation along the brook was evident. A moderate deer browse line is evident in the forest.

### Field Observations and Notes

The following wildlife species were observed during the field visits either directly or indirectly by identifying calls, tracks, scat or other sign: whitetail deer (*Odocoileus virginianus*), weasel (*Mustela* spp.), gray squirrel (*Sciurus carolinensis*), eastern chipmunk (*Tamias striatus*), beaver (*Castor canadensis*), red-eyed vireo (*Vireo olivaceus*), ovenbird (*Seiurus noveboracensis*) [nest with five eggs], Eastern woodpeewee (*Contopus virens*) and largemouth bass and sunfish [in manmade pond].

### Discussion

Relative to the size of the town Stafford (about 37,583 acres), the Renn property is forested but quite small. Stafford is approximately 75 percent forested (DEP GIS data, 8/96). The surrounding properties are heavily forested as well. From a wildlife habitat perspective, the Renn property does not contribute significantly in terms of quantity of



forested land, however, its forest wildlife value is enhanced because it is surrounded by mature woodlands. An ovenbird nest which was discovered on the site visit, provides testimony that surrounding habitats greatly influence the wildlife use of the Renn property. Ovenbirds are good indicators of the presence of mature woodlands.

### Will Trails Impact Wildlife Value of Renn Property ?

Given the relatively small size of the Renn property, development of trails may negatively impact nesting forest wildlife. Depending on the extent of trail development and increased human activity, there could be negative effects on spring / summer nesting songbirds. Along with trail development, comes a host of human-related impacts. One impact that is very difficult to control is illegal off-leash dog walking. It is important for ground nesters and fledglings to not be disturbed by domestic dogs.

From a habitat and wildlife perspective, the Renn property can serve best as a reserve or sanctuary during the spring, summer and early fall. Limited activities such as fall archery deer hunting by permit or fall / winter hiking will not impact nesting wildlife.

If surrounding land use changes dramatically and there are houselots surrounding this small property, then more intensive use of the property will not have as much impact on nesting forest wildlife. At this time, however, the Renn property is a valuable part of a larger forest. Only limited access is warranted to maintain its value for nesting forest wildlife.

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## Dennis Pond Property

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### Current Conditions

The Dennis Pond property is comprised mostly of mixed forest uplands with transition zones along a manmade pond and powerline right-of-way. There is a diverse mix of native trees, shrubs, and herbaceous vegetation. Some presence of invasive non-native woody plants were found such as Japanese barberry (*Berberis thunbergii*) [forest understory] and autumn olive (*Eleaagnus umbellata*) [mostly along powerline right-of-way]. Currently the woolly adelgid does not appear to be having a major effect on the hemlocks in the forest, however a lone mature tree near the parking lot is heavily infested. There is the potential to spread the woolly adelgid insect from the eastern hemlock (*Tsuga canadensis*) near the parking area to the forest hemlock stand. Removal of the lone tree or adelgid control is warranted to prevent spread. Deer browsing is evident throughout the understory, but appears lighter than on the Renn property. There is evidence of past beaver activity along the southern portion of the pond. The swampy edges of this manmade pond are rich in plant diversity.

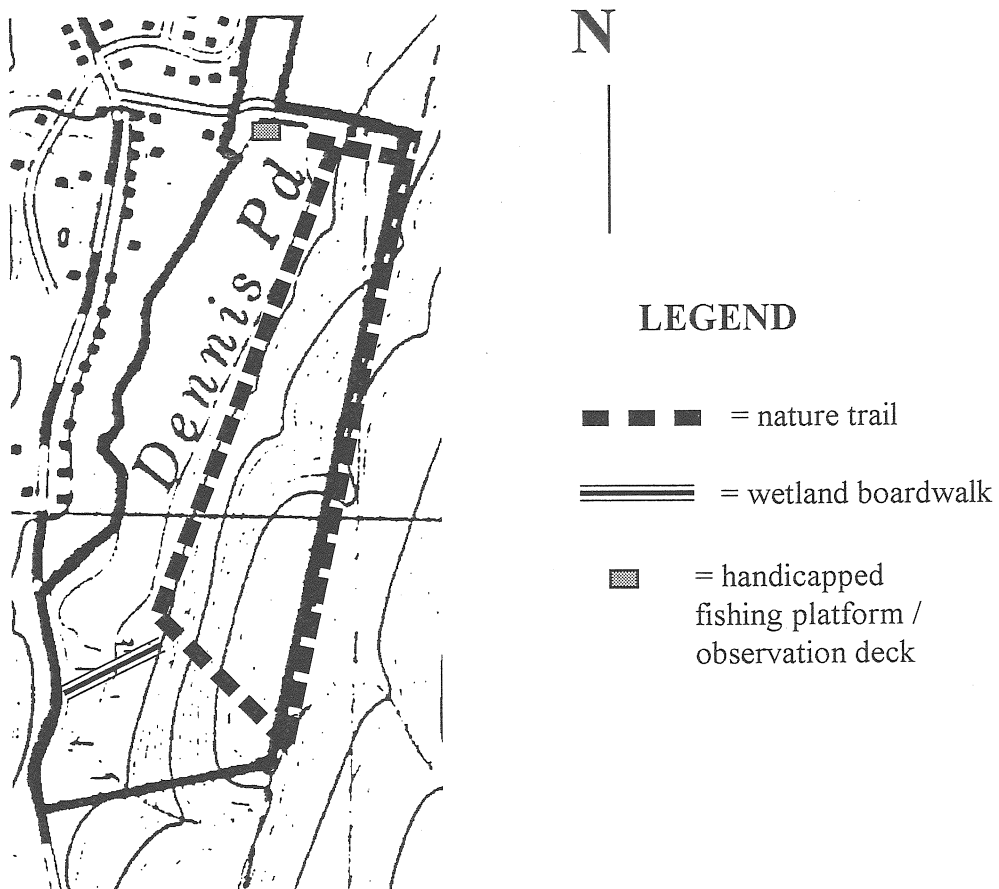
### Field Observations and Notes

The following wildlife were observed during the field visits either directly or indirectly by identifying calls, tracks, scat or other sign: whitetail deer (*Odocoileus virginianus*), gray squirrel (*Sciurus carolinensis*), eastern chipmunk (*Tamias striatus*), red squirrel (*Tamiasciurus hudsonicus*), beaver (*Castor canadensis*), red-eyed vireo (*Vireo olivaceus*), Eastern wood-pewee (*Contopus virens*) prairie warbler (*Dendroica bicolor*), yellow warbler (*Dendroica petechia*), blue jay (*Cyanocitta cristata*) and sunfish [in manmade pond]. A woman was observed walking an unleashed dog along the pond.

## Recreational Use and Trails

The Dennis Pond area has better potential for public use and trail development than the Renn property. A nature trail (see Figure 9) can be developed which begins at the pond's dam, goes east up through the hemlock stand, follows the powerline right-of-way and circles back along the pond's edge.

Figure 9. - Hypothetical layout of nature trail on Dennis Pond property, Stafford, CT.



### **Handicap Fishing Platform/Observation Deck**

A fishing platform for handicapped persons can be constructed in the northern quarter of the pond. This may also serve as an wildlife observation deck.

### **Wetland Boardwalk**

A wetland boardwalk can be placed in the southern reaches of the pond. This area is rich in plant diversity and wildlife viewing may be good as well. There is a pull-off area on Blair road which may serve as a connection. There was some question on the site visit as to whether or not the pull-off is on the Dennis pond property.

### **Vegetation Management along Powerline**

Powerlines serve as important shrubland/early successional habitat. However, management of invasive woody plants is necessary to maintain healthy native shrub diversity. The managers of the vegetation under the powerline need to better address the removal of invasive woody plants during routine vegetation management. Town officials should discuss vegetation management with the utility doing the work to better manage against the invasive species.

### **Habitat Enhancement**

The property can be enhanced by the planting of native trees and shrubs in appropriate areas in the parking lot and pond fringes. If trees or shrubs are planted they should be Connecticut native species. A list of suitable native trees and shrubs can be provided upon request. Diversification of food sources can enhance the property.

### **Nest Box Placement**

A wood duck nest box on a post in the southern half of the pond may benefit wood ducks or hooded mergansers. The box should be placed about 2 - 3 feet above the high water mark on a post.

Bluebird/tree swallow nest boxes can be placed in open field areas. Further field consultation is available from the Team wildlife biologist.

### **Trail Development and Maintenance**

The hypothetical layout of the nature trail will require serious planning to prevent erosion of soils. Vegetation clearing will be necessary and proper trail bed preparation. Some areas being traversed may be perennially or seasonally wet and may require special attention and maintenance. Trails should not be allowed to crisscross the property. Authorized trails should be well marked and unauthorized trails should be blocked off. Excessive numbers of trails lead to habitat degradation and wildlife values are diminished.

A numbered and selfguided trail with accompanying trail pamphlet or booklet is recommended for the enhanced learning and enjoyment of trail users. Stops or stations along the trail can be demarcated using sequentially numbered painted galvanized fence posts. Three inch diameter by four foot high galvanized posts can be cemented in at appropriate learning stations along the nature trail. The Team biologist is available for further consultation.

## **Conclusion**

The town of Stafford has a great opportunity to create passive and active recreational opportunities for its citizens to enjoy. This report has made some suggestions and recommendations regarding the potential wildlife impacts and enhancements that may be possible for the Renn and Dennis Pond properties. Fine tuning of these recommendations may be necessary once more definitive plans are developed by the town officials. In summary, the Renn property, at this time, has a higher wildlife value left as a reserve. The Dennis pond property offers greater opportunity to have public trails and other enhancements. The Team wildlife biologist is available for further consultation upon request. A site visit to Sessions Woods Wildlife Management Area in Burlington is recommended and other sites to visit are available upon request.

## **References Cited**

Harris, Richard. 1968, Woodland Description, Renn Property, Stafford, CT, August 15, 1968.



# Fisheries Resources

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## Renn Property

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The watercourse which outlets from New City Pond flows through the Renn property and into Staffordville Reservoir. The stream within this property is moderate to high gradient and characterized as containing step-pool habitat formed by large boulders. The CTDEP Fisheries Division has not sampled this watercourse, thus, no survey data are available. Based upon the stream's character and the fact that it receives warm, impounded surface waters from New City Pond, it is expected to support a warmwater fish community which consists of blacknose dace, white sucker and shiner species. It's very possible that warmwater fish that reside in New City Pond may pass through this watercourse as seasonal "blowdowns" during high flow periods. Blowdowns is a fisheries term that refers to fish that are blown or flushed out of pond habitats during freshets.

No fish were observed in the pond the day of the field review by the Team fisheries biologist, but the Team wildlife biologist did see a largemouth bass and a sunfish. Possible shallow water conditions in the bypass pond may limit long term fish survival.

### Recommendations

1. To improve aquatic habitat and enhance fish survival within the bypass pond, the pond would have to be dredged and deepened. According to standard pond management guidelines, the deepest portion of a pond should be approximately 10 feet deep and encompass a minimum area of 25% of the pond's surface acreage to prevent winterkills; taken from the publication "Small Ponds in Connecticut: A Guide for Fish

Management, DEP Bulletin 19." Also, portions of the mature vegetation along the edge of the pond would need to be cleared to provide better fishing access.

2. If dredged, the bypass pond could be stocked with warmwater pond fish. Largemouth bass/sunfish or largemouth bass/golden shiner combinations are recommended. The Team's fisheries biologist is available for future consultation relative to specific stocking recommendations.

3. A nature/hiking trail system could be developed on the property which follows through various aquatic and terrestrial habitat types. The established trail system should follow a closed loop, that is, begin and end at the same point and be well marked. The watercourse should be crossed with a clear span wooden bridge. Trail system design should avoid steep slopes next to the watercourse to minimize possible trail erosion.

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## Dennis Pond

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The pond contains suitable habitat necessary for the survival of warmwater pond fishes. Warmwater fisheries are resident freshwater finfish populations which can reproduce and survive in an aquatic environment where water temperatures exceed 75° F for extended periods.

Warmwater species expected to inhabit the pond would be: largemouth bass, pumpkinseed sunfish, bluegill sunfish, chain pickerel, yellow perch and brown bullhead. Pumpkinseed were observed spawning the day of the field review.

The pond has a balanced and diverse composition of aquatic vegetation. The littoral zone is dominated by water lily and pickerel weed. It is suspected that Dennis Pond contains a moderate amount of nutrients and would be considered to be in an "mesotrophic" state of eutrophication or aging. During the process of eutrophication, a pond typically passes through three major states of succession: oligotrophy, mesotrophy, and eutrophy. The transition from one state to the next may take thousands of years; however, eutrophication can be rapidly accelerated by man-made inputs of nutrients such as excessive soil erosion, stormwater runoff and septic leachate.

### **Recommendations**

1. Coldwater species such as trout could be stocked into the pond during early spring utilizing a "put-and-take" strategy in which most fish would be harvested from the pond before environmental conditions became unsuitable for survival. Removal of fish can be enhanced by holding a children's fishing derby. This management strategy will limit the number of fish living in the pond during the summer; hence, minimizing fish mortalities due to warm water temperatures. A total of 100 - 200 adult rainbow and brown trout are recommended. Brown trout are better able to temporarily

withstand warmwater pond habitats whereas rainbow trout are more easily caught by shoreline angling.

2. A formal trail system could be developed along the eastern side of the pond which follows the existing foot path. Boardwalks could be placed over wetlands to avoid impacting wetland soils.

3. It is important to minimize any development of the property which may introduce nutrients to Dennis Pond. Limit liming, fertilization, and the introduction of chemicals to residential house lawns. This will help abate the amount of additional nutrients to the pond.

4. The sand area along the west side of the dam should be stabilized with vegetation to minimize erosion into the pond.

5. Boating access to the pond should be limited to small car-top boats and canoes so as to protect and maintain existing water quality conditions.

# Park Recreation Review

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## Renn Property

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Recreation developments on this property are limited by its size. The property is wooded with primarily hardwoods and mountain laurel. A small pond has been created adjacent to the brook that flows near the western boundary of the property. East of the brook the property rises fairly steeply. Major recreational developments are not recommended. A picnic site with a table and parking space for two cars adjacent to the road could be added. Boundary lines should be clearly marked to prevent encroachment by adjoining land owners and to keep users on town property. To avoid future problems, a maintenance agreement between the commission and the town should be worked out before any new developments are created.

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## Dennis Pond

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Recreational developments could be considered on this property. It is located in the most developed and densely populated part of Stafford and is accessible to a large number of citizens. Boundaries should be marked to prevent conflicts with adjoining land owners. A single loop trail could be constructed to provide access to the property east of the pond. Because of the terrain this trail should be restricted to foot traffic only. Overlooks could be created from the higher steeper terrain. Fishing access is available at present and could be expanded by some trail improvements to the existing trail on the eastern edge of the pond. A few wet areas need to be hardened to prevent erosion from increased use. A youth group campsite to be used by town youth groups could

be considered. Permits for use and accountability could be secured from the commission. A possible site for this could be on one of the abandoned house sites. The area should be kept as natural and undeveloped as possible. Signage to explain the areas historic past and interpret the natural features could be placed along the loop trail. A map and guide to all of the conservation commissions properties should be published and available at the town hall.



# Appendix

## Soils Descriptions

### Woodland Description - Claire Renn

Prepared by Richard Harris, 1968

For Appendix Information Please contact the  
ERT Office at (860)345-3977

# ABOUT THE TEAM

The Eastern Connecticut Environmental Review Team (ERT) is a group of professionals in environmental fields drawn together from a variety of federal, state and regional agencies. Specialists on the Team include geologists, biologists, foresters, soil specialists, engineers and planners. The ERT operates with state funding under the supervision of the Eastern Connecticut Resource Conservation and Development (RC&D) Area — an 86 town region.

**The services of the Team are available as a public service  
at no cost to Connecticut towns.**

## 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 reviewing a wide range of projects including subdivisions, landfills, commercial and industrial developments, sand and gravel excavations, elderly housing, recreation/open space projects, watershed studies and resource inventories.

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 town commissions such as planning and zoning, conservation, inland wetlands, parks and recreation or economic development. Requests should be directed to the chairman of your local Soil and Water Conservation District and the ERT Coordinator. A request form should be completely filled out and should include the required materials. When this request is approved by the local Soil and Water Conservation District and the Eastern Connecticut RC&D Executive Council, the Team will undertake the review on a priority basis.

For additional information and request forms regarding the Environmental Review Team please contact the ERT Coordinator: 860-345-3977, Eastern Connecticut RC&D Area, P.O. Box 70, Haddam, Connecticut 06438.